AN ASSESSMENT OF THE STATE OF TOURISM IN VENICE:

A Quantitative Estimate and Characterization of Excursionist Tourists

An Interactive Qualifying Project Submitted to the Faculty of

Worcester Polytechnic Institute

In Partial Fulfillment of the Requirements for the Degree of Bachelor of Science

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Abstract

This project, conducted by Worcester Polytechnic Institute in conjunction with the Azienda di Promozione Turistica, aims to assess the state of tourism in Venice. It continued the research begun in 1999 by a WPI team, to actually count visitors coming to Venice for the day without spending the night, using a sophisticated methodology of visual identification. From the summer data collected, a full year estimate was made of 7.5 million excursionists. Additionally, a pilot face-to-face sample survey was conducted to characterize the excursionists by overnight plans, demographics, spending, and involvement in the celebration of Jubilee 2000.

Acknowledgments

Authorship Page

The five members of this team worked together on this project. Every member of this team wrote equal amounts of the Background. Furthermore, Marc was the primary writer for the Survey Methodology, and Survey Results and Analysis. Marianne and Russell were the primary writers of the Quantitative Methodology, Quantitative Results and Analysis, as well as the Abstract, Introduction, and Executive Summary. Francesco was a great help in translation and conversing with the APT. He also dealt with extrapolating the APT hotel records and Actv ticket sales, to obtain our yearly estimate. Amy was the primary writer of the Authorship page and the Acknowledgements, as well as the primary editor for all sections.

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1 INTRODUCTION

Tourism accounts for a large percentage of the economy in many areas of the world. The negative effects of tourism can overtake the economic sector, being one of the only positive effects, of tourism. In a study by Dr. J. van der Borg and Dr. G. Gotti, a phenomenon known as the "tourism paradox" was introduced. It says that tourism, in the long run, will destroy itself. When the pressures of tourism in a city reach a certain level, the socio-economic carrying capacity, pollution and congestion will significantly reduce the attractiveness of an area. As a consequence, the number of visitors will decrease drastically. The study concluded that if a city is based around tourism, it will follow a certain lifecycle in terms of the people that visit and the infrastructure it contains.

At fist sight, one would think that there is no danger of decline in tourism in Venice. Tourism is the most influential and obvious occurrence in the city of Venice. Jobs, dealing with tourism, account for a large percentage of the workforce in Venice. The city is entirely based around serving the tourist population to the point where the residents are paying higher prices for necessities. When this type of economic activity begins to occur, one believes that tourism is negatively affecting an area.

An excursionist tourist spends the day or only a few hours in a city but does not spend the night. The reasons behind excursionist tourism are simple. The visitor either does not have enough money to stay in a prime location such as Venice, there is no available space for them, or the subject has no desire or time to spend the night. The different types of excursionists are described in detail in the Methodology Chapter of this document. The excursionist population, during any period in the tourism lifecycle, is directly related to the phenomena of tourism in general. When tourism began to arise, people would visit a city for the duration of their vacation. Now that money and availability of transportation are adequate, tourists feel compelled to visit more cities on their vacations.

When an average of 22,000 excursionists visit the city of Venice each day, there is significant amount of impact on the city. In Venice, an excursionist can walk to any destination without utilizing any public transportation and can bring his or her own lunch and spend no money in the city, whereas a residential (overnight) tourist has to spend money on food and a hotel. In general, excursionists take more from a city than they give to it, whereas residential tourists support the economy on a much higher level. It is known that Venice and the Lido can only hold so many residential tourists (14,848 beds) but the excursionist population can grow to extremely high levels. This can occur for only a limited amount of time, due to the negative effects of an overpopulated region, at which point the population of excursionists will level off and then begin to decrease.

The goal of this project is to analyze where Venice stands in the tourism city lifecycle proposed by Dr. J. van der Borg and Dr. G. Gotti. To perform this analysis it was necessary to obtain as much data and information as could be collected about the tourism situation in Venice. The team first performed various counts to obtain the number of excursionists at the main entry points leading into Venice. A

method to visually identify excursionist tourist was established in 1999 by another WPI project team that helped us begin our study. After evaluating, testing, improving and retesting their methods, the Tourism 2000 team was ready to begin data collection. Once the counts were complete, the team received information regarding the number of residential, or overnight, tourists. This information was provided to us by the Azienda di Promozione Turistica (APT) and dealt with the total number of residential tourists for the year. We were then able to use this hotel information along with data obtained from the Azienda Consorzio Trasporti Veneziano (Actv) having to do with public transportation ticket sales, to extrapolate our counts to a full year approximation of the excursionist population in Venice for the year 2000.

The other aspect of our analysis of excursionists was the characterization of them - what type they are, where they come from and how much they affect the economy in Venice. To obtain this information, the team administered face-to-face surveys. The information that was gathered in the survey was then combined with the excursionist approximation and the residential data from the APT. The team was then able to place Venice into the aforementioned "lifecycle". We then recommend actions that could be taken to sustain, and hopefully improve, the quality of tourism in Venice.

2 EXECUTIVE SUMMARY

Venice with all her beauty is a popular tourist destination. Tourists flock to Venice to see the former Most Serene Republic with her canals and old buildings, along with St. Mark's Basilica and the Rialto. Congestion, trash and destruction accompany tourists if they occupy a site in extremely high numbers.

The objective of this Tourism 2000 project was to see where Venice stands in the "lifecycle" of a tourism city. After analyzing where Venice fits, we were able to determine what needs to be done in order to protect Venice from damage and eventual collapse. Tourists are overrunning the citizens of Venice and solutions must be made in order to have tourists and residents exist together. One of the goals of this project was to promote sustainable tourism, which is the co-existence of tourists and residents at a tolerable level.

The 1999 WPI tourism project team estimated the number of excursionist tourists entering Venice that year at approximately six million. Our mission was to perform a similar type of tourist estimate so as to compare to their numbers of excursionists, and also to gather information on this excursionist tourist population by way of face-to-face surveys.

Before identifying the excursionist tourists, we had to decide e xactly where we would count and survey them. The 1999 WPI tourism project team along with the Azienda di Promozione Turistica (APT) decided on the Santa Lucia train station, the Tronchetto bus terminal, the Piazzale Roma bus terminal, the Punta Sabbioni boat stop, a bus stop on the Pallestrina, and the Zattere boat stop. These were included because they were points of considerable amounts of excursionist influx. Our team conducted test counts at these sites and concluded that they were indeed points that have a considerable inflow of tourists.

In order to count excursionist tourists it was first necessary to identify them as such. Since it would be impossible to interview each tourist upon entry to find out his or her sleeping arrangements, we designed and utilized a visual identification method. The 1999 WPI tourism project team in Venice was the first to develop such a method. We re-evaluated the 1999 team's identification requirements and went out to the entry points previously described to determine whether or not there was room for improvement. We decided to update their findings in terms of excursionist dress, demeanor and accessories. Once we updated the observable traits of an excursionist, we had to go out in the field and test the visual identification of them. These tests were the first form of data collection pertaining to our project. Once we had our visual identification tests completed, and we were satisfied with our results, we were then prepared to test consistency between team members. These tests consisted of team members counting the same visitors at the same entry location at the same time. Results were compared and these

tests were continued until acceptable results prevailed (our final consistency was ±2%). We were then ready to count the excursionists with an extremely small amount of error between members.

The 1999 WPI project team concluded that the hours of 8:00 to 16:00 would account for over 95% of the excursionists entering Venice throughout the day. This year's team decided to count during these hours as well, in order to be able to compare results with the 1999 estimate with some amount of consistency.

Since the team was only in Venice for two months, we had to come up with a method to estimate the number of excursionists while we were there, and then extrapolate to a obtain a yearly estimate. The first decision was to count for a full day during both the week and the weekend at each of the previously mentioned sites, in order to have in our hands a general weekday and weekend day flow. Due to the limited manpower, two weekdays were counted and the numbers were combined to make an aggregate weekday. The same method was used to obtain a full weekend day. As expected, the team's counts resulted in a larger number of excursionists during a weekend day. The team estimated excursionist numbers to be around 22,500 on a general weekday during the summer, and around 28,140 for the general weekend day.

The next type of count that was conducted was for a full week at each site. This was done in order to get fluctuations of excursionists over a full week. The time period mentioned above was truncated in order to account for approximately 50% of the excursionist inflow. The new time period counted during each day of the week was from 9:30 to 12:00. Actual percentages of influx during this time period were calculated for each site and used for our extrapolation. (For example, 47.8% of excursionists enter during the 9:30 to 12:00 time-interval at Piazzale Roma.)

Once we had full days and full weeks of data, we were able to extrapolate the data to a June estimate, since all of the counts were conducted in June. We utilized two methods of extrapolation to a week. The first method consisted of taking the weekly ratios of everyday to everyday, and running our full day counts through what we called the "weekly fluctuation matrix". The second method consisted of taking the actual percentages of the full day counts, like the Piazzale example in the previous paragraph, and dividing the partial day counts by these numbers. Once we had these extrapolations complete, we took an average of the two methods to arrive at an average June week. We arrived at a June estimate by multiplying the average week estimate by 4.29 (the number of weeks in June).

In order to receive a yearly estimate, the Actv (Azienda Consorzio Trasporti Veneziano - the agency responsible for all of the public transportation in Venice) sales for 1999 and hotel occupancy records for 1999 were used to extrapolate to two yearly estimates. In both cases we created percentages of the total sales and stays by month, and extrapolated the June estimate to the year. This resulted in an approximation of 7.52 million excursionists compared to the 3.8 million residential tourists gathered from the APT hotel records. These numbers create a yearly ratio of 2:1 excursionists to residential tourists. When comparing our excursionist estimate to the 1999 WPI tourism project team estimate of 6.125 million, we arrived at a 26% increase in excursionists.

Once the excursionists were estimated for the year 2000, the team continued the tourism study and conducted sample density tests in each of the six sestieri (portioned-off areas much like zip codes in the US). This involved sending team members out on pre-determined walks that would include the most densely populated areas of each sestiere. The team counted in five of the six sestieri on the first day from 12:00PM-12:30PM and the final sestiere, San Polo, on the following day during the same time period. The team members armed themselves with two counters in order to count both tourists and non-tourists. It would have been impossible to distinguish excursionists from residential tourists, so the team decided to count tourists in general. This way we could compare the results between sestieri with a good amount of confidence. San Marco was the most densely populated with tourists at 93% tourists. Santa Croce had the smallest percentage of tourists at 67%. This was the first of this type of density test ever performed and future projects will be expected to improve upon our methods.

In addition to the counts and estimates previously described, the Tourism 2000 team characterized the excursionist tourists by conducting surveys to find out their type, spending, demographics and whether they were traveling in celebration of the Jubilee 2000. We surveyed at the four major sites of ingress: Punta Sabbioni, Piazzale Roma, Tronchetto and the Santa Lucia train station, as well as St. Mark's Square. Since the Zattere and the Chioggia locations only account for 3% of the excursionist influx the team decided to exclude these sites from our surveys. We were unable to administer the same number of surveys at each site of ingress so we weighted the responses by site based on the percentage of excursionist traffic that each site received (using the count data).

Our final survey administration techniques are listed below:

1. Survey at the four major sites of ingress described above and St. Mark's Square
2. Survey every tenth visitor that was identified as an excursionist tourist
3. Survey incoming excursionists, outgoing excursionists and tour groups
4. Survey in seven languages to abate non-responses due to language
5. Utilize surveyors with exceptional abilities to reduce non-responses

Once the counts and surveys were complete, the team began to analyze the results. The surveys were used to increase the amount of information we had on the excursionists entering through each site. The surveys allowed us to analyze the percentages of the types of excursionists entering through each gateway (after weighting the counting sites the team arrived at 18% local excursionists, 43% stop-over, and 40% commuting for all of Venice), the demographics of each gateway's visitors, the spending of the different types of excursionists (average weighted result was 112.000 lire) and the affects of the Jubilee 2000 on excursionist travel (12.4% traveled because of Jubilee). All of the previously mentioned analyses are fully developed in the Analysis Chapter.

Recommendations to the APT and the city of Venice were the team's final task. Recommendations to the APT included methods they could follow to perform estimates pertaining to excursionists. A cost analysis of three different methods was completed along with cost analysis of performing counts at the various festivals during the year. The APT, with this information, could tailor

an estimate to their liking. For example, if the APT wanted to perform counts for a week in each month of the year as well as counts during the Carnevale, the Redentore and the Biennale they would be expected to spend 354.240.000 lire. Much cheaper methods that utilize the Tourism 2000 fluctuation patterns and partial day percentages were also made available to the APT.

Recommendations for future surveying techniques were also made. It was observed that the face-to-face surveying method was not efficient in terms of response rates (average team response rate 62%). The team recommended to the APT that a hybrid mail-in/face-to-face interview would be best. This would involve surveyors handing out surveys that are postage paid and giving a short introduction to the visitor about the study that is taking place. The subject could then fill out the survey at his or her own convenience and mail it at any mailbox in Venice.

Recommendations to the city of Venice were also made in the area of increasing tourist knowledge of the city and its history. Recommendations regarding alternate means of transportation to Venice by tourists were also made. For example, closing the Ponte della Libertà to non-commercial traffic. The team reviewed the idea of a tunnel that has been previously reviewed by other agencies, which would bring tourists from the mainland to the points of entry, the Rialto and St. Mark's Square. These last ideas are probably the most improbable. Feasibility studies should be conducted in the future because these ideas could alleviate a lot of pressures caused by tourists.

This project team conducted their counts and performed their surveys in hope to better understand the tourism situation in Venice. At the conclusion of this project, we understood the situation and how much Venice needs to strive for sustainable tourism. Tourists need to be more educated in Venice's vast history and respectful of the Venetian people. Projects have been implemented by the WPI project center in Venice pertaining to sustainable tourism and it is Tourism 2000's conclusion that ideas presented in the past study should be investigated and feasible actions should initiate immediately.

3 BACKGROUND

Venice is sinking into the sea at a slow rate, yet it is still standing in its architectural wonder with all its riches. The number of true Venetians is decreasing, and the number of tourists into Venice is increasing. Tourism spreads cultural awareness and wealth throughout the world, but it also leads to overcrowding, high prices and pollution, as seen in Venice. International tourism is on the rise and shows no sign of decline. This increase in international tourism has lead to the formation of "tourism cities", cities whose primary economic existence is directly dependent on tourism. Occasionally cities become overwhelmed by tourism and must take action to ensure the sustainability of this industry.

Heroic efforts are being made to save the tourism city of Venice. As technology advances, more efforts are being made to rescue this fabled city of art from the pollution, uncontrolled tides and age that are eating away at its treasures. Venice, along with many other cities in Europe and around the world, is dealing with the challenges presented by their tourists. This chapter discusses the effects of tourism on cities and attempts to give the reader a broad view of what tourism cities around the world, and especially Venice, deal with on a daily basis. This chapter also describes the growth that tourism has undergone during the past century, the reasons for this growth and the apparent effects it has on the tourism cities. Reasons for an expected increase in tourism in the year 2000 for Venice will be introduced, and an overview of the visitor transit into and around this city will be examined. The different tourist types and their motivation for coming to Venice will be reviewed, with a focus on the excursionist tourists of Venice and the impacts they have upon the city.

3.1 Life Cycle of a Tourism City

The growth of tourism in cities around the world is a result of cultural and social factors, and Venice is no exception. The extremely rich cultural history of Venice makes it a "hot spot" for tourists around the world. Year after year the influx of tourists into popular cities grows at a steady rate. In most cases, including Venice, there is a saturation point that will be reached. Saturation can be held by a city but eventually a decline in the numbers of tourists and the condition of the city is inevitable. The objective of this project was to see where Venice stands in the "life cycle" of a tourism city, so that we could determine what needs to be done in order to protect Venice from damage and eventual collapse.

The types and numbers of tourists arriving in cities around the world change over time. At the early stages of a tourism city, the majority of visitors are local (proper) excursionists; these are tourists who live in the area surrounding a tourism city. A city at this stage is not yet ready to attract residential

(overnight) tourists because it does not have the facilities or infrastructure. Tourism infrastructure includes businesses, such as shops, hotels, restaurants and available transportation in and around the city. [1]

Once a city begins promotion and invests in additional tourism infrastructure , residential tourism begins to increase immediately. This is the beginning of the second stage of a tourism city. The physical capacity of the city to hold tourists is not yet reached at this point. [2]

The city enters a third stage in the life cycle on ce it reaches a saturation of available accommodations and cannot satisfy potential demand of overnight stays. At this point, the total number of overnight visitors is constrained, but certainly not the overall number of tourists. A new type of tourist emerges who is forced to stay in the surrounding areas of the tourism center. Available transportation guarantees these tourists access to the center from the suburbs surrounding the city. This new type of tourist is known as a commuting excursionist. These tourists spend a considerable amount of their budget in the surrounding areas for accommodations, food and souvenirs. This increases the center's expenses and decreases its benefits. At this point, the city experiences an increase in pressure from tourism, along with a reduction of income. The city is then forced to further its "touristification". Local businesses are forced out of the city to make room for new restaurants, hotels and shops. The culture of the city begins to decline and starts working towards a tourism monoculture. Prices are increasing and the attractiveness of the city is declining, resulting in a decline of residential tourists. The number of excursionist tourists is still on the rise at this point. The inverse relationship between local costs and benefits begins to intensify. [3] This relationship between residential tourists and excursionist tourists can be seen in Figure 1.

At this point, the tourism city has entered the final stag e, the stage of decline. Permanent residents of the city and local firms will begin to abandon the center for more lucrative locations. Residential tourists are exploring more feasible locations in terms of cost and congestion. The price to stay in surrounding areas is now equal to the cost to stay in the center. The commuting excursionist population will decrease dramatically at this stage. The local excursionist is the last to make a trip to the center because most of their costs (accommodation and transportation) are minimized. The city is now extremely focused on tourism and lacks other attractive economic activities to support it. Unemployment rises and surrounding tourism companies begin to shut down. The monoculture creates an almost irreversible situation. The city may or may not ever be able to save itself. [4]

The main reason for this type of cycle is price. The attractiveness of a city is not cheap; the more attractive a city, the more a tourist must pay to visit it. Once prices get too high a visitor will begin looking for alternative places to visit.

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[1] Van der Borg, J., *Tourism and Urban Development*, Thesis Publishers, Amsterdam, 1991. Contained in UNESCO Technical Report 20, p22-23
[2] Van der Borg, J.; p24
[3] ibid, p26
[4] ibid, p27-28

This cycle forms a "Tourism Paradox", which says that tourism, in the long run, will destroy itself. When the pressures of tourism in a city reach a certain level, the tourist carrying capacity, congestion and pollution will significantly reduce the area's attractiveness. Once this occurs the number of visitors will decrease drastically.[5] The influxes of the different types of tourists that visit a city throughout the cycle previously described are summarized in Figure 1.
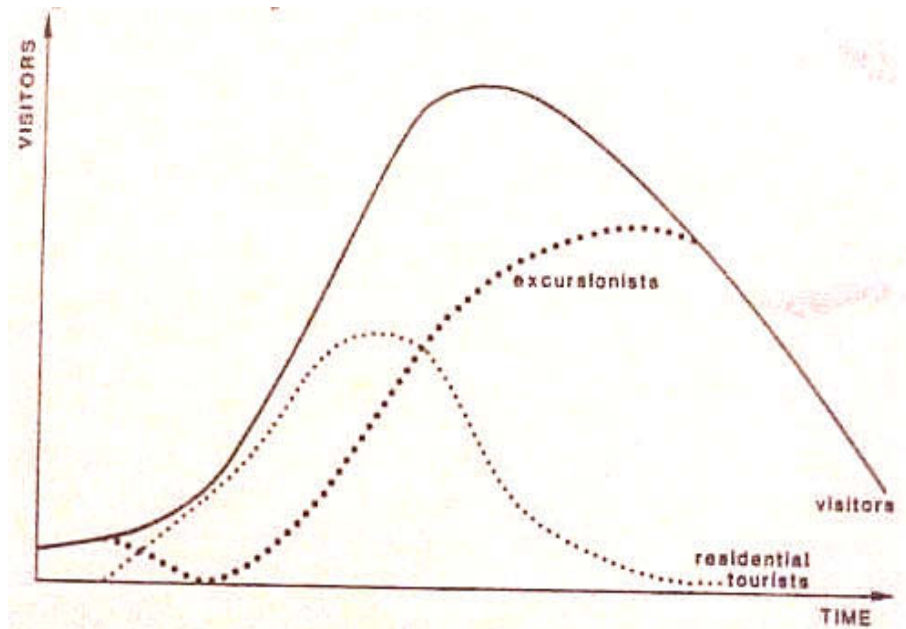
Figure 1: The Life Cycle of a Tourism City

The methods and objectives of this project resulted in an assessment of the state of Venice in terms of the life cycle previously described. An estimate of the number of excursionists, and a characterization of their types, were imperative to reach our goals. The following sections describe in detail the trends in tourism during the past 50 years as well as examples of tourism cities and the impact that tourism has had on them, followed by a description of tourism in Venice.

3.2 Trends in Tourism

The World Tourism Organization (WTO) reports a steady rise i n international tourism around the world, over the past 50 years. International arrivals rose from 25 million to 657 million from 1950 to 1999.[6] In particular, Europe has seen a massive rise in tourism with international tourist arrivals growing at an average annual rate of 6.6 percent from 1950 to 1999. Figure 2 depicts this rise.

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[5] Van der Borg, J., *Tourism and Urban Development*, p20-21
[6] "Tourism Highlights 2000: First Ed. March 2000." World Tourism Organization, p 6
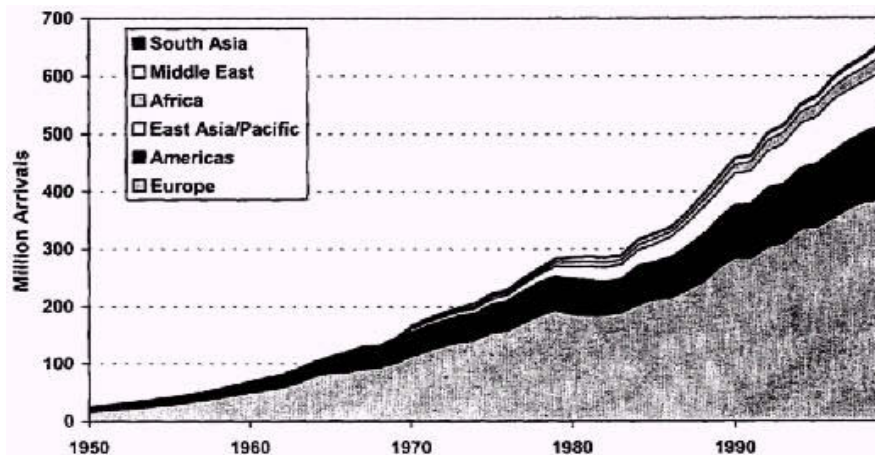
Figure 2: International Tourist Arrivals, 1950-1999 [7]

In the 1950s, tourism was more concentrated than it is today. Traveling used to take place as a holiday and usually during the summer months. Currently, trips are spread throughout the year and are much more varied by purpose, length and accommodations. The diversification of tourism destinations has also occurred. Asia, North Africa, Latin America and the Caribbean are the emerging destinations for tourists. In 1950, fifteen countries shared approximately twenty-five million international tourists, while in 1999 there were over seventy countries and territories that each received more than one million such visitors.[8]

Tourism accelerates the development of a country because the gestation period of most tourist investment projects is short. Tourism can generate economic growth in countries or regions that have little or no resources and it can have both a positive and negative economic effect. Tourists who spend money shopping bring revenue into a region. For the most part this is a positive effect, but tourism leads to increased prices and a shift in marketing from the permanent residents to tourists. These factors make it difficult for residents to afford the high cost of living in their home area. Goods and services purchased by residents of other countries can be considered exports. This includes expenditures made by international tourists on lodging, food, drinks, fuel, transportation, entertainment and shopping within the country. This encompasses revenue generated by both overnight tourists and day-trippers. As such, international tourism is an important export for many countries. In 1998, international tourism generated US$ 532 billion, making it the number one worldwide export[9] as seen in Figure 3.

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[7] Tourism Highlights 2000, p6
[8] ibid
[9] ibid p15
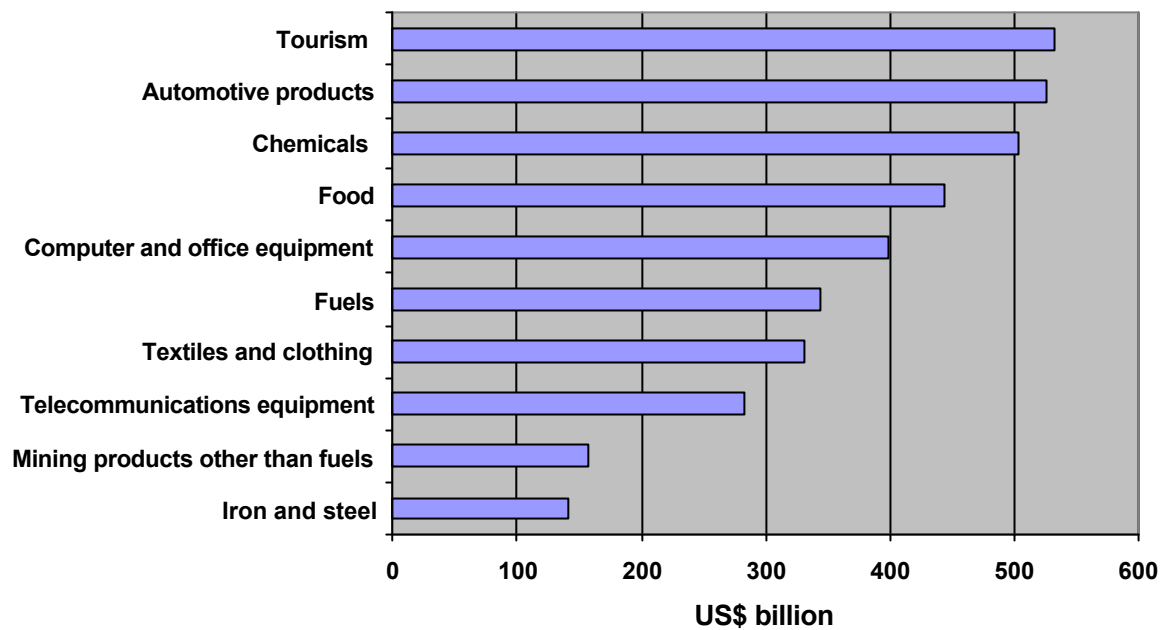
Figure 3: Worldwide Exports Earnings, 1998 [10]

3.3 Negative Effects of Tourism In Selected Cities

Tourism, along with being the number one worldwide export, causes many cities around the world to deal with pressures that could result in problems that must be addressed immediately if the city wants to protect itself. Problems in the areas of traffic, pollution, crime, and overcrowding, cultural and social loss are plaguing cities of tourism around the world. [11]

Bruges and Amsterdam are examples of cities that experience pressures from tourism. Dealing with the overcrowding and pollution created by tourism is unique in each of the cities, and some examples of actions taken by each are explained in this section.

Bruges is a very important hub of transportation in Belgium and the surrounding areas. It lies on the Brussels Coast and the Antwerp Coast as well as being a node in the Belgium highway system and the European rail network. Traffic was a problem even before tourism became a large source of income for the city. Due to tourism the need for a more intense transit system was mandatory at this point, therefore Bruges began to implement a traffic plan starting in March of 1992. [12] Some advancement was made in the areas of the type of bus (the traditional buses were replaced by minibuses that were more maneuverable and produced less noise and pollution), and bus stop frequency. The city also began to encourage the use of bicycles. Cyclers were given access to all city streets and bike parking was increased.

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[10] Tourism Highlights 2000; p6
[11] UNESCO Technical report 20, pg. 63
[12] Ibid., pg. 87

According to the Municipality of Bruges, these advancements, along with more connections to the suburbs, dramatically relieved the overcrowding and traffic problems in Bruges. [13]

Amsterdam is one of the cultural capitals in Europe, and for this reason it has a great deal of traffic and is overcrowded. Amsterdam has a very good transit system in and around the city. The number of tourists and business people however, greatly exceed the allowable comfortable level of the city. Amsterdam's many museums, canals and services as well as its beauty, attract approximately eight million tourists per year according to the UNESCO Technical Report on tourism cities around the world.[14] Any city would face problems in this situation. Amsterdam has implemented many transportation programs and is attempting to deal with the crime problems one day at a time. Intense tourism activities are not the only reason for these problems but rather they are aggravated by tourism.

The focus of this paper will now reduce its scope to only Venice. In order to understand the current situation of tourism in Venice one must know why tourists come to visit Venice and the economic factors that are associated with tourism. Other than its natural beauty and reputation, the events, exhibitions and festivals in Venice are the main motivation of a tourist to enter the city. As discussed above globally, Venice is also challenged with the negative effects of tourism. These occurrences, a brief description of tourist types and an overview of the tourist transit into and around Venice are discussed in the following sections.

3.4 Tourism in Venice

In terms of income, growing numbers of visitors are supposed to have positive effects on the local society. However, if this increase persists over time, the pressure of tourism in Venice will become excessive. The visitor numbers will reach a level beyond the carrying capacity (described in the next section), which will begin to produce negative effects. Damage to the local environment, the monuments, the local population and the quality of the visitor's experience is occurring because of tourism.

According to the 1999 WPI project team, Venice received approximately 6.1 million excursionists, or day-trippers, in 1999. In a previous study Manente and Rizzi conducted surveys and counts of the visitors at the principal entrances into Venice. They divided excursionists into three categories: local, stopover, and commuting. These types will be differentiated later in this chapter. Table 1 gives the data that Manente and Rizzi gained from their tests on the visitor flow and presence of tourists in Venice.

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[13] A study by WES (De Ekonomishe Betekinis van het Toerisme te Brugge), 1992 UNESCO Technical Report, pg. 88

[14] Van der Borg and Gotti, UNESCO Technical Report 20, p59-62

Residential	Excursionists				Total
		Local	Stop-Over	Commuting	
2,680,179	5,946,844	2,267,918	1,571,080	2,107,846	8,627,023
31.1%	68.9%	26.3%	18.2%	24.4%	100.0%

Table 1: Tourists Present In Venice (1992) [15]

In 1951, Venice was home to 175,000 people. This number has since dropped drastically to below 65,000 inhabitants with approximately 47,000 business commuters. These people along with the tourists are competing for the use of the city. This may be an effect of "crowding out", the phenomenon in which tourists displace local businesses and residents, resulting in a drop in population and career options.[16] The average age of residents in Venice is increasing due to the increase of living costs, and there are fewer career options. For this reason most of the businesspersons in Venice commute from the surrounding areas.

3.4.1 Carrying Capacity

The carrying capacity of Venice limits the number of tourists that can occupy the city. The social-economic tourist carrying capacity is defined as the total number of visitors that can be allowed into a city without hindering the functions it performs. [17] The majority of the visitors in Venice do not only visit the attractions, but also wander around the city. Therefore, the whole city feels the effect from its tourist carrying capacity.

Logically, the number of available beds in Venice limits the number of residential tourists. The number of beds in Venice and the Lido is 14,848. When one adds Mestre, Marghera and Cavallino the number increases to 21,807. Determining the total carrying capacity of residential and excursionist tourists is a more complicated issue.

In 1991, Canestrella and Costa devised a method to determine the capacity of Venice. This was a program that evaluated the availability of hotel accommodations, food services, parking, public transportation, waste disposal and the space available in St. Mark's Square. The tourism carrying capacity of Venice was estimated to be 25,000 tourists per day. Based on this estimate, Venice regularly exceeds its capacity with peak days of 45,000 visitors. Table 2 represents the number of days the social-economic

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[15] Manente and Rizzi 1993 as seen in UNESCO, Technical Report No.23, p47
[16] Van der Borg and Gotti, Tourism in Art Cities, UNESCO, Technical Report No.23, 1995, p44
[17] UNESCO, Technical Report No. 20, p165

carrying capacity of the historic center of Venice was exceeded in 1987 and will be exceeded in 2000. Year 2000 data is an estimate. [18]

Days per year:	> 25,000	> 40,000	>60,000
1987	156	22	6
2000	216	110	16

Table 2: Violations of the Social-Economic Tourist Carrying Capacity of Venice [19]

These statistics show that in 1987 the tourist capacity of Venice over the year was exceeded on 156 days. It is predicted that in the year 2000 this number will rise to 216 days, meaning that for almost two thirds of the year, Venice will face an extreme level of tourism presences. [20]

3.4.2 Tourism Economics in Venice

In recent years, economic growth in the Veneto region and Venice outperformed the Italian economic growth, led by expansion in the manufacturing (textiles, chemicals, fibers, etc.) and tourism sectors. The currency ratings reflect the city's strong economy, based around tourism, manufacturing, good financial performance and a low debt. Capital investments represent a larger share of spending in Venice than in other Italian cities, given the exceptional needs for the renovation and conservation of the buildings and foundations of the historical center. The city's financial position is reinforced by legislation that ensures the financing of investments related to the safeguarding of Venice and its lagoon. This legislation is carried out by the Italian state. [21] Now that the carrying capacity of Venice is known and the financial background of the city was discussed it is necessary to understand why tourists come to Venice and how they arrive into Venice.

3.4.3 The Azienda di Promozione Turistica di Venezia

The goal of the Azienda di Promozione Turistica di Venezia, or APT, is to make Venice as pleasant as possible for tourists. Welcoming tourists to Venice involves two phases; drawing tourists into Venice though advertising, and then providing them with information once they arrive. One of the main

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[18] Costa P., Politica del Turismo, 7(1), 1990, as appears in UNESCO, Technical Report No. 20, p172
[19] Costa P., Il Turismo a Venezia e l'Ipotesi Venetiaexpo 2000, 1990, as appears in UNESCO, Technical Report No. 20, p165
[20] Canestrelli E. and Costa P., Annals of Tourism Research, Vol 18, 1991, as appears in UNESCO, Technical Report No. 20, p172
[21] London, June 26/ PRNewswire/ City of Venice Assigned 'AA' Long-term Ratings by S&P

services of the APT is to welcome these incoming tourists. The other main duty of the APT is the collection of data concerning tourism. The APT performs statistical data entry of hotel records in and around the historic center of Venice and the Lido. These records provide demographic and length of stay information on their overnight visitors. Additionally, all APT tourist information offices maintain daily records of visitors. These records are an indirect indicator of the number of visitors entering Venice, but they do not differentiate between visitor types therefore conclusions on tourism influx cannot be drawn directly from this information.

The APT is moving their focus from attracting general tourism to drawing in tourists who are more knowledgeable about and respectful of the Venetian history. The APT is working to educate tourists, making them more informed about Venice and its ways, and respectful of the city and its inhabitants.

3.5 Attractions In Venice

"The Venice of today is a great museum whose little gateway continually creaks and you enter in a kind of institution together with a crowd of visitors." [22]

From Easter to October, before the winds and rain of winter, Venice is one large street party with hustlers and vendors in full force peddling their souvenirs among the circus-like atmosphere. The best months to visit are April to June and September and October. Summers are hot and muggy, while the winters are gray and wet but not as bad as one would think with the protection of the Lido from the Adriatic Sea's influence. In spite of the weather, many visitors prefer to visit in the winter when they have the city to themselves and can explore its treasure and art without the droves of tourists. [23]

This section describes the major landmarks that attract the average tourist to Venice. We will also describe some of the smaller festivals and exhibitions that the average tourist would not know about. Tourists attracted by these smaller events would include the more knowledgeable tourist, or the guru of art and music.

3.5.1 Permanent Attractions

Venice has many permanent attractions, which draw a steady flow of tourists. These attractions include St. Mark's Basilica, St. Mark's Square, the Doge's Palace, the Rialto Bridge, and the Grand Canal.

The best-known landmark is St. Mark's Square, which holds the true vision of Venice to the world. At some point during the day everyone who visits Venice travels to this square, which has become a focus for religious festivals, games and political activities. It is also the home of the most prominent of

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[22] Henry James, LEO pg. 46
[23] Frommer's Portable Venice, 1999, pg. 9

buildings in Venice - the Doge's Palace, St. Mark's Basilica, the Bell Tower, the Bridge of Sighs, the Prisons, and the Libreria Marciana.[24]

The Doge's Palace, which formerly housed the administration of the Republic and the Doge, was rebuilt the last time in 1424 and is the world's finest example of Gothic architecture. [25] For the past three years the Palazzo Ducale has had a yearly average of 1.25 million visitors. [26]

The Canalazzo, (Grand Canal), travels through the center of Venice and is the main travel route for both the natives and the tourists on water taxis, vaporetto and gondolas. Surrounding the aquamarine waters are businesses, palaces, homes and people.[27]

There are many bridges crossing over the canals in Venice, including the famous Rialto Bridge covered with souvenir stands. The Rialto area is the heart of Venice with its shops and the most ancient of buildings.[28] These attractions, along with the rest of the city itself, attract a steady flow of tourists. Annual festivals and special events draw temporary surges of tourists into Venice.

3.5.2 Annual Festivals

There are many festivals and feasts in Venice that attract tourists; among the most popular festivals are Carnevale, Redentore, and the Feast of Santa Maria della Salute.

Carnevale takes place for eleven days prior to Lent. During Carnevale there are concerts, "commedia dell'arte", and balls where Lords and Ladies hide their faces through masks much like in Figure 4. Similar to Mardi gras, musicians, jugglers and strolling players fill the streets while people dance and party throughout Venice.[29]

It's Carnevale. For 11 days in February, Venice wears a silent, glazed mask. It dresses in iridescent peacock feathers, thin, sheer gowns, long dark capes. Sprays of glitter shine on children's cheeks. Everyone appears to be, somehow, covered with gold leaf.[30]

Figure 4: Carnevale

The Redentore takes place on the third weekend of July. In the church Palladio, religious ceremonies are held to mark the end of the 1577 plague. The festivities begin on a Saturday night when

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[24] Knopf Guide, 1993, p 216
[25] ibid., p 217
[26] Interview with Dr. Pastro, Director of the Palazzo Ducale, 6/28/00
[27] Knopf Guide, 1993, p 188
[28] ibid., p 201
[29] Venice Carnival

hundreds of gaily decorated boats gather in St. Mark's Basin to watch an amazing array of fireworks. After the fireworks, people go to the Lido of Venice where they sing and dance until sunrise. On that Sunday, visitors to the Redentore can reach the church by way of a pontoon bridge that is built specially for the celebration. [31]

The Feast of Santa Maria della Salute takes place on November 21. A pontoon bridge is built across the Grand Canal from the San Marco quarter to the steps of the Salute Church where a public mass is held. The church was built in honor of the Virgin Mary to show thanks to God for ending the plague of 1630 in which thousands had died.[32] These festivals bring in an excessive amount of tourists unlike any other day.

3.5.3 Smaller Festivals and Exhibitions in Venice

The more informed tourist would travel to Venice for the large museum exhibits, the film festivals such as the Biennale International Film Festival held in odd years, architecture exhibitions, religious ceremonies due to the Jubilee celebration, or large sporting events. Some other smaller activities might include Valentine's Day, St. Mark's Day in April, the European Festival of Music in June, the Feast of San Pietro di Castello in the last week of June, St. Martin's Day on November 11, or the many Venetian Lagoon races. Races include Befana in January, the famous Vogalonga International Non-Competitive Rowing Race in May, or the Regatta Storica in September.

The ceremony in which Venice weds the sea on the Feast of the Ascension, 40 days after Easter, is the most symbolic of Venetian history. The mayor throws a symbolic ring into the sea to bolster pride in the legend of Venice prevailing over the sea. "The symbolic reaffirmation of the city's pride in its independence and its leading role in the Adriatic, the Feast of the Sensa is when Venice takes as bride the sea herself." [33]

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[30] Leisure Travel News
[31] Calendar of Events, 1999
[32] Fall Festivals
[33] LEO Magazine N4 p.8

3.5.4 Jubilee 2000

Figure 5: Jubilee Symbol

The year 2000 commemorates the 2000th anniversary of the birth of Jesus Christ. The Catholic community will focus its attention on the mystery of the Incarnation and on the Good News. The Jubilee is an occasion for reflection on how Christ's message has been received in human history.

This year, pilgrims traveling to Rome as part of the Jubilee Celebration are visiting many parts of Europe. The symbol of the celebration is in Figure 5. This event is expected to bring more tourists and pilgrims to Italy than have ever been recorded. Venice is expecting a large percentage of these travelers from this celebration.

Special pilgrim packages have been set up around Venice for the Jubilee along with travel routes around Venice. These routes start at various entry points leading pilgrims to different churches and religious sites around Venice. There are actually seven Jubilee-designated churches in the Venice dioceses, and all happen to be great art repositories. Another initiative connected with Jubilee tourism is the series of concerts, "Music and Spirituality," being offered by the Scuola Grande di San Rocco, a religious and cultural guild dating from 1478.

In a project aimed at preserving the cultural heritage of Venice and in relation to the Jubilee year, the Foundation for the Churches of Venice is making tours available to visitors to discover more than one thousand years of Venetian art and history, through works of art created by such masters as Veronese, Tintoretto, Tiziano, Codussi, and Palladio. There are various churches open to the public for this reason. The proceeds from ticket sales go toward the restoration of the churches in Venice such as the one shown in Figure 6.

Figure 6: Restoration of Façade of S. Simeone Piccolo

3.6 Impact of Tourism in Venice

The large number of tourists that enter into Venice for the history, festivals and other events has a great impact on the city. Tourism has the potential to alter the way of life for residents of a city; when a city becomes a tourist attraction the permanent residents lose their original way of life. Working cities become museums and the ingress of foreigners leads to a loss of the native language as the residents attempt to adapt; when walking into any institution of business in Venice one can usually find English

being spoken. Additionally, seasonal influxes cause traffic problems as millions of tourists congest the streets. Since Venice attracts a large numbers of tourists, local services ranging from schools to hospitals are moved out of the city to make room for more cost-efficient businesses such as fast food restaurants, souvenir shops and more hotels. The meals at restaurants and the merchandise at the shops become quite expensive.

The impacts tourism has on Venice are introduced and examined in this section. Tourism has both positive and negative effects. Tourism creates a great deal of revenue for the city, along with jobs, and adds to the cosmopolitan atmosphere. The negative effects of tourism on Venice would include pollution, changes in types of businesses, traffic congestion on the water and in the alleyways, and an overall decreased quality of life for her permanent residents.

3.6.1 Positive Effects of Tourism in Venice

The primary positive effect of tourism, as well as the largest source of personal income in Venice, is the revenue tourism creates for the city. Tourists spend money on food, shopping, transportation, accommodations, entertainment and museum fees. It is unlikely that Venice could survive economically without tourism.

Tourism also provides a way for Venice to promote its history and culture. Many tourists visit Venice to experience its art, architecture and culture. This interest in the city's heritage provides the motivation and funding necessary to preserve it. Museums largely funded and visited by tourists are working to preserve artifacts and works of art. Without the funding from tourists, the churches and museums could not do what they do. Tourism is the single most important activity in Venice. There are plenty of negative effects as well, which will be described in the next section.

3.6.2 Negative Effects of Tourism in Venice

The negative effects of tourism in Venice are easily seen. While in Venice, the project team observed three main negative effects of tourism: pollution, shifts in the economy, and increased traffic. There are also effects on the traditional values, Venetian identity and language.

3.6.2.1 Pollution

Tourists create pollution in the form of sewerage, noise, and garbage. We observed that noise carries very well in Venice; even when speaking softly, crowds of tourists reverberate sound throughout the city. Also, when walking around Venice a person can notice the lack of trashcans. Therefore, while adding to the amount of garbage in Venice, tourists particularly add to the amount of litter on the streets. Figure 7 shows a pile of tourist-produced litter found in a Venetian walkway. We have assumed that this is tourist-produced rubbish because it contains several McDonald's containers and wrappers. The sewerage, noise and garbage produced by tourists add to the pollution of Venice.

Figure 7: Tourist Litter in a Venetian Alleyway

3.6.2.2 Traffic Congestion Created by Tourism

Within Venice, tourists travel by foot and by boat. Foot traffic is a problem in and around popular tourist

Figure 8: Tourism Traffic near St. Mark's Square

attractions, mainly St. Mark's Square and the Rialto Bridge. Figure 8 shows the high density of tourist traffic near St. Mark's Square. Tourists also increase boat traffic on the canals. The Actv (Azienda del Consorzio Trasporti di Veneziano) is the organization responsible for the public boats moving in and around Venice. The increase of boat traffic is reflected through the addition of "Seasonal Lines" during the summer months to accommodate the increase in tourism. These extra boats add to the congestion in the canals causing traffic jams and other traffic incidences as well as damaged foundations of structures.

In anticipation of crowds traveling in celebration of Jubilee 2000, the Actv instituted three additional lines. These lines are run by new boats and make fewer stops than the regular lines. They are directed at carrying tourists from the entry points of Venice to the city's center. For instance, Jubilee line number two, G2, brings tourists directly from the train station and two parking areas to St. Marks's Square.[34]

Since previously discussed was the reasons for tourists coming to Venice and the impacts they have on the city, what type of tourists are entering into Venice is the next logical step to discuss. These types include non-tourists, tourists and the breakdown of the different types of tourists.

3.7 Definition of Types of Tourists

Several types of travelers make their way to Venice proper each day. These visitors can be logically classified into three groups: non-tourists, residential tourists, and excursionist tourists. This section focuses on defining these different types of tourists and how it is we plan to deal with each type in our counts.

3.7.1 Non-Tourists

Non-tourists are individuals who come to Venice for non-recreational reasons. This category includes residents of Venice, business commuters, and students enrolled in the two universities of Venice. Business travelers are visitors who go to cities for the purpose of performing acts of business. Business people travel to conventions or corporate meetings that are held in cities that have a high level of business or business related activities. Business tourists bring in revenue for hotels and local business. [35]

Students, such as those traveling for cultural or art reasons, visit cities for their churches, libraries and other educational sites. Since Venice has two universities, students are coming and going all day. Most of Venice's university students live in Mestre or in Marghera, two towns located on the Venetian mainland. The students live in apartment buildings and each day commute to Venice for school. The reason for this is that rent is much cheaper in towns outside of Venice than in the city of Venice. Business commuters will be considered non-tourists because they do not come to Venice for recreational reasons. Likewise, residents and students will also be counted as non-tourists.

3.7.2 Residential Tourists

Residential tourists are tourists who spend at least one night in Venice proper. These tourists stay in one of the 14,848 available beds every night in the hotels of Venice and the Lido. This creates a limit for the number of residentials who can stay overnight. According to the 1999 WPI project, residential tourists numbered approximately 4 million compared to about 6 million excursionists. [36] There are some periods of the year in which all the hotels in Venice are at full capacity and some periods when they are not; this is because there is the high tourism season of the summer, and a low season of November through January. Details of this fluctuation were provided by APT gathered hotel records.

3.7.3 Excursionist Tourists

Excursionist tourists, or day-trippers, are visitors who visit for the day and do not spend the night in the city. Excursionists are the focus of our quantitative and characterization analysis. Business tourists and students could be considered excursionists or residentials but are not going to be counted in

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[34] *Actv Timetable* "The Fast Lane to St. Mark's" page 29
[35] UNESCO, Technical Report No. 20, p172
[36] 1999 WPI project team

our estimate because they are not in Venice for recreational reasons. In a 1993 study by Manente and Rizzi, excursionists were divided into three types: local, stopover, and commuting. [37]

3.7.3.1 Local Excursionists

Local excursionists are those who visit Venice from their permanent homes in Italy or a bordering nation and return to their homes for the night. Activities might include lunch, dinner, visiting museums and churches, or the visiting of family and friends.

3.7.3.2 Stopover Excursionists

Stopover excursionists are tourists who visit Venice for the day, but Venice is not the final destination of their vacation. These excursionists sleep in different places the night before and the night after visiting Venice for the day. Large and small tour groups are included in this category.

3.7.3.3 Commuting Excursionists

Commuting excursionists are tourists who have Venice as their final destination but do not sleep in Venice. Among the reasons for not sleeping in Venice could be the lack of a sufficient number of beds in Venice or cheaper rates on the mainland. As shown in Table 1, in the same 1993 study by Manente and Rizzi it was estimated that 68.9% of the tourists in Venice were excursionists. Of those, local excursionists made up 26.3%, stopover excursionists composed 18.2% and commuting excursionists made up the remaining 24.4%. [38]

3.7.4 Reasons for Excursionist Tourism

One main reason why tourists do not stay in Venice proper is because of the expense or the lack of available space. It is significantly cheaper to stay on the mainland in Mestre or another nearby town. For example, a hotel in Mestre [39] (Hotel Aurora - 3 Stars) will cost 190.000 Lire while a comparable 3 star hotel in Venice [40] (Hotel Giardinetto) will cost 300.000 Lire. For this reason, tourists will either decide to stay on the mainland and travel to Venice daily or to join a tour that goes through different cities on a daily basis. Now that the types of visitors have been described, we shift our focus to how they arrive into the city.

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[37] Survey by Manente and Rizzi, 1993
[38] i.b.i.d, Estimations originally by Manente and Rizzi, 1993
[39] www.hotelaurora.com/rates.html
[40] www.hotels-venice/Giardinetto.html

3.8 Overview of Tourist Transit Into Venice

Tourists traveling to Venice have three main regions of origin: the mainland, the Litorale Nord and the Litorale Sud. Each of these three regions has specific departure locations as well as its own means of transportation to Venice. Each will be looked at in this section, and the final counting sites will be described in the Methodology Chapter (3).

The Actv is Venice's public transport company which runs water buses and buses on land throughout the lagoon region at all times of the day and night. The acronym Actv stands for Azienda Consorzio Trasporti Veneziano. All the main stops have Vela ticket kiosks and tickets can also be bought in many bars and most tobacco stores and news stands. Also, all the stops have maps showing all the routes and timetables in order to help one person plan their journey.

There are different types of tickets that can be bought. There are Single and Return tickets for 6,000 lire and 10,000 lire respectively (~$3 and ~$5). The other tickets break down into different categories: Family tickets, Itinerary tickets, Time tickets and Aliguna Line Tickets.

Family tickets offer special rates to small groups traveling together. These types of tickets are valid everywhere except on the Alilaguna, LineaBlu and Clodia lines. Groups/families of three pay 15,000 lire (~$ 7.5) , groups/families of four pay 20,000 (~$10) lire, groups/families of five pay 25,000 lire (~$12.5).

Itinerary tickets are for visiting the Grand Canal, the famous islands in the northern part of the lagoon, or for going to and from Chioggia, Lido and Venice. These tickets allow one to get off, along the tourist itineraries, at any stop for 12 hours from the moment the ticket is validated. The Laguna Nord Line ticket, Grand Canal Line and Venice-Chioggia Line 11 all cost 15,000 lire (~$7.5).

Time tickets are the most economical solution for visiting Venice and its adjacent area using the Actv water buses. These allow for an unlimited number of trips within a given period of time. These tickets are valid on all urban lines or a determined period of time from the moment the ticket is validated.

The 24-hour single ticket is 18,000 lire (~$9), for a Family of three is 45,000 lire (~$22.5), for a Family of four is 60,000 lire (~$30), for a Family of five is 75,000 lire (~$37.5). The 3-day ticket is 35,000 lire (~$17.5) while the 7-day ticket is 60,000 lire (~$30).

For Venetian residents or holders of the Rolling Venice cards, issued by the Venice Council, there are special offers. There is a 3-day ticket that costs about 25,000 lire (~$12.5), while a monthly pass is only 45,000 lire (~$22.5).

Alilaguna Line Tickets are for the Alilaguna Line that goes to the Venice airport, along a suggestive itinerary across the lagoon. The airport to Venice is 17,000 lire (~$8.5), while the airport to Murano is 8,500 lire (~$4.25) and finally the cost of Murano to the Lido 8,500 lire (~$4.25).

3.8.1 Tourist Traffic from the Mainland

Tourists arriving to Venice from the mainland have two methods to reach the island. The first is by way of the Ponte della Liberta` (bridge), and the second is by boat. The bridge connecting Venice to the mainland gives buses, automobiles and trains access to the city, via Tronchetto, Piazzale Roma or the Santa Lucia train station, respectively. The boats departing for Venice will leave from the mainland at Fusina, San Giuliano, or the Marco Polo airport and will arrive at Zattere, Rio di Cannareggio or Piazza di San Marco, respectively.

3.8.1.1 Tronchetto

The bus stop at Tronchetto sees up to 85 percent of Venice's excursionist tourists. For the most part, organized tour groups consisting primarily of excursionist tourists arrive in Venice via the Tronchetto. This location allows large numbers of automobiles and buses to access Venice directly from the mainland. The Tronchetto also provides the temporary parking for these buses and automobiles.

3.8.1.2 Piazzale Roma

The Piazzale Roma and the Tronchetto share the same physical connection to Mestre on the mainland through the Ponte della Liberta`. However, the Piazzale Roma allows people traveling by tour bus into the city of Venice and also permits entry to all of those traveling by public bus lines and private automobiles. The only Actv bus terminal in Venice is located in the Piazzale Roma. The population arriving in Venice at the Piazzale Roma consists of a variety of business commuters and tourists.

3.8.1.3 Fusina

Fusina is found on the West Coast of the lagoon. The reason for having a boat line going from Fusina to Venice is to alleviate the traffic on the bridge Ponte della Liberta. Fusina's transportation line arrives at the Zattere boat terminal on the Canale Della Giudecca.

3.8.1.4 Santa Lucia Train Station

The Santa Lucia train station gives the only access to passengers traveling by rail to the city of Venice. This includes Italian residents as well as all types of tourists. Traveling by train is much more economical for residents because gas and highway tolls are expensive in Italy and for most of Europe. All types of tourists, especially those from the United States, take advantage of the extremely efficient train system in Europe. For this reason, the train station is a major point of ingress for all types of visitors.

3.8.1.5 San Giuliano Boat Stop

San Giuliano is a location for departure that is not recognized by the authorities as a legal route of transportation to Venice. The number of excursionist tourist entering Venice through San Giuliano is not large enough to significantly affect the total count. The 1999 WPI project team came to this conclusion after sample tests at the boat stop. These boats only transport four to six excursionists at a time and they often go to Rio di Cannareggio in the northwest section of the city.

3.8.1.6 Marco Polo Airport (Venice) and the Villa Franca Airport (Verona)

Tourists traveling to Venice by air are most likely to land in Verona, or in Venice. From Verona they can drive or take the train, arriving at the Piazzale Roma or Santa Lucia, respectively. Marco Polo Airport is not in Venice Proper; therefore a tourist who lands at Marco Polo can either take the bus, the train or a boat. There are two main options: one is by land and one is by water. And it is highly unlikely that someone flying to Venice with the intention of touring the city would stop for only one day.

3.8.2 Tourist Traffic from Litorale Nord (North Shore)

Excursionists arriving in Venice from the Litorale Nord have to go via Punta Sabbioni. The visitors staying at the Punta Sabbioni arrive from nearby areas including Northeastern Italy, Austria and Germany. The majority of the visitors that stay on the North Shore camp at one of the many campsites located near the Actv boat stop. Upon inspection of the sites, we found parking lots full of cars with license plates of various areas. There were also tour buses parked nearby. There are no hotels near the Actv boat stop but we noticed a large number of cars arriving during the day and using the parking lots near the boat docks. Since Punta Sabbioni is not considered part of Venice people entering through that stop are considered excursionists.

There are two ways to arrive in Venice through Punta Sabbioni: chartered boats, and the ACTV boat lines. There are seven large Actv boats that commute the excursionists to Murano and Venice. There are seven chartered boat docks that are located directly next to the Actv stop. These boats move a significant number of excursionists to Venice and therefore will be included in our counts. Since there are only three Actv boats leaving per hour it was possible to walk down the street and check the private boat excursionists. The large Actv boats head first to the Lido and then to Venice. All of the private chartered boats dock in Venice at the Bacino di San Marco.

The many docks at the Bacino di San Marco are both public and private. Despite the fact that the Bacino is wide and heavily commuted there are only a few docks between San Zaccaria and the Ca`d' Oro that are of any relevance to excursionist tourists. [41] These docks provide entry points to Venice for

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[41] 1999WPI project team conclusion

tourist boats coming from locations around the Venetian Lagoon including Punta Sabbioni, Tronchetto, the Lido and Chioggia.

3.8.3 Tourist Traffic from Litorale Sud (South Shore)

The largest amount of traffic arriving in Venice from the Litorale Sud arrives from Chioggia, located in the southernmost portion of the Venetian lagoon. There are two ways of traveling to Venice from this neighboring city: the Actv line number 11 to the Lido, which arrives about 13 times a day, and the Clodia line directly from Chioggia which runs only once daily (during the summer season). Figure 9 shows all of the travel routes one can take to enter Venice.
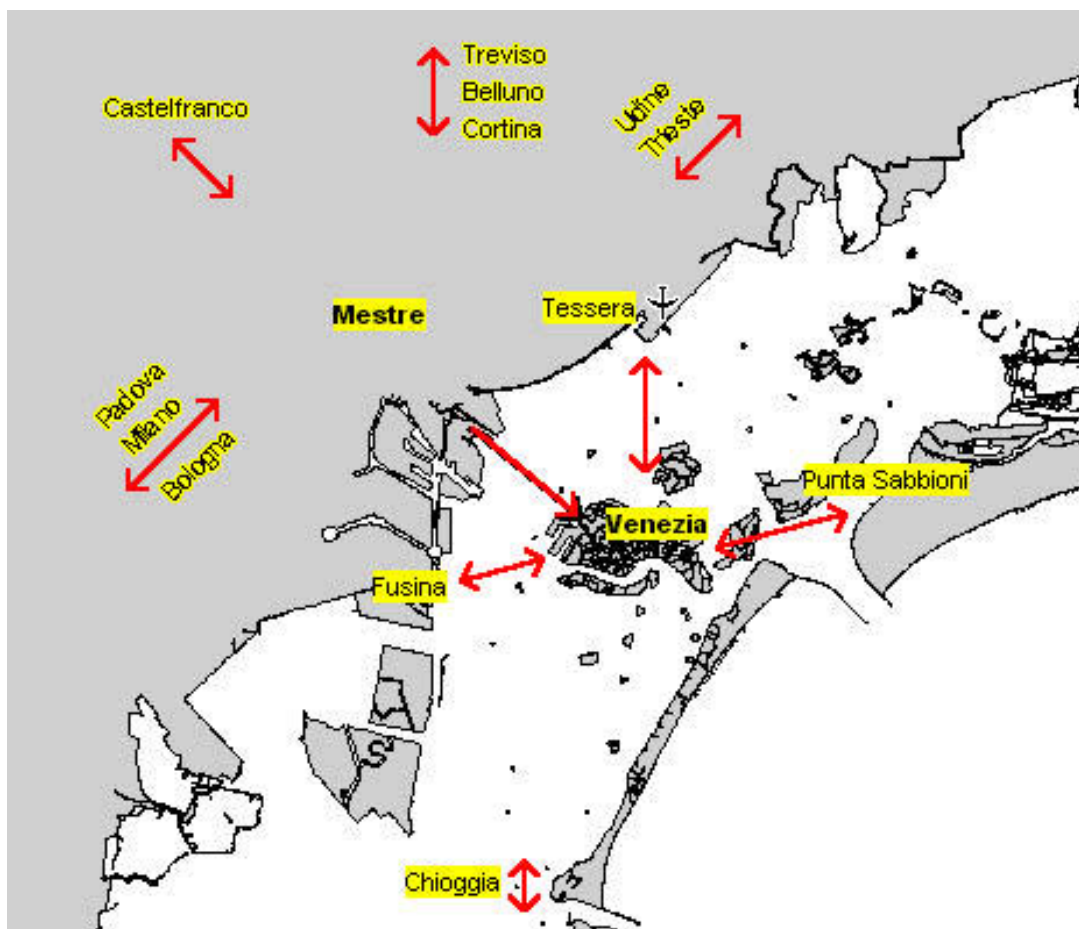
Figure 9: Routes to Venice

The tourism situation in Venice is unique. Tourists come to the city for the vast history and events that occur. The number of people in the city nearly doubles each day. This occurs due to the excursionist population, which is about 23,000 people per weekday and 28,000 per weekend day. The reason Venice is unique is that it has a limited number of entry points that visitors can enter through, making it very easy to quantify and survey these visitors. Being that Venice's tourism situation has been

introduced, we can begin to discuss the processes that we have developed to count and characterize the excursionist tourists. The chapter that follows will give the reader an insight into our method of obtaining results for a yearly estimate of the number and type of excursionist tourists in Venice.

4 METHODOLOGY

The Azienda di Promozione Turistica (APT) and the city of Venice deal with pressures incurred by visitors on a daily basis. Venice undergoes severe capacity strain from these tourists every day of the year and steps are being taken to restore the former Most Serene Republic of Venice.

This project aims to assist the APT of Venice with the management of excursionist tourists. Deliverables of this project include an estimate of the number of excursionists and a characterization of the type of tourist. We surveyed a sample of the excursionist population and drew conclusions from their responses. The characterization data that we provided to the APT will enable the APT to begin a qualification of the types of visitors who spend only one day in Venice instead of staying overnight. This type of characterization has never been done in Venice before and was used to place Venice in a state of tourism evolution as mentioned in the Background Chapter. The team was then able to recommend various actions in different categories ranging from tourist traffic control and alternate tourist routes to waste management. Recommendations dealing with estimations and surveying of excursionists were also made. Costs of this type of study were evaluated and the cheapest and most accurate method is described in detail.

During the Jubilee 2000 year, Venice expects to receive an increase in the number of excursionist visitors. The Tourism 2000 team made comparisons to the 1999 WPI project team's estimate and in the Analysis Chapter we evaluated the Jubilee 2000 assumption. Also, the survey served to confirm the Jubilee 2000 assumption. Since counting everyday of the year is beyond the scope of this project, we collected data during June and extrapolated this number to obtain an estimate for the full year.

This chapter serves to give the reader a complete understanding of the sequence of events that the team deemed necessary in order to fulfill the previously mentioned goals. Topics discussed include visual identification of excursionist methods, a complete schedule of tasks to complete the project on time, and an overview of the process that culminated in the final survey administration techniques and questions. This chapter is divided into two parts: quantification and characterization. Quantification will be referred to as Phase I and characterization as Phase II.

4.1 Phase I: Visual Identification

In order to count excursionist tourists, it was first necessary to be able to identify them as such. To do this we first differentiated tourists from non-tourists and then excursionist tourists from residential tourists. People who visit the city of Venice for business or academic reasons have been considered non-tourists for the purpose of this project. These non-tourists were not included in our counts. Residential, or overnight, tourists are visitors who spend at least one night in their vacation destination. Excursionist tourists, or day-trippers, differ in that they do not spend the night in the area they visited during the day.

It was impossible to question every person entering Venice about his or her overnight plans, therefore a more efficient method was required. Since the simplest way to identify travelers is visually as opposed to verbally, we utilized a method based on visually observable attributes: dress, accessories and demeanor.

In the summer of 1999, a WPI project team developed such a method of visual identification. These evaluation criteria are logical and have been utilized, expanded upon, and tested. These techniques are discussed in the following sections.

4.1.1 Tourist vs. Non-Tourist Dress

The primary means of visually distinguishing tourists from non-tourists is by observing styles of dress. Table 3 summarized the dress of a non-tourist, tourist and an indistinguishable. In general,

Tourists	Non-Tourists	Indistinguishable Dress
• Informal • Shorts, capri pants • T-shirt, tank top, or sundress • Sandals, sneakers, or boat shoes • Hat, baseball cap	• Formal • Slacks, skirt • Blouse, collared shirt, tie, suit, or jacket • Leather shoes	• Formal • Slacks, skirt • Collared shirts • Leather shoes

tourists dress less formally than non-tourists; tourists dress for function and comfort. In the summer,

Table 3: List of Tourist, Non-Tourist and Indistinguishable Dress

tourists wear lighter clothing that will keep them cool, such as shorts, t-shirts, baseball caps and sandals. In contrast, a businessperson will dress more formally. Businessmen wear leather shoes, dress pants, collared shirts, jackets and ties, whereas businesswomen wear formal blouses, skirts, dresses or suits.
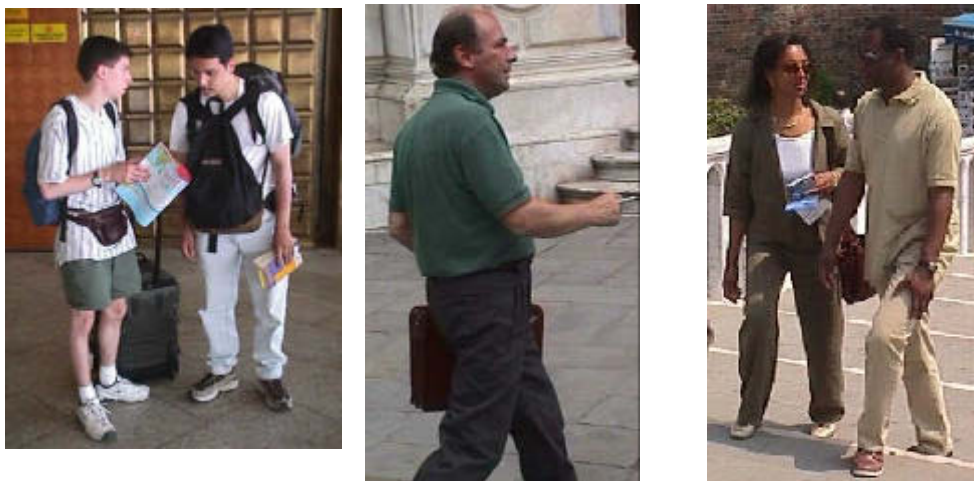
Figure 10: Examples of Tourist, Non-Tourist and Indistinguishable Dress

The majority of tourists fit the above description of dress, but not every tourist dresses exactly the same. Some dress very formal making them difficult to distinguish from non-tourists. We have observed that these formally dressed tourists are the exception rather than the rule and, as such, their numbers are a small source of error.

Dress alone is not an adequate means of identification. University students studying in Venice are non-tourists. They dress casually making them easy to mistake for tourists. Likewise, since excursionist tourists and residential tourists are both tourists they are difficult to distinguish from each other based on dress. For these reasons, additional characteristics had to be used for visual identification to be accurate.

4.1.2 Tourist Accessories

The items that people carry with them, or accessories, were another valuable means of visual identification. Accessories can be used to separate tourists from non-tourists, as well as excursionist tourists from residential tourists.

Tourists	Non-Tourists	Indistinguishable Accessories
• Camera, camcorder • Map, guidebook • Luggage, backpack • Money belt, fanny pack • Water bottles, lunch cooler • Actv tickets in hand	• Briefcase, folder • Art supplies, portfolio • Invicta backpack • Grocery bags/carts, boxes • Newspaper	• Bikes • Dogs • Cell phones • Baby carriages

Table 4: List of Tourist, Non-Tourist and Indistinguishable Accessories

Figure 11: Accessories of Tourists and Non-Tourist

Tourists are readily identifiable by the accessories they carry. Since it is common practice to take vacation photos or video, tourists tend to carry a camera or camcorder. Tourists are generally not very familiar with the area they are visiting, so they are likely to carry a map or guidebook. Additionally, tourists generally carry more items with them than non-tourists. Because of this, they frequently wear a backpack, money belt, fanny pack, and, in the case of overnight tourists, carry luggage.

Non-tourists generally carry work, school, or shopping related items. For instance, business commuters will often carry a briefcase or folder.

Residents of Venice who travel to the mainland to shop can be seen carrying grocery bags or small canvas carts. Students of Venetian universities often carry colorful Invicta brand backpacks. Art students carry art supplies, the most visible of these being an art portfolio. Since students often dress much like tourists, these accessories are valuable distinguishing attributes. The accessories of tourists versus non-tourists are summarized in Table 4.

Cell phone popularity creates an indistinguishable category. At one time only business people used them but now, especially in Italy, everybody has one. Other indistinguishable accessories that the group gathered during the counting phase were bikes, baby carriages and dogs. None of these accessories lead to a definite categorization of a visitor; therefore a combination of accessories and the counters personal opinion were the final say.

4.1.3 Tourist Demeanor

The physical behavior, or demeanor, of a tourist is different from that of a non-tourist. Tourists are generally not as familiar with the city of Venice as non-tourists. In turn, tourists meet the wonder and atmosphere of Venice with vacant stares and gaping mouths.

Tourists will usually take time to obtain their bearings, while non-tourists will proceed directly to their destinations. Tourists are very attentive to their surroundings; in train, bus, and boat stops they often consult signs or maps to orientate themselves. Additionally, tourists often travel in groups, whether these groups are couples, families or organized tours. Finally, in international locations such as Venice, tourists frequently speak in a language or dialect other than that of the region being visited.

Figure 12: Confused Tourist and Group

Non-tourists are generally familiar with their surroundings and therefore appear focused and orientated. Figure 13 is an example of an oriented non-tourist. Commuters, residents, and students usually know where they are and where they are going. Most non-tourists, particularly business commuters, travel alone. Table 5 summarizes the demeanors that are most common for tourists and non-tourists. These differences in behavior, along with the dress and accessories, make possible the visual identification of tourists versus non-tourist.

Figure 13: Oriented Resident

Tourist	Non-Tourist	Indistinguishable Demeanor
• Confused • Attentive to surroundings (read signs) • Accompanied (couples, groups) • Speaking foreign languages	• Orientated • Inattentive to surroundings • Usually alone • Serious • Briskly walking or running to catch boats	• Partially oriented • Brisk walk

Table 5: Examples of Tourist, Non-Tourist and Indistinguishable Demeanor

4.1.4 Identification of Excursionist Tourists vs. Residential Tourists

Having first developed the skill to distinguish tourists from non-tourists it was then necessary to be able to separate excursionist tourists from residential tourists. The main assumption that we made between these types of tourists is the amount that they carry. Residential tourists spend the night so they carry large pieces of luggage such as suitcases and large camping backpacks when they first enter Venice. At first we had difficulty in classifying backpackers with large frame packs. We decided to survey these travelers. At Santa Lucia we surveyed fifty backpackers and only six were excursionists. For this reason we did not count any backpackers as excursionists. In contrast, excursionists are only spending the day, so they will carry less, normally only a small backpack or fanny pack. At the Santa Lucia train station we noticed that residential tourists with large amounts of luggage, utilized the available free carts provided for them. Table 6 summarizes the differences between excursionists and residential tourists.

Excursionist Tourist	Residential Tourist	Indistinguishable
• Small backpack • Fanny pack	• Luggage • Suitcase • Large backpack • Luggage cart	• Orientation • Small bag

Table 6: Excursionist vs. Residential Tourists Characteristics

Figure 14: Examples of Excursionist Tourists (left) and Residential Tourists (right)

4.1.5 Counting Sites

According to the 1999 WPI project, the Tronchetto, the Piazzale Roma, the Santa Lucia Train Station, the Punta Sabbioni, the Zattere boat stop (for excursionists originating in Fusina) and Chioggia were chosen for one of the following two reasons:

- They receive significant tourist traffic from outside Venice
- They receive tourist traffic relevant to the excursionist counts

The six established sites are shown below in Figure 15. The 1999 team counted at the Bacino di San Marco. This year's team decided that traffic coming into the Bacino created double counting. Interviews with boat conductors along the Bacino showed our assumption was correct. The boats were originating from Punta Sabbioni, the Tronchetto and the Lido, which were already covered.
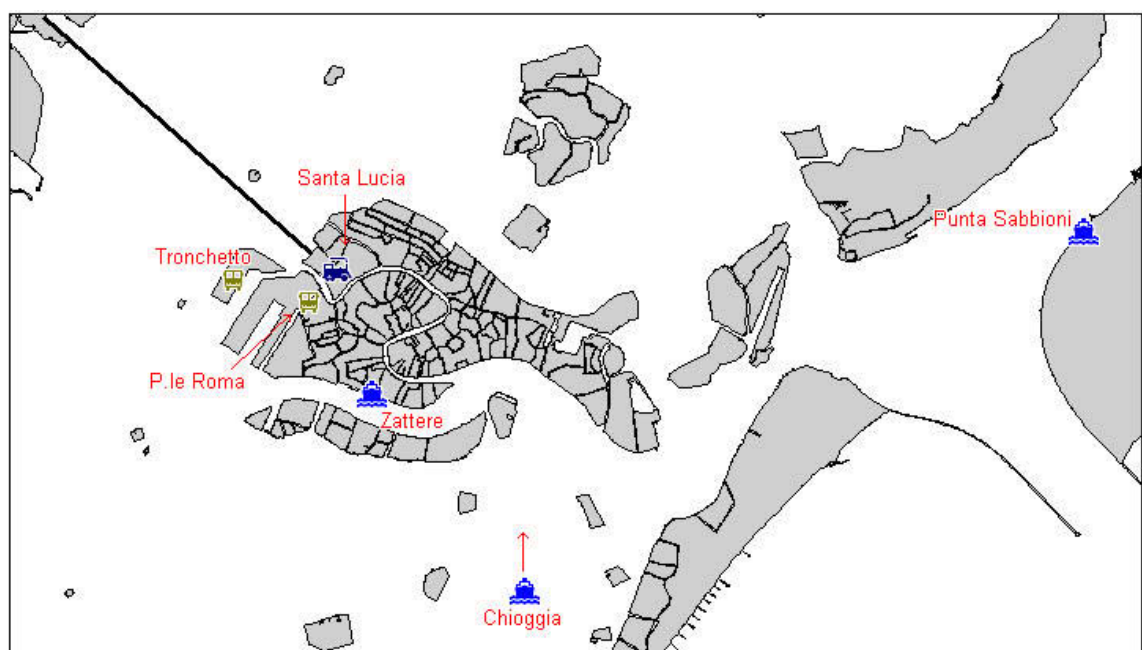
Figure 15: Final Counting Locations

It is worth mentioning, that in addition to all the entry points listed herein, there are also many illegal and unmonitored sites, such as the San Giuliano boat stop. These docks and canal corners are used by private boat owners, with or without licenses. Additionally, boat owners refusing to pay the city's docking fees use these areas. Licensed boats are sometimes required to use alternative locations for dropping off excursionists due to the already full docks. It will be impossible to determine the number of excursionists using these illegal boats to gain access to the city; therefore we did not count at these sites.

Once the team visited each of the sites at which the 1999 WPI project team counted, it was obvious to us that the different sites were unique. Different types of exits and open areas for excursionists to use created problems. The following section is dedicated to describing the sites in detail with aerial maps and photos of the tourists influx points that we decided to perform counts at. It will also

discuss the procedures that the team followed in order to eliminate the egress points from sites that are of little use by excursionists. The Piazzale Roma and the Santa Lucia train station were the only sites of ingress that needed this type of elimination due to lack of manpower. We will describe also in this section our rationale for not performing sample counts at the Zattere and Chioggia sites.

4.1.5.1 Piazzale Roma

Piazzale Roma was the most difficult location to perform an accurate count of excursionist tourists. This was due to the physical layout of the counting site. The Piazzale Roma has three main bridges connecting it to the historic center of Venice. (See Figure 16) Along with the bridges there are two main
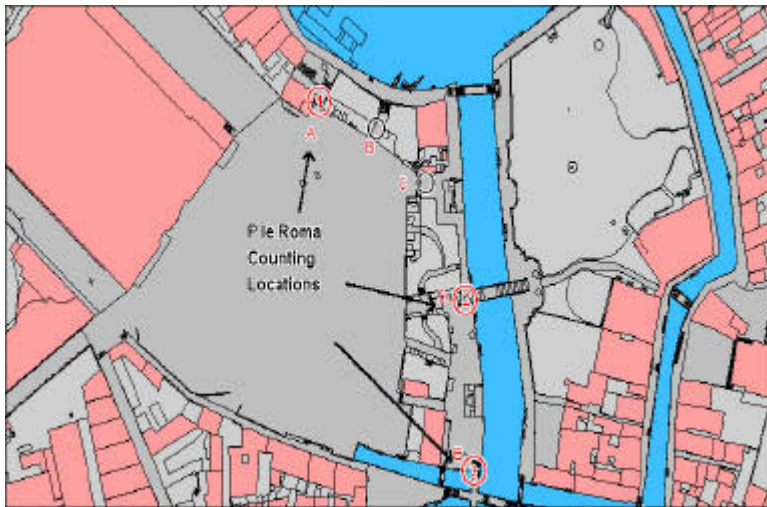
Figure 16: Counting Locations at Piazzale Roma

Actv boat stops allowing the tourists and the residents to reach their final destinations.

Piazzale is the most confusing entrance for a tourist to use when coming into Venice as well as the most confusing at which to count accurately. The team decided to use three members at the P.le Roma. In order to justify the elimination of the other egress points, the team conducted test counts at five egress locations. Ratios were then created and only the three major egress

points were counted at during the data collection phase. The results of the ratio test are shown below in Table 7.

	A	B	C	D	E
10:00	-	-	-	-	-
10:15	117	10	2	87	18
10:30	124	6	6	100	11
12:00	-	-	-	-	-
12:15	97	8	3	83	26
12:30	76	16	9	90	32
1:00	-	-	-	-	-
1:15	86	16	6	40	44
1:30	97	6	4	23	24
Totals	**597**	**62**	**30**	**423**	**155**
Percentage	**47%**	**5%**	**2%**	**33%**	**12%**

Table 7: Ratio Test Results at the P.le Roma

As one can see above, the three major sites of egress are labeled A, D and E in Figure 16. These were the final counting locations decided upon at the P.le Roma. Locations A, D and E are also labeled as 1, 2 and 3 respectively in Figure 16. We decided to name them 1, 2 and 3 after the tests for simplicities sake. Actual photos of these three final locations are shown below in Figure 17.

Figure 17: Counting Locations 1(left), 2(middle) and 3(right) at P.le Roma

4.1.5.2 Tronchetto

The Tronchetto, seen in Figure 18, sees the largest influx of excursionists. Tour buses are the main transportation into the Tronchetto. There is only one main point of egress for the excursionists to leave from. It is an alleyway of limited width, which made counting very easy for the team member positioned there. Figure 19 shows the alleyway at which that the team member counted.
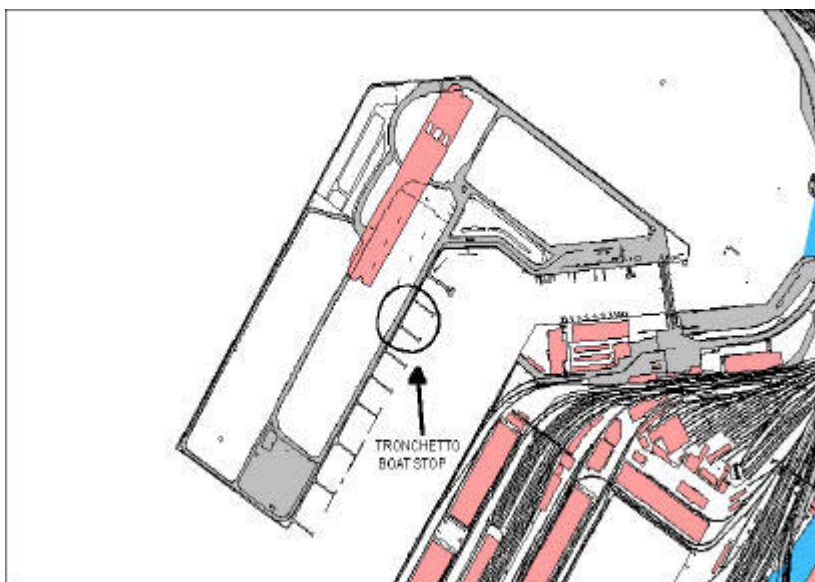
Figure 18: Map of the Tronchetto

Figure 19: Tronchetto Counting Location

4.1.5.3 Punta Sabbioni

At the Punta Sabbioni, there is one Actv boat stop and multiple private boat docks. Figure 20 shows the location were the team member counted. Since there are only three boats leaving per hour it was possible to monitor all of the private boat stops in between departing Actv boats headed towards Venice and Murano.

Figure 20: Punta Sabbioni Counting Location

4.1.5.4 Santa Lucia Train Station

The Santa Lucia train station is the second largest site of ingress for excursionists. Figure 21 shows the three counting locations at the Santa Lucia Train Station. The team decided that, because of lack of manpower, we should only have two counters at the train station. We conducted tests similar to the Piazzale Roma ratio tests described earlier. The results of the test count are in Table 8. As one can see, location number 3 only takes in 5% of the excursionist influx. For this reason, the team only counted at locations 1 and 2.
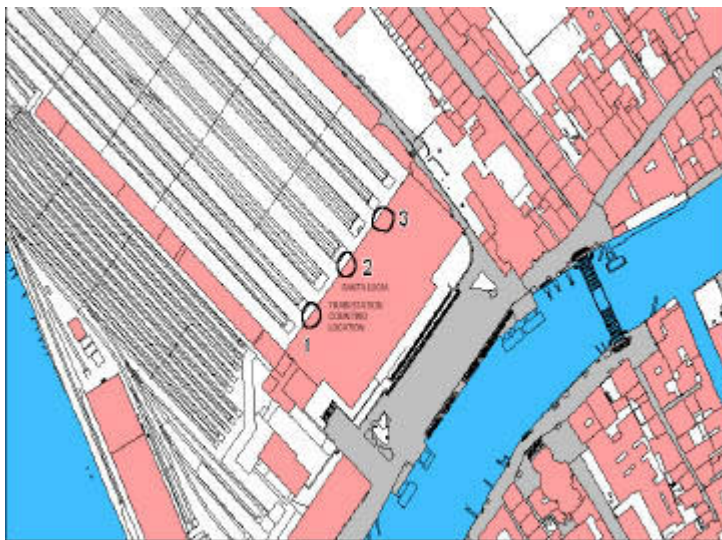
Figure 21: Counting Locations at Santa Lucia

Figure 22: One of the Three Counting Locations

Time	#1	#2	#3
8:00	0	0	0
8:15	51	47	2
8:30	118	42	0
8:45	128	44	2
9:00	201	115	17
9:15	84	79	3
9:30	99	102	6
9:45	194	53	21
10:00	210	85	23
10:15	162	210	33
10:30	212	85	17
10:45	135	130	5
11:00	40	98	9
Totals	1634	1090	138
Ratios	0.570929	0.380853	0.048218
	57%	38%	5%

Table 8: Results of the Santa Lucia Ratio Test

4.1.5.5 Zattere Boat Stop

The Zattere boat stop was used to count visitors coming into Venice from Fusina, which is located on the west side of the lagoon. This site has only one exit and the boat arrives only once an hour at :10 past, which made it very easy for one team member to count excursionists. Figure 23 shows the

Zattere boat stop from above. It is located on the Giudecca Canal. Figure 24 is the dock from which the boat leaves and picks visitors up from.

Figure 23: Zattere Counting Location

Figure 24: Fusina Boat Arrival Dock

4.1.5.6 Chioggia

Counts were conducted at the beginning of the Pallestrina nearest to Chioggia. Since the Lido is considered part of Venice, one person was needed to count there because there is only one entrance for excursionists to use to board the bus. Figure 25 shows the boat that excursionists board in Chioggia at the beginning of the journey to Venice.

Figure 25: Chioggia Boat and Boat Stop

4.1.6 Verification of Visual Identification Methods

In order to ensure the accuracy of our visual identification it was necessary to validate the predefined criteria with field tests. To test the accuracy of our visual identification method, the team first visually identified travelers as excursionists, residential tourists, or non-tourists as they were exiting the counting site. The visitor was then questioned using three lines of questioning to determine his/her intentions upon entering Venice. These tests were performed at the three main counting locations: the Tronchetto car and bus park, the Santa Lucia train station, and the Piazzale Roma bus terminal. These sites were chosen based on the 1999 WPI project counts, which identified them as the main points of excursionist tourist influx.

If a visitor was visually identified as a tourist, excursionist or residential, a two-question survey was used to confirm this identification. After being visually identified, the subjects were approached by a team representative. The representative introduced himself as a student performing a study of the tourism situation in Venice. The subject was then asked two strategically developed questions designed to conclude the type of visitor they are. The flow chart in Figure 26 shows the conclusions that were made from each of the two questions.
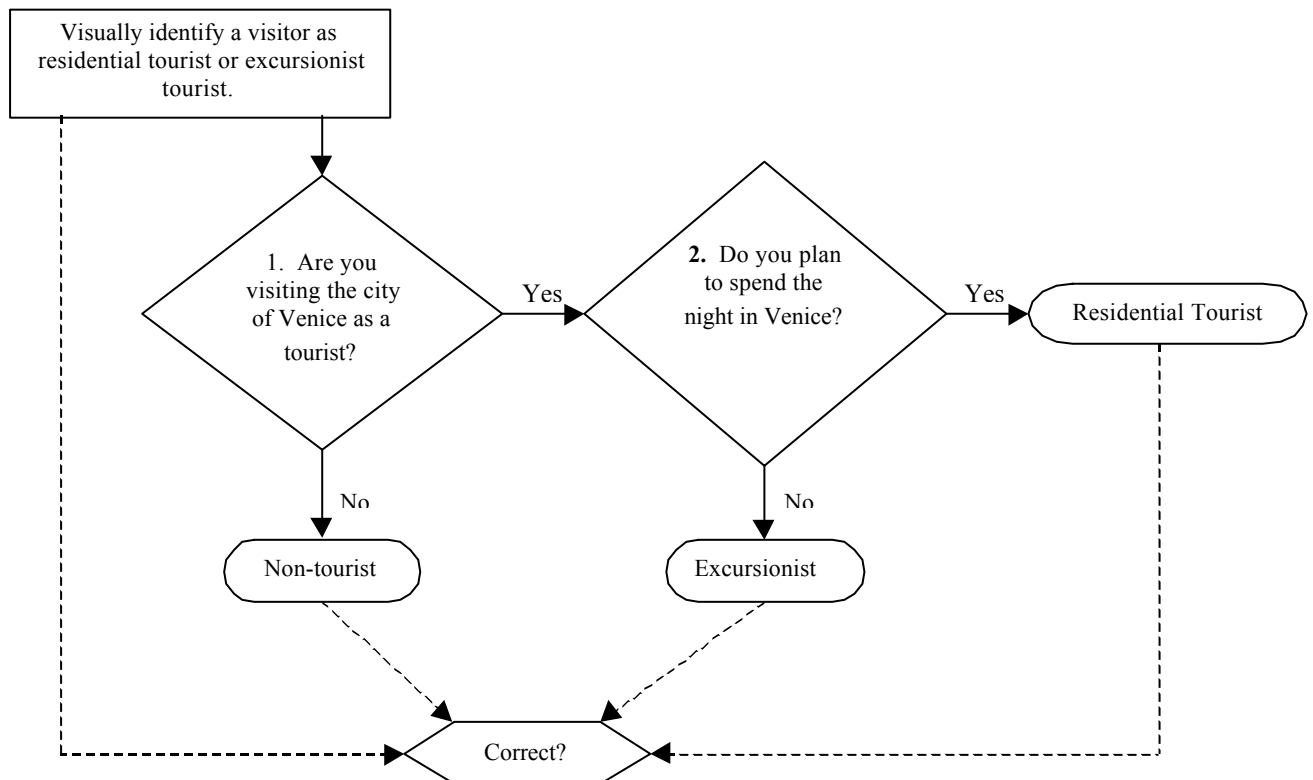
Figure 26: Flow Chart of Two-Question Survey to Verify Visitor Type[42]

If the   subject answered

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[42] The 1999 WPI project team originally developed this flow chart. It has been slightly modified for our use.

"no" to Question #1 we concluded we were talking to either a resident, businessperson or student and Question #2 became unnecessary. If the subject answered "yes" to Question #1, we concluded that we were speaking with either a residential or an excursionist tourist. From here the subject was asked Question #2. Depending on their answer, we were able to categorize them as a residential or excursionist tourist.

If an individual was recognized as a non-tourist, a different line of questioning was used. This avoided the social awkwardness of asking businesspeople or residents of Venice if they were tourists. Instead, we asked subjects who appeared to be residents if they were residents. If the respondent answered yes, then we knew that they were not tourists. If they answered no, then we questioned them as if they were tourists. The same procedure was used for businesspeople and students.

We first performed this test for visual identification at the Santa Lucia train station. We observed that there was a very high percentage of excursionist tourists, which made identifying the excursionists easy. At this site, we achieved a very high level of accuracy individually.

In order to test our abilities further we conducted this test again at the Piazzale Roma bus station. We found this site to have a wide variety of tourists, commuters, students and residents. At this site, we purposefully identified and questioned all types of tourists and non-tourists. The results of both tests for visitor identification are summarized in Table 9. Once we began our surveys we had further verification of excursionists.

Member	Attempts	# Correct	Percent Correct
1	94	85	90.4%
2	90	78	86.7%
3	128	111	86.7%
4	89	80	89.9%
5	96	88	91.7%

Table 9: Results of Verification of Visitor Type Test

4.1.7 Test for Consistency Among Team Members

Team members counted at different locations at different times during the data collection phase. Therefore, before actual counts took place, a test for consistency among members that was conducted. This test dealt only with the verification of excursionist tourists. The test enabled us to send teams of 1, 2 or 3 people to each site and obtain a consistent estimate of the day's influx of excursionists, as if the same person conducted all the counts.

Team members participated in fifteen 15-minute counts at the Santa Lucia Train Station, the Tronchetto, Piazzale Roma and Punta Sabbioni, and then comparisons were made. The results of the tests are in Table 10.

Team Member	S Lucia					Tron	P. Sabbioni		P. Roma						Total	Deviation

1	34	45	18	30	23	45	28	36	79	72	32	27	28	29	45	81	**652**	**4.26%**
2	39	51	19	28	25	46	28	37	81	74	75	42	34	30	44	91	**744**	**9.25%**
3	30	44	18	28	20	37	28	36	80	77	27	24	27	24	42	85	**627**	**7.93%**
4	32	40	25	27	17	38	28	33	78	74	48	33	39	40	52	76	**680**	**0.15%**
5	37	49	20	31	19	40	28	35	79	76	59	30	29	41	44	83	**700**	**2.79%**
															Average	681		4.9%

Table 10: Results of Consistency Test Among Members

The results were analyzed to give a standard deviation of **4.9 %**. The team was satisfied with these results and decided to move on to actual counts.

4.2 Scheduling

The most accurate method of obtaining a count of tourists would be to monitor all entry points at all times during the day and night. A complete census would require all points of ingress to be covered for the entire year as well as having all entering persons interviewed to determine their overnight arrangements. This is not feasible. As a consequence, an extremely accurate estimate by sampling is unattainable. In order to make the estimation as accurate as possible it was necessary to design the most efficient daily counting schedule for the project's time period. The sections to follow describe the final counting scheme and the rationale behind it.

4.2.1 Scheduling of Verification and Team Consistency Tests

Before the data collection began it was necessary to perform the visitor type verification test and the team consistency test described in Section 4.1.6-7. Once these tests were complete and had satisfactory results the team was ready to enter the data collection phase of the project. Therefore, these tests appear early on the calendar in Figure 29. The full day counts are discussed in the next two sections.

4.2.2 Hours of Relevant Tourist Influx

The times that we counted during the day remained the same as those of the 1999 WPI project team. Tests were designed that year to cover a larger time frame than would be necessary for the actual count; percentages were taken and low-influx times were ruled out. The 1999 team started counting on the first day at 7:00AM, earlier than they assumed necessary, and continued uninterrupted until 5:00PM. The result of this first extended count indicated that a timeframe from 8:00AM to 4:00PM would allow teams to intercept 95.7% of the excursionists entering Venice. The Tourism 2000 team decided to use this time frame because the counting time was still relevant and more consistent when comparing results to the 1999 estimate. The plot in Figure 27 represents an example of our full day count (aggregate of June 14-15(weekday) and June 17-18(weekend day) 2000).

Figure 27: Actual Data Collected From all Sites in 15-minute Increments
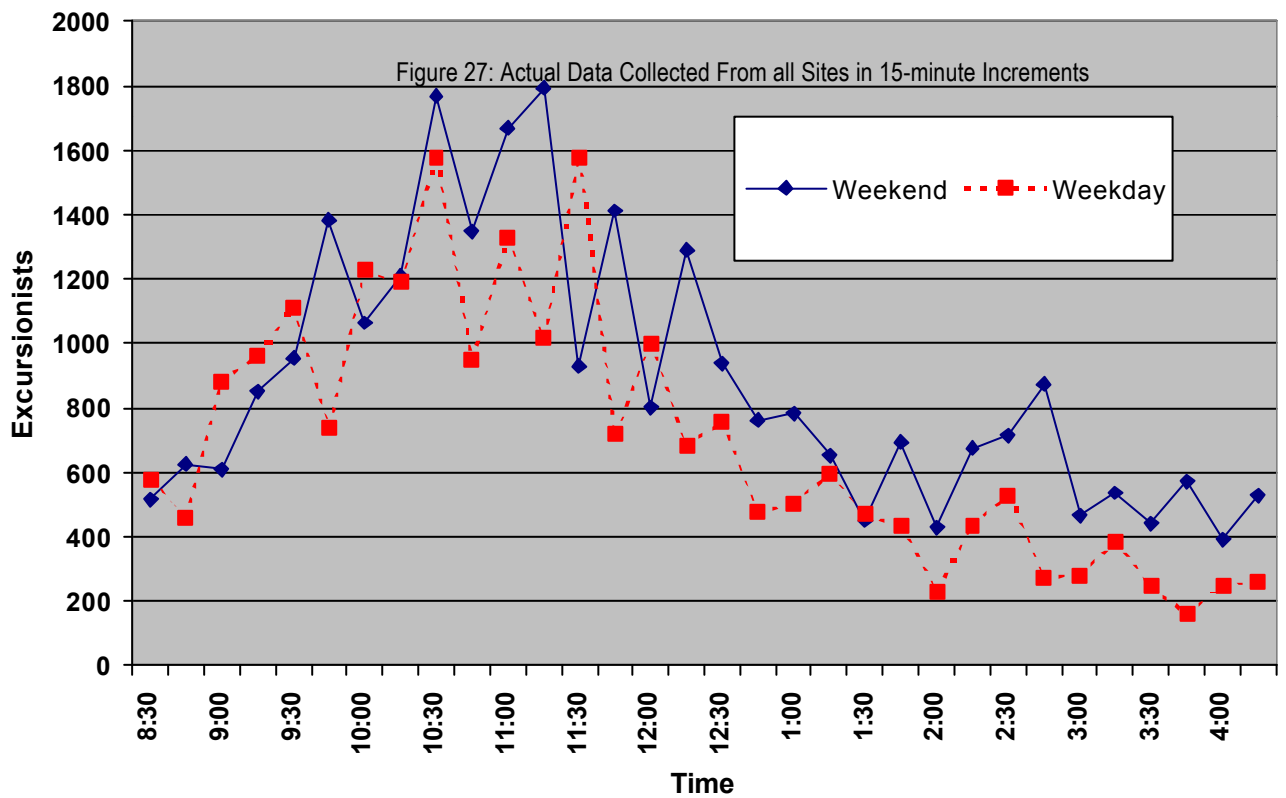
4.2.3 Full-Day Counts

Once the initial verification and consistency tests were completed and the team could consistently identify excursionists, intensive full day counts were performed (See Figure 29). This involved breaking the team into smaller groups in order to visit more than one site in a single day. Breaking into groups was achievable because the counting sites have a limited number of exits for excursionists to use. For example, the Tronchetto and Zattere sites have only a single exit useable by tourists, while the Santa Lucia Train Station has three.

The team members performed the counts of excursionists in 15-minute intervals continuously throughout the chosen timeframe (8:00AM to 4:00PM) discussed above. Figure 27 is an example of these 15-minute intervals. These initial counts were necessary so as to obtain a full day's general influx of travelers for each of the gateways. General influx plots for both a full aggregate weekday and a full aggregate weekend day were created, since travel on the weekend is different from travel during the week. These "general days" were used to extrapolate data to full days once we began to limit our counts to two and a half hour periods, discussed in the next section.

4.2.4 Reduction of the Counting Period

Once we obtained full aggregate weekday and full aggregate weekend day counts at each location it was possible to reduce the counting period to two and a half hours and still account for approximately 50% of the excursionists entering through each site for an entire week. Figure 28 shows the total weekday influx of excursionist tourists at all of the counting locations. The un-shaded portion contains around half the incoming excursionists, thus we decided to count from 9:30AM to 12:00PM and use the
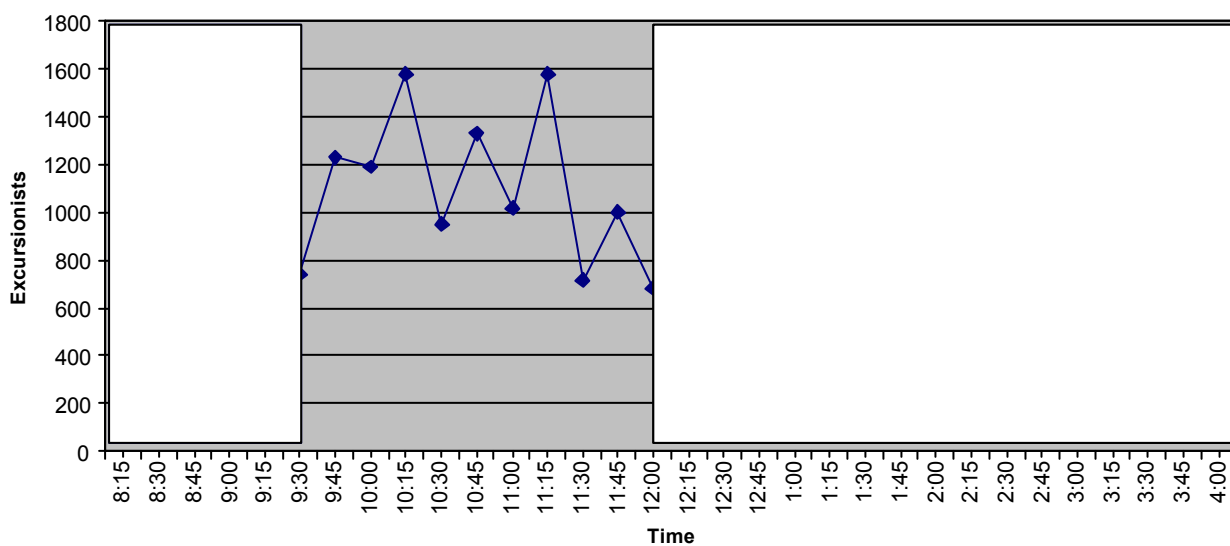

Figure 28: Truncated Counting Period (approx. 50% of Excursionists)

Table 11: Percentages of Total Influx for each Site for a Weekday (left) and Weekend Day (right) for the 9:30 to 12:00

percentages of the total influx of a full day (see Table 11) for each site to extrapolate to a day estimate. This procedure is explained and implemented in the Analysis Chapter. By counting for a full week at the same times at each site of ingress we could set up a weekly fluctuation from day to day.

Tron	PS	SL	PR
291	525	247	164
381	322	295	192
367	511	372	250
386	0	297	266
338	538	265	187
488	118	138	272
386	490	351	289
284	25	137	271
386	204	230	181
85	79	275	243
3392	**2812**	**2607**	**2315**
50%	**61%**	**49%**	**44%**

Tron	PS	SL	PR
339	56	360	310
376	35	372	372
300	470	501	496
617	50	148	532
345	0	785	538
503	541	288	386
182	0	332	417
300	265	436	412
221	0	259	322
156	379	401	274
3339	**1796**	**3882**	**4059**
39%	**49%**	**54%**	**48%**

4.2.5 Calendar of Events

In order to give the reader a plain view of the overall schedule that the team deemed necessary to achieve its goals we created a calendar of the days and events in June and July. Throughout the Methodology Chapter, the team referred to and will continue to refer to the calendars in Figure 29.

JUNE						
Sun	Mon	Tues	Wed	Thurs	Fri	Sat
				1	**2**	**3**
4 Check out sites of ingress	**5** →	**6** Verification and Consistency Tests	**7** →	**8** →	**9** Piazzale Roma(5)	**10**
11	**12**	**13** Practice Surveying	**14** S. Lucia(2) P. Sabbioni(1) Tronchetto(1)	**15** P. Roma(3) Zattere(1)	**16**	**17** S. Lucia(2) P. Sabbioni(1) Tronchetto(1) Proxy at Sighs
18 P. Roma(3) Zattere(1)	**19**	**20**	**21** S. Lucia(2) P. Sabbioni(1) Tronchetto(1) samples begin →	**22** →	**23** →	**24**
25	**26** Sample Counts →	**27** →	**28**	**29** Start Surveying →	**30** →	

JULY						
Sun	Mon	Tues	Wed	Thurs	Fri	Sat
						1 Sample Counts →
2 →	**3** ←	**4** SURVEY → ← Sample Count at Piazzale Roma →	**5**	**6**	**7**	**8** → →
9 → →	**10**	**11**	**12**	**13**	**14**	**15** Count Redentore
16	**17**	**18**	**19**	**20**	**21**	**22**
23/30	**24/31**	**25**	**26**	**27**	**28**	**29**

Figure 29: Calendar of Counting and Surveying Days

4.3 Proxy Count

A proxy counting location is a site that is representative of the overall city, in terms of the flow of excursionist tourists. It would faithfully synthesize the total presence of excursionists in the city, albeit in a proportionally smaller amount. The advantages of a proxy site are obvious in terms of cost, manpower and time. The project team chose the Ponte della Paglia as a potential proxy location. We chose the Ponte della Paglia because it is a popular tourist location, looking at the Bridge of Sighs, and it is easy to count tourists as they cross the bridge. Figure 30 shows an aerial view of the Ponte della Paglia. Unfortunately, it was difficult to distinguish residential tourists from excursionists at the bridge because residential tourists rarely take their luggage while sightseeing. For this reason all tourists were counted crossing the bridge. Analysis of the proxy count will be discussed in the Analysis Chapter.
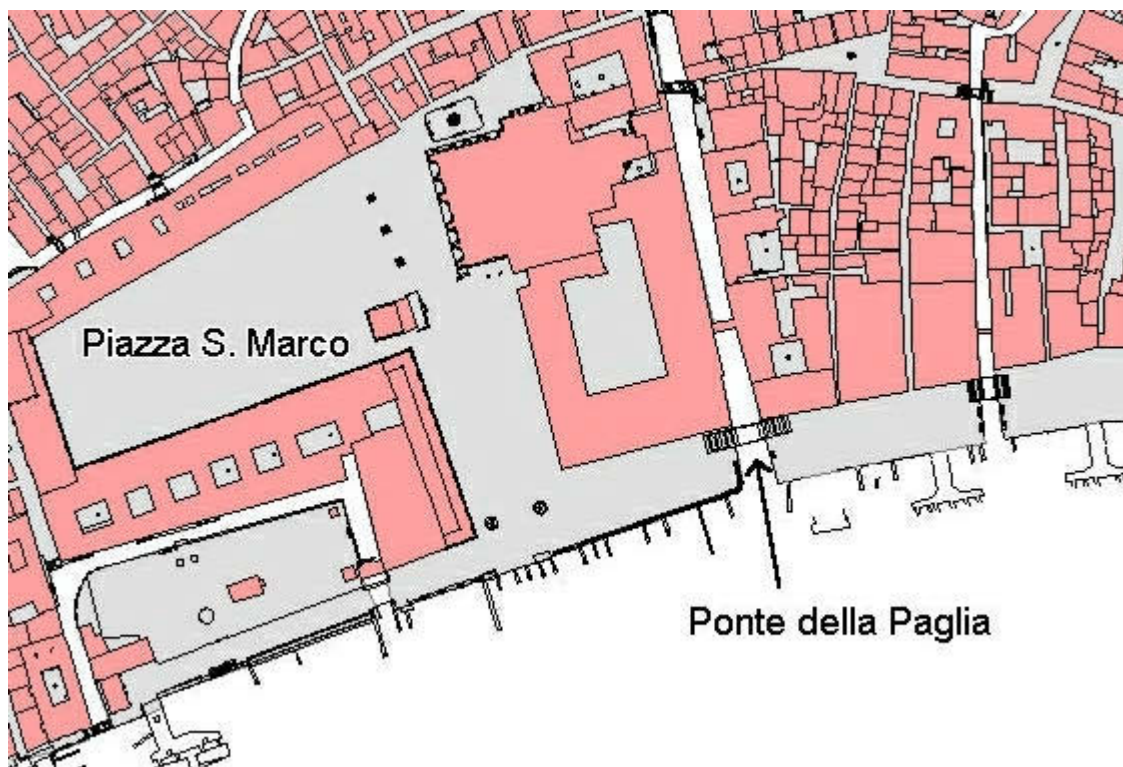

Figure 30: Map of the Ponte della Paglia

4.4 Sestiere Density Study

The team decided to conduct sample density tests to see which sestiere was the most popular f or tourists and non-tourists. The test consisted of team members walking through each sestiere at the same time (12:00PM – 12:30PM) and following a pre-determined path. The paths were chosen so as to include the most popular tourist areas. Figure 31 shows the chosen paths. The tests were thirty minutes long and the team members counted both tourists and non-tourists along the walk. The results of this test are discussed in the Results Chapter.
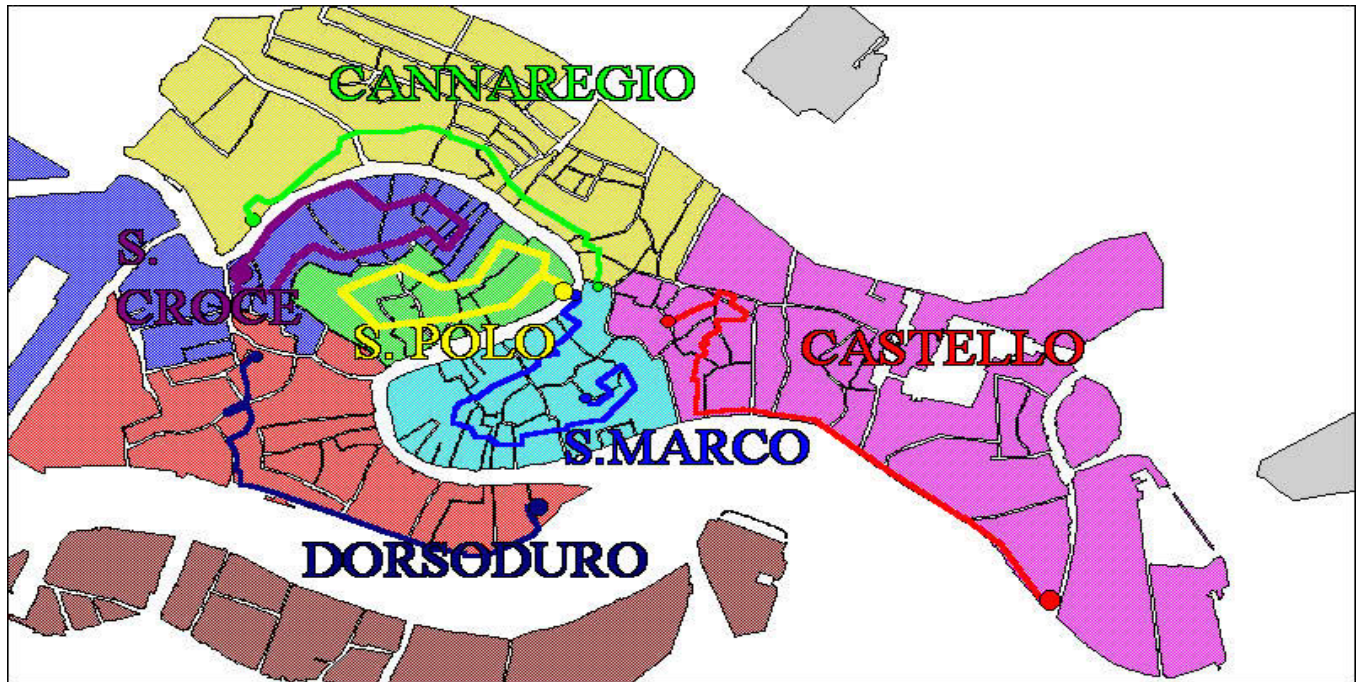

Figure 31: Paths Followed During Sestiere Density Tests

4.5 Phase 2: The Qualitative Characterization of Excursionists

Visually, it is possible to distinguish tourists from non-tourists and excursionist tourists from residential tourists. Any additional information, such as type of excursionist tourist, travel motivation or spending cannot be reliably determined by sight. To obtain this information excursionist tourists must actually be questioned, thus making a survey necessary.

The ideal surveying method would involve questioning every tourist. This is not feasible due to a lack of manpower, time restrictions, language barriers, and non-responses. A methodical sampling of the tourist population is a more realistic approach. To extract a representative sample, several factors were considered, such as the selection of tourists to question, where to survey, what type of survey to give, and what questions to ask. This section addresses these issues and discusses the most effective and feasible solutions.

4.5.1 Survey Rationale

It is possible to deduce much information about a traveler using visual identification techniques. The visual method is adequate for determining the type of traveler (tourist or non-tourist) and type of tourist (excursionist or overnight). Unfortunately, excursionist type (local, commuting or stop-over) cannot be determined visually. Visual methods alone cannot gather detailed information about these travelers, such as their nationality, hotel plans and monetary expenditure. A survey is necessary to gain this qualitative information about tourists.

4.5.2 Type of Survey

There are several methods of administering a survey. The basic possibilities are written surveys sent by mail, questioning by phone, and face-to-face interviews. The main factors affecting the type of survey we performed were the resources available, time constraints, potential biases, and the characteristics of the respondents.

Sending written surveys by mail was not a practical option. This method allows for the largest variety of questions; unfortunately the characteristics of the respondents make such a survey impossible. We were surveying tourists who were not at their mailing addresses during the timeframe of the survey. But more importantly, we did not know who the tourists were before they came into Venice. For these obvious reasons, we eliminated the option of performing the survey by mail.

Telephone questionnaires can be effective, but require a list of telephone numbers for the population in question. It is impossible to obtain a telephone number list for the excursionist tourists entering Venice. Therefore, a telephone questionnaire could not be used.

We found that conducting face-to-face interviews was effective for surveying respondents in Venice because the city has a limited number of major entry points, which made it possible to approach

respondents in a face-to-face manner. We were able to gather some information visually, such as age, gender and group size. Unfortunately, being in Venice for only two months, we were unable to gather information for the entire year, so extrapolation was required.

4.6 Sampling Method

The second stage in developing a method of survey administration was to choose the most appropriate means of selecting respondents, since it was clearly impossible to survey all excursionist tourists in the city of Venice. Therefore, a systematic method of sampling was required. First, a sample size needed to be determined, which was based on the desired level of confidence and the size of the population to be sampled. The sampling method then needed to be chosen.

4.6.1 Determining Sample Size

A sample is a set of respondents selected from a larger population for the purpose of a survey. The reason to sample is to save time and money. There is always some degree of error produced by sampling; we wanted to keep this error as small as possible. According to Salant and Dillman, a sampling error of plus or minus 3% is generally acceptable. [43]

The desired confidence level and population size determine the number of surveys required. The 1999 WPI project team found that approximately 1,160,720 excursionist tourists visited Venice over the course of June and July of that year. [44] Based on a chart of sampling size versus population size and sampling error found by Salant[45] we found that a sampling size of 1,066 excursionists is required to maintain a 3% sampling error. This was more surveys than we could feasibly administer in the project's time period. By increasing the amount of error to plus or minus 5% the sample size was reduced to 384, which was a feasible number for the time available to our team.

4.7 Type of Sampling

When drawing a sample from a population it is important that every person has an equal chance of being selected, thereby producing a random sample that has the same characteristics as the entire population.

4.7.1 Simple Random Sampling

Simple random sampling gives each member in the target population an equal chance of being selected by basically pulling names out of a hat. To use this method in Venice we needed some way to

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[43] Priscilla Salant, and Don A. Dillman, How to Conduct Your Own Survey, p. 55
[44] 1999 WPI Project Report, p. 80
[45] Salant and Dillman, ibid, p. 55

put all the excursionist tourists on a list so that we could randomly select them. This was clearly impossible as there was no way to obtain a list of all the day-trippers who entered Venice.

4.7.2 Systematic Sampling

We decided to use a form of systematic sampling method that yields a random sample. We surveyed every tenth excursionist that passed a specific point at each location. By pulling respondents out of the stream of passing excursionists we obtained a random sample. This provided a random sample with a known reliability of selection to be useful in the analysis process. We chose to survey every tenth excursionist, so each excursionist had a 0.1 probability of being selected.

4.8 Question Design

We considered several options before we decided on the final survey questions. The following sections describe our reasoning and our ideas about the information that was needed from the subjects, the types of questions that we could and could not ask, and our thoughts about the wording of sentences in surveys.

4.8.1 Desired Information

The first step in writing our survey was to identify the information that we wanted to collect. We were interested in classifying excursionists by:

- Type
- Spending
- Involvement with Jubilee 2000
- Nationality
- Age

4.8.2 Types of Question Structures

The team looked at four different types of questions before the team developed the final survey. These types included open-ended, ordered choice close-ended, unordered closed-ended, and partially close-ended questions. These survey question types that were considered for use in this project are described in the following sections.

4.8.2.1 Open-Ended Questions

Open-ended questions are the easiest to write but have drawbacks. The respondents must formulate an answer in their own words. They may be asked to recall past experiences that might not

have been considered recently. It is very unlikely that more than a couple respondents will bring up the same topic. These answers would be long and hard to code when sorting. We only used this question to determine where commuting excursionists were spending the night.

4.8.2.2 Close-Ended Questions

Two types of questions fall within this category. The f irst type is ordered choices where the answers fall on a gradient. The job of the respondent is to find an appropriate place on the continuum for their answer. Since these questions are very specific it is easier for the respondent to answer and easier for coding and analysis by the team. The other type of close-ended question is the unordered response choices, which do not fall on a continuum.

4.8.2.3 Partially Close-Ended

Partially close-ended questions fall in-between open and close-ended questions. Choices are given below the question but the respondent also can fill in his or her own answer if needed.

4.9 Survey Questions and Rationale

The purpose of conducting a survey was to gather information that could not be assessed visually about the excursionist tourists in Venice, such as hotel plans, spending and travel motivation. In addition, alternative surveys were administered to incoming excursionists, outgoing excursionists, and excursionists who were part of tour groups. This data will provide the APT with a general characterization of the excursionist tourists.

4.9.1 Classification of Excursionists by Point of Entry

We conducted the surveys at the same points of entry to Venice at which we counted. This made determining the point of entry into Venice and mode of transportation of the subject simple to verify. There was therefore no question regarding point of entry on the survey, but the members of the project team administering the survey recorded this information.

4.9.2 Confirmation of Tourist Type

The survey served as a confirmation of the visual identification of the tourist types. The first question determined if the traveler was a tourist. If the traveler was a tourist, then the second question was asked and determined tourist type (residential or excursionist). This served as a test of the visual identification of excursionist methodology.

4.9.3 Classifying Excursionist Tourists

Excursionist tourists can be classified as three types: local, commuting, and stopover, as described in Chapter 1. Local excursionists are tourists who visit Venice for the day and spend the night at their permanent homes. Commuting excursionists are those tourists who spend the night outside of Venice proper, but visit it for the day. Stopover excursionists are tourists who are on an extended tour; they spend one day in Venice and move on to another location of which they did not spend the previous night.

1. Are you spending the night at your permanent residence?
   - ❑ Yes
   - ❑ No

2. Are you spending the night in a location outside of Venice and visiting Venice multiple times?
   - ❑ Yes
   - ❑ No

   ❑

Figure 32 shows how these were used to place the tourists into an appropriate category and our rationale behind these questions.
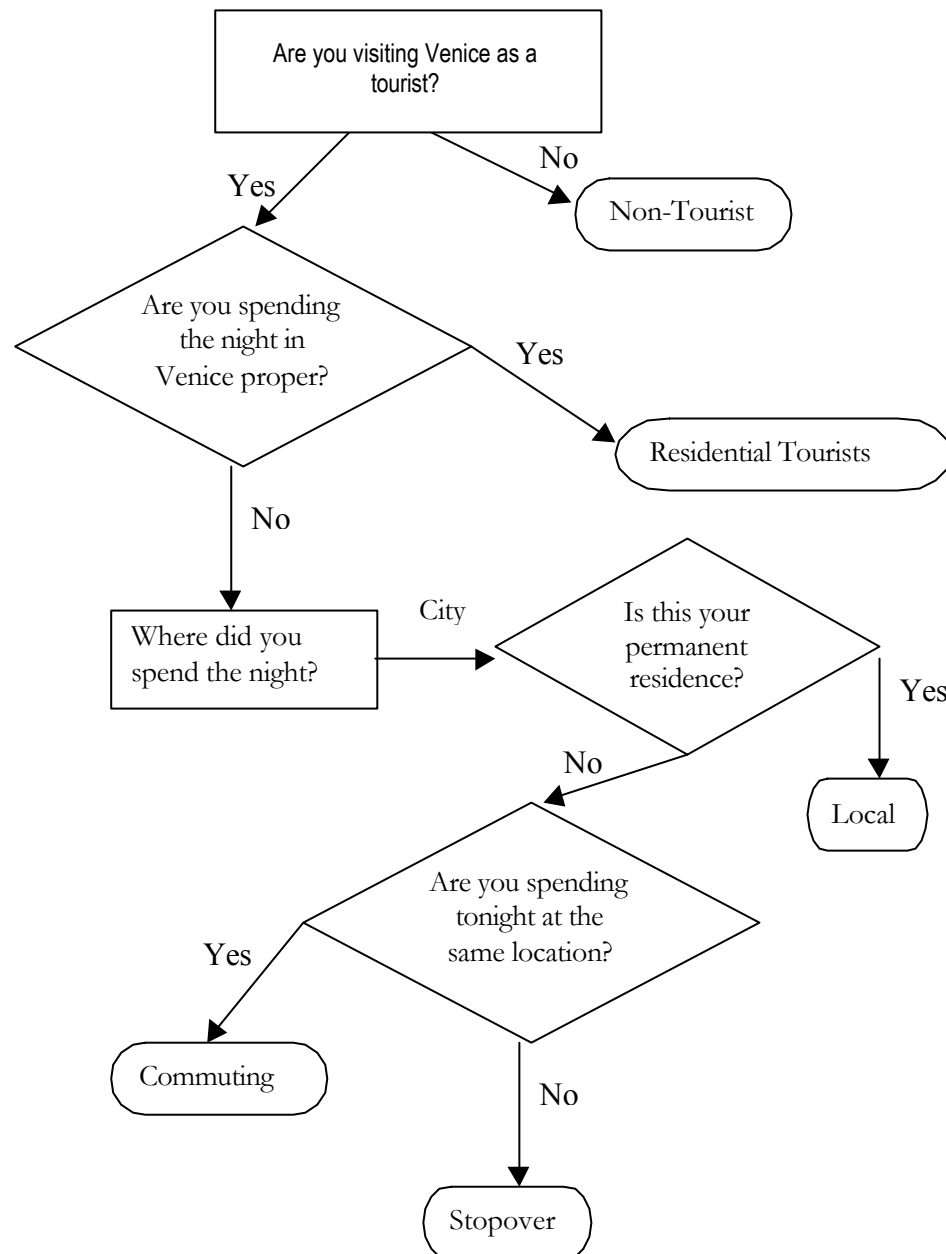
Figure 32: Determining Type of Excursionist Tourist

4.9.4 Determining the Overnight Plans of Excursionist Tourists

By definition, excursionists do not spend the night in Venice. It was of interest to determine where they spent the previous night, and why they were not staying in Venice. Several types of questions can be asked to determine where an excursionist spent the previous night. The most obvious would be to simply ask the name of the city and country where they spent the night. The drawback to this is that the variety of answers may be too large to draw useful conclusions. One solution is to ask the tourist to select from a list of popular cities near Venice. Unfortunately this results in a list that is either too long to be practical, or an incomplete list that may omit important locations. A third option is to classify possible

overnight locations by distance from Venice. For instance, a range of distances could be provided (1 to 10 km, 10 to 50 km, etc) and the tourist would pick among the ranges. Although this would provide interesting data, it is unlikely that the average tourist would know this information.

Based on these factors, we decided to ask tourists for the name of the city where they stayed. When analyzing the results we had the option to group these locations by distance from Venice. It was then possible to determine the most popular overnight locations.

4.9.5 Determining the Amount of Money Spent by Excursionists in Venice

It is a common belief that excursionists spend less money per person than residential tourists. We attempted to determine if this is true by estimating the amount of money spent by excursionists per person. The obvious question to ask was "How much money did you spend today in Venice?" The problem was that excursionists on their way into the city could not be certain as to how much they would spend and were likely to give a low estimate. This problem could be partially solved by surveying excursionists in the evening as they departed from the city. Although departing tourists most likely had a better idea of the amount they had spent, it was unlikely that they had calculated an exact number. Therefore, it was necessary to offer a range of values from which the tourist could choose (i.e. 0 to 20.000 lire, 20.000 to 40.000 lire, etc.).

It was our objective to determine the amount of money being spent per excursionist, but if tourists were traveling in groups, such as families, it was more difficult to estimate the amount spent per person. To do so, it was necessary to determine the size of the group and to identify the primary spender. Once this was known, the amount spent per person could be found by dividing the total amount spent by the size of the group. This estimate was used to determine the amount of money spent by excursionist tourists in Venice over the entire year.

3. How much do you plan to spend in Venice today? (Optional)
- ❑ L 20,000 – 40,000 ($10-20)
- ❑ L 40,000 – 80,000 ($20-40)
- ❑ L 80,000 – 100,000 ($40-50)
- ❑ L 100,000 – 200,000 ($50-100)
- ❑ L 200,000 – 400,000 ($100-200)
- ❑ L 400,000 – 1,000,000 ($200-500)
- ❑ L 1,000,000+ ($500+)

4.9.6 Determining the Effect of Jubilee 2000 on Excursionists

It was anticipated by the WPI project team that the Jubilee 2000 would increase the flow of tourists to Venice. This speculation was supported by the addition of three "Jubilee Lines" by the Azienda Consorzio Transporti Veneziano (Actv). This increase in the number of tourists is now detectable by comparing the final quantitative estimate for the year 2000 with that from 1999. A qualitative method was needed to back up the determination on if this increase was a result of the Jubilee 2000 celebration.

The simplest way to determine if tourists were traveling as part of Jubilee 2000 was to ask them, "Are you traveling in celebration of Jubilee 2000?" Some tour groups wore Jubilee 2000 hats, buttons, and nametags. This made it possible to visually identify some tourists as participants in the Jubilee 2000 celebration. This, in combination with the quantitative count establishes whether or not there has been an increase in the number of excursionist tourists due to Jubilee 2000.

4. Are you traveling in celebration of Jubilee 2000?
   - ❑ Yes
   - ❑ No

4.10 Survey Types

We developed three surveys based on when and to whom the survey would be given. Separate surveys were given to excursionists entering Venice, excursionists departing from the city and excursionists that were members of tour groups. The project team viewed these three survey types as useful for this project.

4.10.1 Incoming Excursionist Survey

Incoming excursionist tourists provided some definite information about themselves, but only speculations could be made as to what they did in Venice. For instance, demographics and hotel plans were certain while how much they would spend was only a prediction. This affected the phrasing of the survey questions, as they had to be asked in the future tense. The complete survey for incoming excursionists is included in Appendix A.

4.10.2 Departing Excursionist Tourist Survey

Departing tourists could provide more accurate information than incoming tourists. After having spent the day in Venice, these outgoing tourists were able to provide definite answers to questions concerning their activities within the city. The complete survey for outgoing excursionists is included in Appendix A.

4.10.3 Tour Group Survey

Excursionists who are part of a tour group have some unique characteristics. They likely had well-defined traveling plans and a pre-planned itinerary. Unfortunately, it was difficult to survey tour groups as they entered the city because they were following a tour guide and were reluctant to stop. Therefore, we used a shortened survey, which is included in Appendix A.

4.11 Use of Visual Evaluation for Survey

In order to achieve a high response rate, the number of survey questions had to be kept to a minimum. Fortunately, it was possible to determine some information about respondents without asking. For instance, the age and sex of a respondent could be approximated visually. Additionally, it could be determined if excursionists were traveling in groups, and the size and type of group could be presumed.

4.11.1 Visual Determination of Age

Age can be a sensitive issue; therefore we did not explicitly ask respondents their age. Instead, the group member administering the survey visually estimated the age of the respondent. Age was approximated as follows:

- Under 18
- 18-30
- 30-50
- 50+

4.11.2 Visual Evaluation of Groups

Tourists, particularly day-tourists, frequently travel in groups. These groups varied in size and composition from tour groups to school groups to families and couples. It was often unnecessary to ask a specific question concerning the size and type of a group; this could be determined visually. Visually determining whether or not excursionists were traveling in a group was fairly straightforward. When traveling in a group, tourists stay close together and talk among themselves. This was often seen with families, who traveled in groups that generally consisted of one or two parents and their children. When one member of a group was stopped for surveying the rest of the group generally stopped as well.

The size of a group was easy to determine. Survey administrators only needed to count and record the number of members in the group.

Tour groups usually arrived by bus. They moved from the bus to the boat stop in a group and normally had a group leader, or tour guide. Guides often carried a flag, umbrella or other bright object that was held in the air. If the survey administrator was not in a position to view the tour groups getting off the buses, the presence of a tour guide was the second most characteristic sign.

School-groups were another common type of excursionist group. School groups came to Venice for the day for a "field trip." These groups were similar to tour-groups in that they arrived by bus (or train in this case) and had a tour-guide. In the case of school groups the tour-guide was a teacher and possibly accompanied by several parents. School-groups could be distinguished from tour groups because school-groups were composed primarily of students. These students were generally of similar age and carried backpacks. Thus, the survey administrator could determine school groups by sight.

4.12 Survey Administration

The method by which a survey was administered greatly affected the accuracy and reliability of the results. This method had to ensure that the individuals surveyed were representative of the excursionist tourist population. The first step in obtaining a representative sample was to identify possible sources of bias and then reduce their effects.

4.12.1 Survey Biases

This section explores the biases that were inevitable in conducting this survey. These biases were based on language and response rate. We present here our strategies in minimizing these factors.

4.12.1.1 Reducing Biases Due to Language Barriers

Tourists come to Venice from many nations and in order to adequately sample the various nationalities, the surveying method had to be non-dependent on a particular language. If only English-speaking tourists were surveyed, the results would be severely biased, thus reducing the usefulness of our results.

We reduced this bias by compiling a written, multiple-choice survey translated into six languages (Appendix A). We administered the survey in English, Italian, Spanish, Portuguese, French and German.[46] We also translated a brief survey introduction into these six languages to help ease the communicating with these people. Written surveys greatly reduced language barrier biases.

Visual aid proved useful in reducing language barriers. We used visual aid to help determine if tourists were spending the night in Venice and if they were traveling in celebration of Jubilee 2000, and also to pinpoint nationality. Figure 33 shows the visual aid, created by the team, were designed and used to determine if someone was spending the night in Venice.
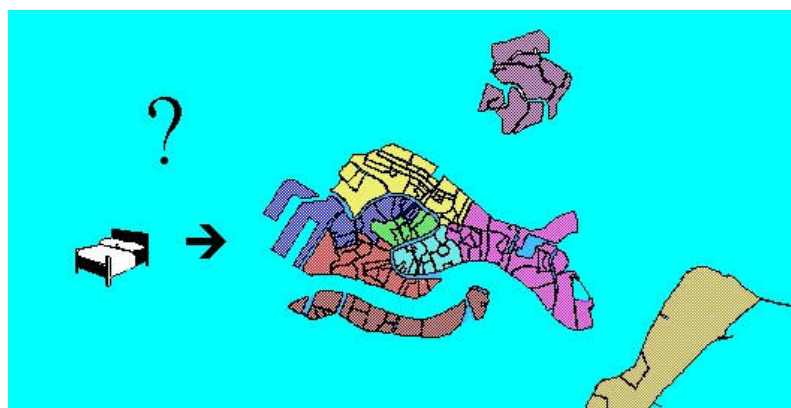
Figure 33: Visual Aid to Determine if a Tourist is Spending the Night in Venice

We used pictures of the flags to help determine nationality [47]. To help question about Jubilee 2000 we used a Jubilee 2000 symbol. These visual aids are collected in Appendix E.

4.12.1.2 Reducing Non-Responses

Conducting person-to-person surveys was also difficult due to cooperation issues. Tourists were often anxious to see the sights and although they may have spent some time getting oriented, public transportation stations were not locations where travelers liked to spend time. Additionally, travelers were often weary of strangers. It was necessary to take steps to reduce biases due to lack of cooperation. These included short survey questions. We asked survey questions politely and gave the option of leaving out any question one did not wish to answer. We expected most tourists to be open-minded and fill out our survey. To maintain a professional appearance, team members wore nametags and carried letters from the APT guaranteeing their authenticity.

A standard script was useful to ensure that all group members were consistently courteous to respondents. This script is located in Appendix A. The script outlines a general procedure to introduce oneself to a potential respondent. Additionally, appropriate answers were provided to questions and to address concerns a tourist may have had about the survey.

4.12.1.3 Effect of Time-of-Day on Survey

It could be assumed that the excursionist tourist population was homogenous with respect to time. In the summer of 1999 a WPI project team conducted tests that showed a heterogeneous influx of tourists during the day. [48] There were many reasons why different types of tourists may have arrived at different times. Traveling distance was one factor. By definition, excursionists spend the night outside Venice proper. The travel time from the location of temporary residence to the city of Venice would affect arrival times.

4.12.2 Locations of Survey Administration

We chose to survey at the same sites at which we counted. We did this because we had already determined that these sites received a significant amount of excursionist tourist traffic from outside of Venice. Through our counts, we knew the approximate number of excursionist tourists that entered each site. This information was necessary when determining our sampling error.

We surveyed at the Tronchetto, Piazzale Roma, the Santa Lucia train station, and the Punta Sabbioni boat terminal. We noticed that many tour groups used the Tronchetto parking lot and found it

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[46] Translations were performed by the APT of Venice (German, Portuguese, and French), Luis Flores (Spanish), Francesco Pancheri (Italian)
[47] National flag pictures found at http://www.flags.net/fullindex.htm#indexV
[48] 1999 WPI Project Report, p.21-22

difficult to administer the complete survey to the tour groups at this site. So in order to increase the number of surveys completed by tour groups, we decided to survey in St. Mark's Square as well, since most (if not all) tour groups visit it.

4.12.3 Response Rate

In addition to the unbiased selection of survey participants, it was desirable to achieve a high response rate, which is the number of completed surveys divided by the total number of people who were asked to participate in the survey. Generally, a minimum response rate of 60% is required to validate the results of a survey.[49] The total number of tourists asked to participate and the number of non-responses were recorded on the survey field form in Appendix A.

4.12.4 Schedule for Survey Administration

The tourist flow into Venice was not homogenous by hour or day. As a result, to obtain a representative sample of the excursionist tourist population, surveying was conducted on various days of the week, and at various times of the day. A calendar for the months of June and July is included earlier in this chapter to show our survey schedule during these months.

4.13 License Plate Count

Many tourists travel to Venice by car and bus. The nation from which these cars and buses originate could be determined by their license plates, and this was helpful in determining the nationalities of the tourists entering Venice by car.

License plates were counted, by nationality, at the Tronchetto and Punta Sabbioni car parks. At Punta Sabbioni, license plates were tallied for cars in the public parking lots. At Tronchetto, the car license plates were counted on the ground, first, second and fifth floor of the parking garage, and also

tallied were the tour buses in the bus parking lot shown in Figure 34. The field form used for this is located in Appendix A. This form contains multiple pictures of many European license plates [50].

Unfortunately, it was impossible to determine whether or not a car belonged to a tourist. Additionally, it was possible that an American tourist would arrive on a tour bus from Germany. Regardless, this data was relatively

Figure 34: Bus Parking Lot at Tronchetto

[49] Safant and Drillman, ibid, p. 55
[50] License plate pictures found at http://danshiki.oit.gatech.edu/~iadt3mk/index.html

easy to collect and supports our survey results for the characterization of nationalities entering into Venice.

5 QUANTITATIVE RESULTS AND ANALYIS

This chapter will review both the resu lts of the counts and the extrapolation of them to weekly, monthly, and yearly estimates. The raw data from the counts includes the actual count data for full and partial day counts for the various counting locations. Additionally, the results of the Proxy count at the Ponte della Paglia will be shown and discussed, fallowed by the results of the sestieri density study. Finally a rough estimate will be made for the Redentore and the error in these extrapolations will be analyzed.

5.1 Quantitative Results

The primary quantitative results are the numbers of excursionists counted on full and partial days at the various locations. From these counts we can see the daily and weeklong flow of excursionists into the city of Venice. We can also see the distribution of incoming excursionists by site. The proxy count at the Ponte della Paglia provides interesting proxy information and the sestieri study provides insight into the distribution of tourists around the city.

5.1.1 Results of Full Day Counts

The first step in determining how many excursionists enter Venice in a year was to count how many entered each day at each site. To do this, we counted from 8am to 4pm, for one weekday and one weekend day at all sites. These counts were performed at Tronchetto, P. Sabbioni, S. Lucia, P.le Roma, Zattere and Chioggia during the week. Because of personnel restraints we could not cover all sites on the weekend, so we chose to not count at Chioggia because it took in only 1% of the excursionists during the weekday counts. The results of these counts are shown in Table 12

	Tronchetto	P. Sabbioni	S. Lucia	P.le Roma	Zattere	Chioggia
Wednesday Jun-14	6,766	4,629	5,303			219
Thursday Jun-15				5,231	352	
Saturday Jun-17	8,481	3,702	7,130			
Sunday Jun-18				8,402	425	

Table 12: Full Day Counts

By assuming that all weekdays are similar and all weekend days are similar these results can be grouped by weekday and weekend day forming aggregate days. For an aggregated weekday 22,500 excursionists entered Venice and for an aggregate weekend day this number rises to 28,140. As expected

there is a rise in the overall number of excursionists on the weekend. The number of excursionists entering each site for aggregate week and weekend days is shown in Table 13.

	Weekday	Weekend
Tronchetto	6,766	8,481
P.Le Roma	5,231	8,402
Santa Lucia	5,303	7,130
Punta Sabbioni	4,629	3,702
Zattere	352	425
Chioggia	219	- -
Totals	22,500	28,140

Table 13: Excursionist Count by Site for Aggregate Days

5.1.2 Distribution by Site

The distribution by site during the week and on the weekend of excursionists can be found using these aggregate counts. They are shown in Figure 35. During the week and on weekends, the Tronchetto car and bus park brought in 30% of the excursionists. Zattere and Chioggia combined only received 3% of the excursionists during the week. This shows that these are minor counting locations.
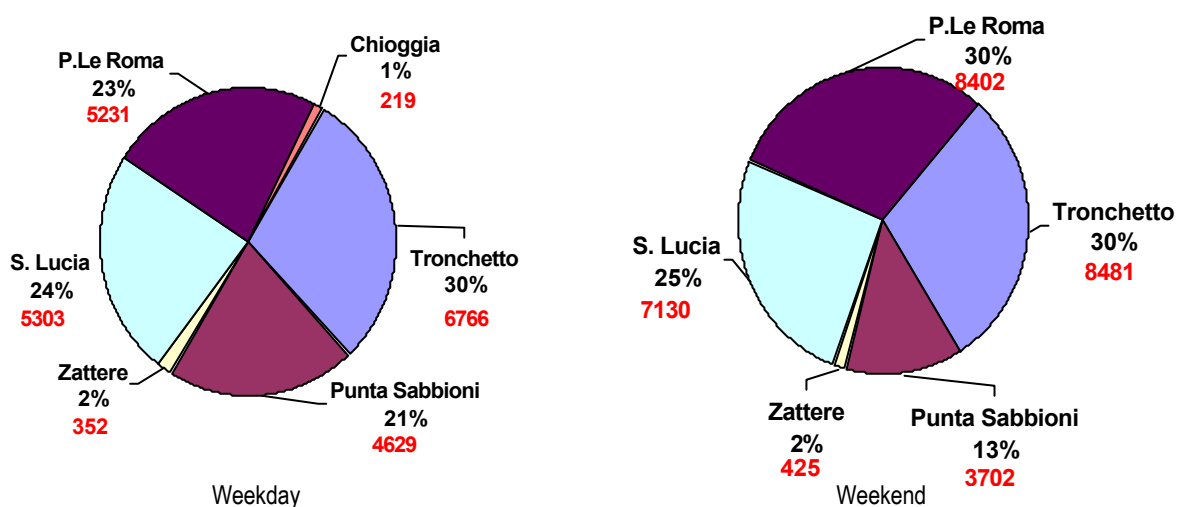
Figure 35: Distributions of Excursionist Tourists by Site

Punta Sabbioni dropped eight percentage points during he weekend. This could be due to the fact that most of the Punta Sabbioni visitors are more sophisticated travelers from northern Italy an Germany trying to avoid weekend crowed. The Piazzale Roma increased from 23% to 30% on the weekend, while the Santa Lucia stays fairly constant.

5.1.3 Daily Flow of Excursionists

To determine the flow of excursionist tourists over the course of a weekday and weekend day we recorded the number of excursionists in 15-minute intervals. Figure 36 shows a graph of the summation of excursionists at all counting locations for an aggregate weekday and weekend day.
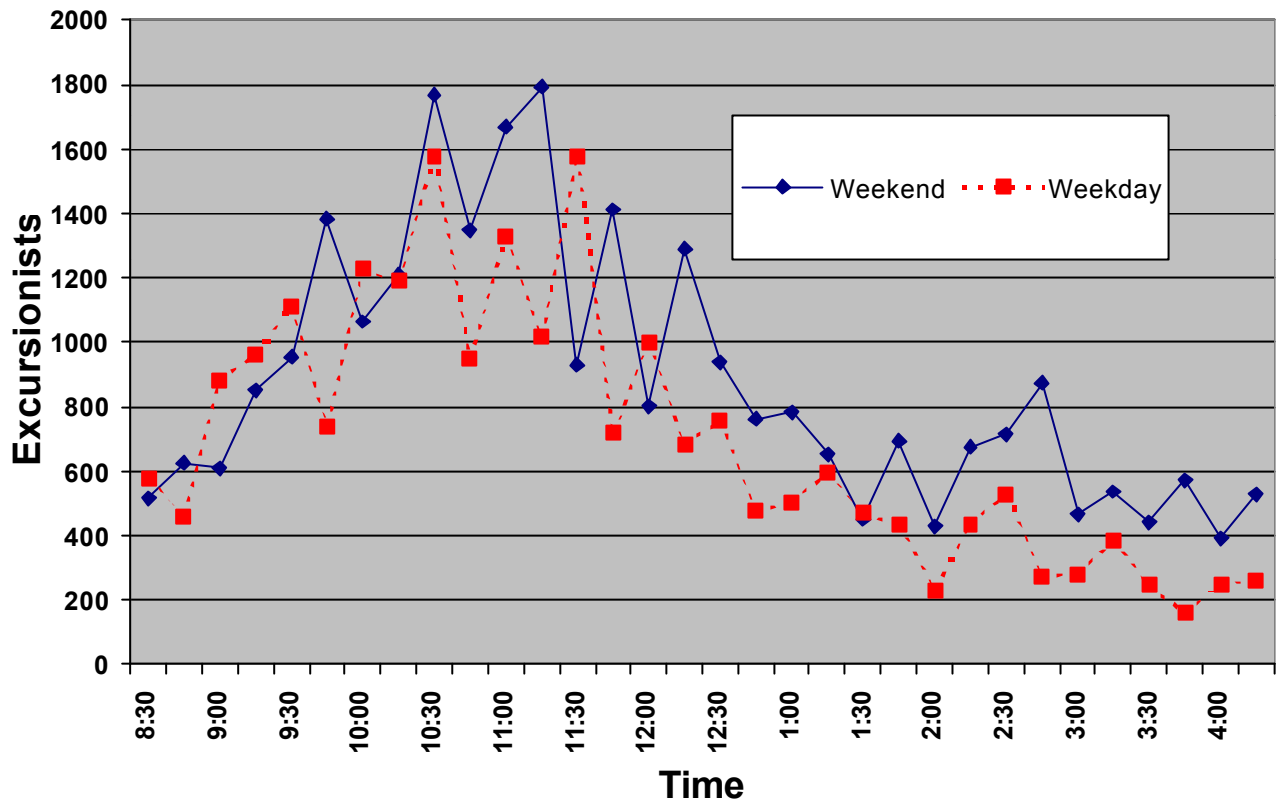
Figure 36: Aggregate Weekday and Weekend Excursionist Tourist Traffic

From this graph, it can be seen that on weekdays fewer excursionist tourists entered the city of Venice than on weekend days. On both weekdays and weekends there was a rise early in the day between 9:00 and 12:00. On the weekend, a minor rise also occurred between 2:00pm and 3:00pm

5.1.4 Weeklong Partial Day Count Results

Once we found the flow of excursionists over the day it was necessary to measure the excursionist fluctuation over an entire week. To accomplish this we counted for the same time period, 9:30 to 12:00, at all major sites, every day of the week. We counted at, Punta Sabbioni, Tronchetto, at Santa Lucia and Piazzale Roma for this truncated time period. We did not count at the Zattere or Chioggia boat stops because they only took in three percent of the excursionists during the full day counts. The results of our full week of partial day counts can be seen in Table 14.

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Tronchetto	2,920	4,095	3,807	3,599	3,526	2,984	3,073
Punta Sabbioni	3,026	2,334	2,778	2,052	1,775	1,256	1,055
Santa Lucia	2,291	2,601	2,686	2,502	2,967	4,110	3,788
P.le Roma	3,333	2,988	2,750	2,522	2,252	2,280	2,299
Totals	8,237	12,018	12,021	10,675	10,520	10,630	10,215

Table 14: Weeklong Sample Count Results

The number of excursionist tourists entering each site varies considerably t hroughout the week. The number of excursionists counted at each site over the course of a week is shown graphically in Figure 37. The Santa Lucia train station showed a rise on the weekends while Punta Sabbioni decreased on the weekend and peaked early in the week. The Tronchetto and Piazzale Roma were both highest at the beginning of the week tapering down towards the end of the week.
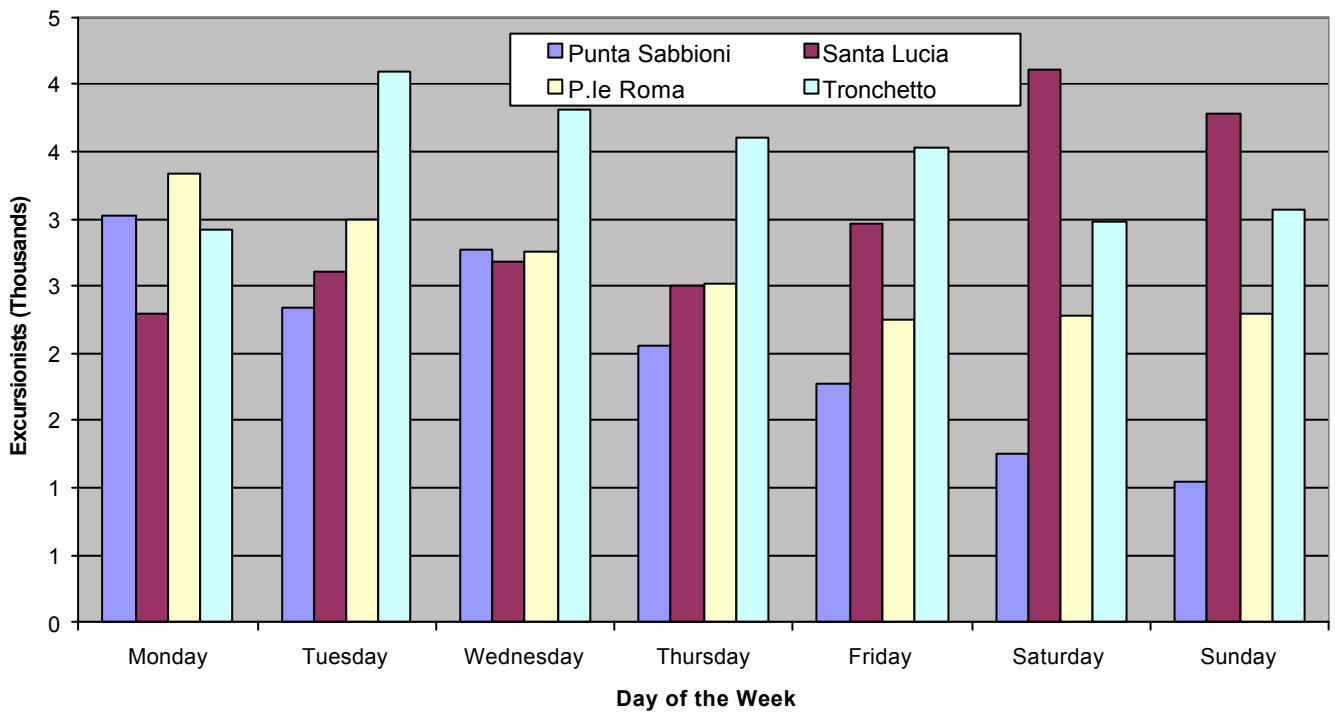
Figure 37: Weeklong Sample Count Bar Graph by Site

From these counts, the total weeklong fluctuation of excursionist inflow can be determined by finding the sum of these four sites. The result of this can be seen in Figure 38.
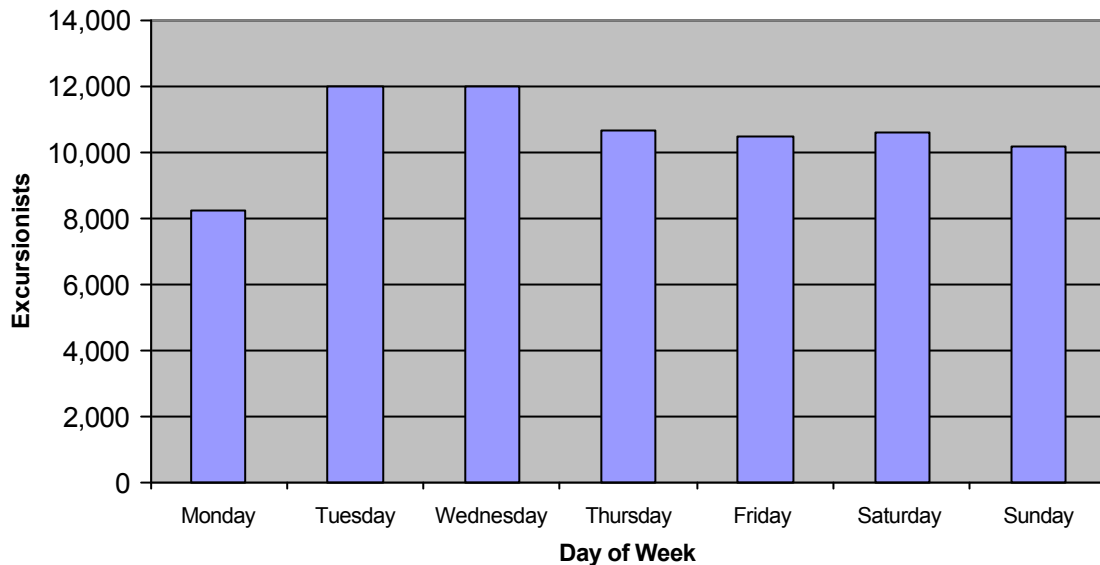
Figure 38: Total Weekly Influxes for the Four Main Sites

From Thursday through Sunday the number of excursionists stays fairly constant. On Monday there was a drop in excursionists followed by a rise on Tuesday and Wednesday.

5.2 Analysis and Extrapolation

This section will explain the analysis of the quantitative portion of this project; this mainly involves the extrapolation of our results to a full year estimate. The raw data shows patterns in the daily and weeklong flow of excursionists into the city of Venice. Utilizing these patterns the count data is first extrapolated to a full June week, then to the month of June, and finally to the full year

5.2.1 Extrapolation for a Week in June

Once we had completed our full days of counting (weekday and weekend day) at each site, we had a map of each the influx of each site for fifteen-minute periods throughout the day (8:00AM to 4:00PM). The team then covered each of the sites for a week straight for a truncated period of time (9:30AM to 12:00PM). To extrapolate the partial day data into a full day, we simply divided the partial day counts, for each site, by its appropriate percentage in Table 15. To get these percentages, we took the full day and full weekend day counts, found the sum of the fifteen-minute intervals from 9:30AM to

12:00PM and divided the result by the total for that day.   Figure 39 is a visual representation of this process.

	Tronchetto	P. Sabbioni	S. Lucia	P.Le Roma
Weekday	50%	61%	**49%**	44%
Weekend	39%	49%	54%	48%

Table 15: Percent of Total Influx for a Full Day from 9:30AM to 12:00PM

Table 16 below shows all of the weekday and a weekend day extrapolations using the above method. In Table 15 and Table 16, the Santa Lucia visual example is in bold text.

LOCATION	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Totals
Tronchetto	5,840	8,190	7,614	7,198	7,052	7,651	7,879	**51,425**
P. Sabbioni	4,961	3,826	4,554	3,364	2,910	2,563	2,153	**24,331**
St. Lucia	**4,676**	5,308	5,482	5,106	6,055	7,611	7,015	**41,252**
P.le Roma	7,575	6,791	6,250	5,732	5,118	4,750	4,790	**41,005**
	23,051	**24,115**	**23,900**	**21,400**	**21,135**	**22,576**	**21,837**	**158,014**

Table 16: Extrapolated Days Using the Percentage of Influx that 9:30AM to 12:00PM is for a Full Day

Now that we have extrapolated our partial full week of counts into a complete full week (resulting in **158,014** excursionists), the team decided to do an alternate extrapolation using a "fluctuation matrix". The matrix is derived from the full week of partial counts. The "fluctuation matrix" consists of a comparison of all the partial day counts with every other partial day count in the week. The "fluctuation matrix" for Santa Lucia is located below in Table 17. Table 17 also summarizes our partial counts in the top row of the table.

Santa Lucia	2,291	2,601	2,686	2,502	2,967	4,110	3,788
	Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday**	**Sunday**
Monday	1.00	1.14	**1.17**	1.09	1.30	1.79	1.65
Tuesday		1.00	1.03	0.96	1.14	1.58	1.46
Wednesday			1.00	0.93	1.10	1.53	1.41
Thursday				1.00	1.19	1.64	1.51
Friday					1.00	1.39	1.28
Saturday						1.00	0.92
Sunday							1.00

Table 17: Santa Lucia Train Station Weeklong Fluctuation Matrix

TIME	S.L.
8:15	98
8:30	160
8:45	172
9:00	316
9:15	163
9:30	201
9:45	247
10:00	295
10:15	372
10:30	297
10:45	265
11:00	138
11:15	351
11:30	137
11:45	230
12:00	275
12:15	153
12:30	81
12:45	120
1:00	267
1:15	59
1:30	89
1:45	50
2:00	120
2:15	150
2:30	103
2:45	55
3:00	91
3:15	88
3:30	45
3:45	46
4:00	69
	5303

9:45	247
10:00	295
10:15	372
10:30	297
10:45	265
11:00	138
11:15	351
11:30	137
11:45	230
12:00	275

2607

$$\frac{2607}{5303}$$

0.49

49%

Partial **MONDAY** $\frac{2291}{0.49}$

Extrapolated **MONDAY** 4,676

Figure 39: Visual Representation of Process to Find 9:30AM to 12:00PM Percentage of a Full Day

We used the weeklong "fluctuation matrix" and ran our full day counts (shaded in blue in Figure 40 and Table 18) through it. Figure 40 shows a visual representation of the method just described and Table 18 summarizes the results. We can see that there are **167,687** excursionists when we use our full day counts and run them through the matrices.

$$4,532 \longleftarrow \frac{5,303}{1.17} \longleftarrow 1.17 = \frac{Wednesday}{Monday}$$

Location	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
St. Lucia	4,532		5,303			7,130	
Tronchetto			6,766			8,481	
P.le Roma				5,231			8,402
P. Sabbioni			4,629			3,702	
Zattere				352			425
Chioggia			219				
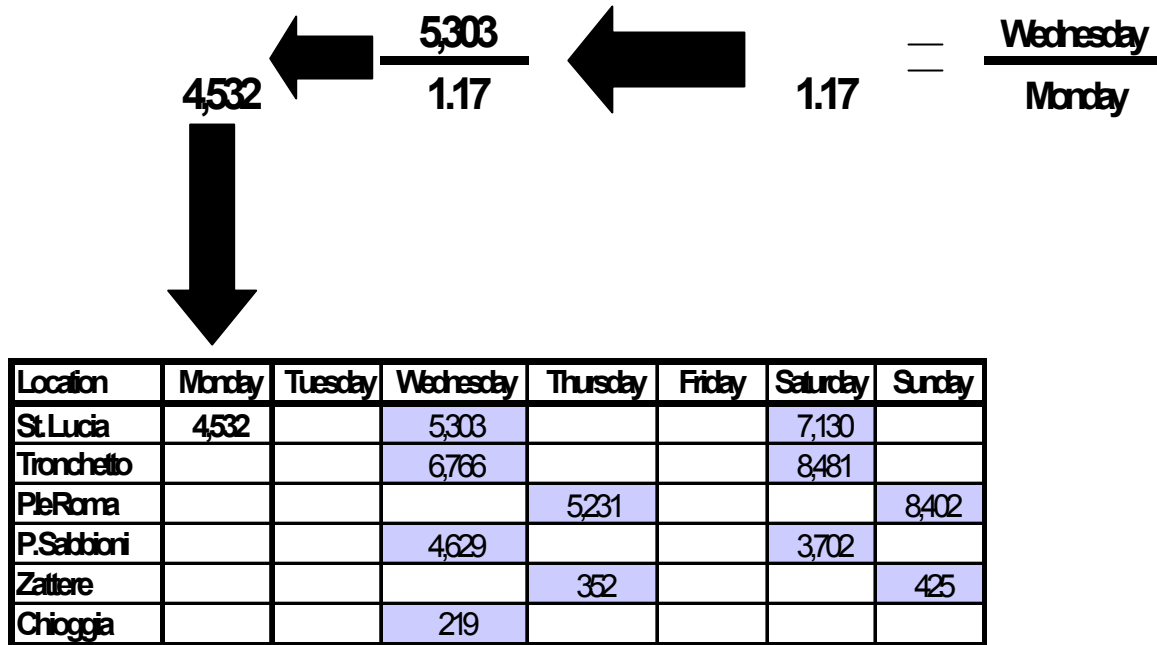
Figure 40: Visual Representation of the Use of the Fluctuation Matrix

Location	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Totals
St. Lucia	**4,532**	4,079	5,303	4,932	5,833	7,130	6,560	38,369
Tronchetto	5,190	7,278	6,766	6,428	6,267	8,481	8,734	49,143
P.le Roma	6,913	6,198	5,704	5,231	4,671	8,333	8,402	45,451
P. Sabbioni	5,610	5,030	4,629	4,245	3,791	3,702	3,733	30,740
Zattere	272	396	396	352	347	442	425	2,630
Chioggia	150	219	219	194	192	194	186	1,354
							Total	167,687

Table 18: Totals Using the Full Day Counts and Each Site Respective Fluctuation Matrix

The team decided to average the two resulting week counts (158,014 and 167,687) because all of the counting was performed in the month of June with the exception of two Piazzale Roma partial day counts in July. This resulted in an average of **162,851** excursionists for a week in June. The next step was to extrapolate to the month.

5.2.2 Extrapolation to a Month

The next step after the weekly estimate was found it was necessary to extrapolate to the month of June. This is simplified by assuming that al weeks in June are the same. Then we could multiply the number of weeks in June by the estimate for one week. Since there are 4.29 weeks in June we will simply multiply 162,851 by this number to get a June estimate of **698,631** excursionists. There is some error in this as it is unlikely that all weeks in June are exactly equal.

5.2.3 Extrapolation to a Year Using Hotel Stays

The first extrapolation technique was done using the APT hotel records. We took the total for the overnight stays of the hotels in Venice and the Lido (3,990,183) divided it by the total of the records for the month of June and obtained a ratio of 10.148. We then multiplied our count for the month of June 2000 (698,631) by that ratio in order to extrapolate for the rest of the year. This results in an estimate of **7,089,923** excursionists tourists entering Venice for the year 2000.

5.2.4 Extrapolation to a Year Using Actv

The next step was to make estimates using the Actv data and then make comparisons to the estimate we obtained using the APT data. In order to obtain an estimate using the Actv we used two different methods. The first technique involves removing the business excursionists and leaving only Actv tickets sales to residential and excursionist tourists. The second technique we used was to extrapolate using only the total Actv ticket sales by month.

The Actv furnished us with a database holding the total number of ticket sales for each month of the year in 1998 and in 1999. The tickets were all separated in the different categories as described in the Background. Our final objective was to extrapolate to an estimate of the excursionist tourists entering Venice based on these ticket sales, and compare it to the estimate of excursionists we obtained using only the data from the APT regarding residential excursionists.

Before we extrapolated using the Actv data, we had to analyze it carefully and change it accordingly. For instance, all of the single tickets that were sold to families of three, four and five people had to be multiplied out in order to have the real number of the people entering Venice. We excluded from the data all of the tickets that were sold to holders of the Carta Venezia, since only the residents of the city can hold these cards and they are not excursionists.

Following all of the adjustments made to the database and each month and ticket category had been considered, we concluded that the total number of residential tourists, excursionist tourists and excursionist business people using Actv boats for the year 1999 to be 7,035,314; while the total ticket sales was 6,821,328.

In our first extrapolation method, we saw that the months of December, January and February are the months in which there is the least amount of ticket sales. We assumed, for this method, that the people buying tickets during these months were mainly workers and that their number would stay constant throughout the entire year. [51] Therefore, we simply averaged these three months and we subtracted the average form the numbers of people buying Actv tickets for each month in the rest of the year. This left us with only the number of excursionists and residential tourists using the Actv transportations (the permanent residents were removed as described above). This subtraction resulted in 3,028,098 tickets. We then took the total number of excursionists and residential tourists and divided it by the total for the month of June (that we estimated) and we found that June consists of 10.74% of the total sales for the year 1999. When we multiply our June estimate by 10.74, our estimate turns out to be **7,503,335** excursionists for the year 2000.

The second method, using the Actv sales records, was carried out using the same procedure in terms of comparing months and their percentage of influx of the total year. In this case, we used the entire number of people using the Actv transportations, without subtracting what we consider to be the number of workers using Actv throughout the year. This last extrapolation method led us to a percentage, of the month of June to the total for the year, of 11.4%. The extrapolation for the year using this technique was **7,964,393** excursionist tourists. This method results in a **10.98%** difference from the number we obtained using the APT data and a **5.78%** difference from the first Actv extrapolation method.

5.2.5 Comparison of Yearly Extrapolation Methods

The results of the three methods are summarized in Table 19. Tourism 2000 considers the first of the two methods using the Actv data to be the best of the three methods of extrapolation to an estimate of the excursionist tourists for the year 2000. We think this because it is the only method of extrapolation that attempts to remove any visitors that are not involved in our estimate. Whereas, the APT method involves only residential tourists and Method #2 using Actv records involves excursionists, business and residential tourists.

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[51] Interview with Fabio Carrera, Thursday, July 19th 2000

Total for each of the database used in extrapolation		Total for June	Percentages of June to the total	Our estimate for June 2000	Yearly extrapolations
APT total	3,990,183	393,187	10.148%	698,631	7,089,923
Actv total method #1	3,028,098	281,944	10.74%	698,631	7,503,335
Actv total using method #2	7,035,314	615,879	11.42%	698,631	7,964,393

Table 19: Summary of the Three Yearly Extrapolation Methods used for the yearly estimate

APT Records vs Actv Method #1
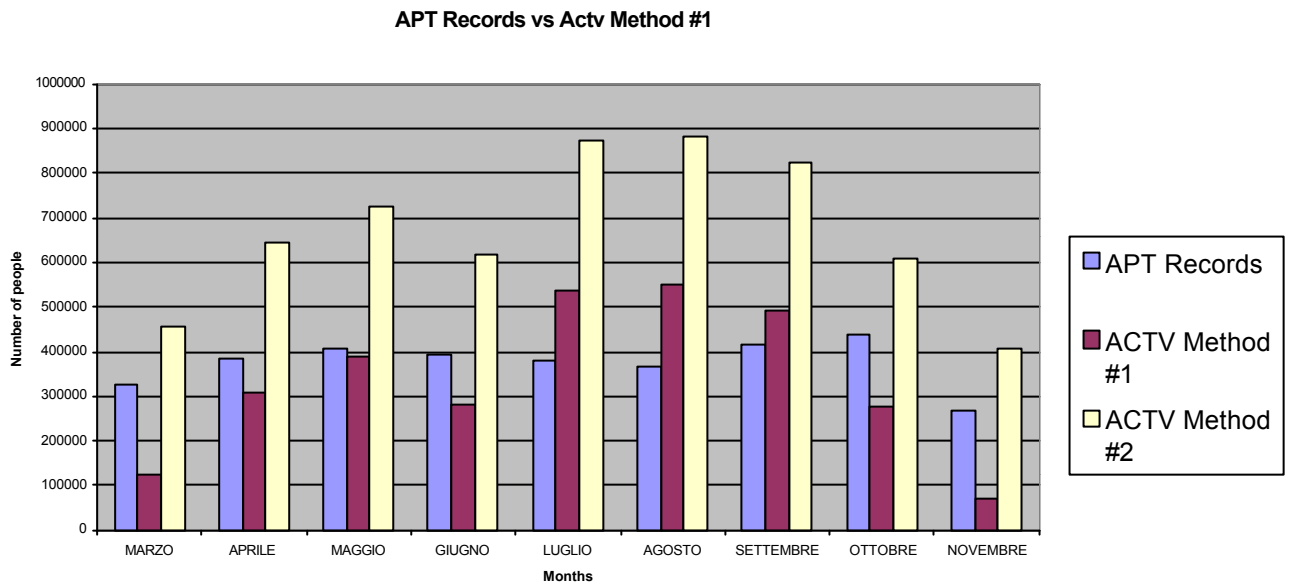
Figure 41: Bar Graph of APT Records by Month and Method#1 and Method#2 Using the Actv Database

All of our extrapolations for the year 2000 had to be based on data referring to last year (1999) since we were not furnished with any of the data for the year 2000. For clarity, we omitted the months of December, January and February from the graph in Figure 41 because they did not bring any difference to the yearly extrapolation. When we averaged these months, to get our average business visitor number, and subtracted them from the remaining months in Method #1 using the Actv records, they would have resulted in the graph of Figure 41 having negative numbers of tourists for the months of December and January. Removing these months does not result in a change in the overall extrapolation. This is because when these months were averaged, the average then subtracted from each, and then the three months added together, the result is zero. Therefore, the months do not have an effect on the total in terms of the yearly database number in column 1 of Table 19.

5.3 Additional Studies

We performed several counts in addition to our counts at the entry points of excursionists. These include the proxy count at the Ponte della Paglia, which showed an interesting relationship with the entry point data. The sestieri density study examines the concentrations of tourists throughout the city. Finally, a count was performed on the Redentore to determine the effects of festivals on excursionists.

5.3.1 Proxy Count Results

The proxy count idea was introduced to find out whether a certain counting location could be used to approximate the total number of incoming excursionists during a day. During a weekend count, excursionists were counted at all counting locations (not including the Chioggia site) as well as all of the tourists crossing the Ponte della Paglia. Table 20 shows the Ponte della Paglia (Bridge of Sighs) results and the aggregate count for the weekend.

Location	Totals
Bridge of Sighs (all tourists)	22,397
Entry Points (excursionists)	28,140

Table 20: Proxy Count Results

Table 20 shows the results of the counts and Figure 42 shows the breakdown of the weekend day into fifteen-minute intervals.

If we look at the plots we can see that the entry points peak at around 10:15AM to 11:00AM.
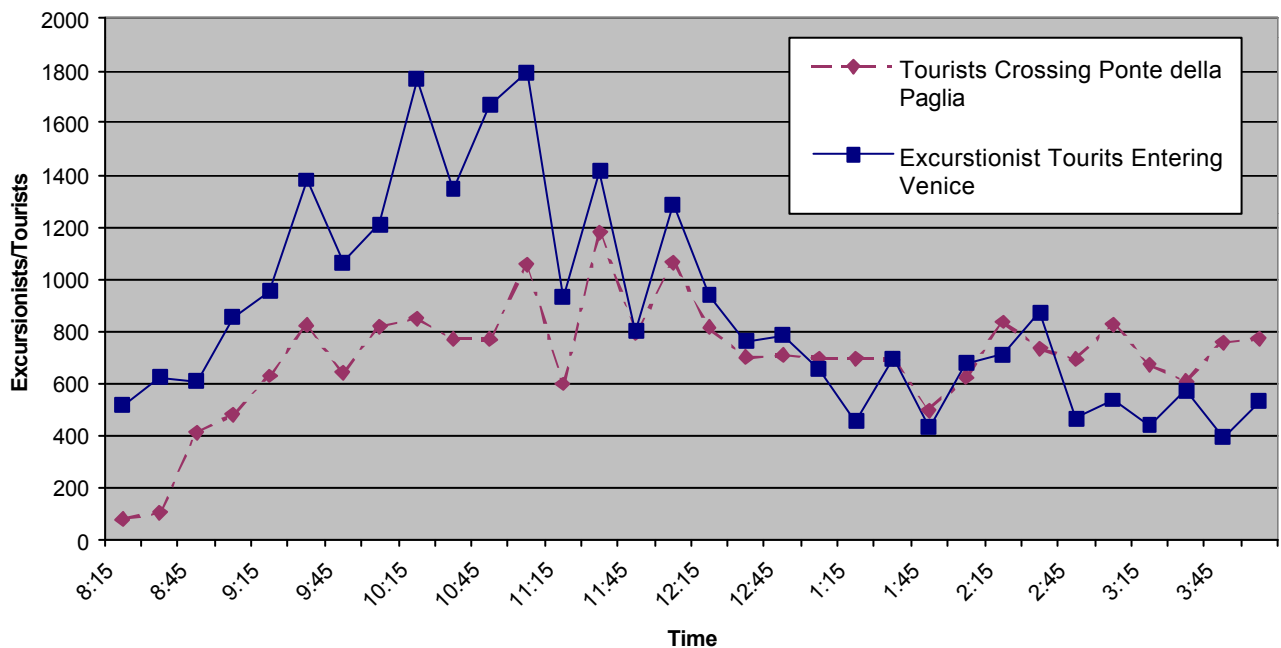
The Ponte della Paglia peaks at around 11:45AM. Both counts level out from around 1:00PM until the end of the counting period. The idea of a proxy count is a good one because it allows for less work and accurate results; however, we do not feel that the Ponte della Paglia is the place to perform this type of test. The reason being that it was impossible to distinguish excursionist and residential tourists at this bridge. We came up with another idea for this type of proxy count. Since the Tronchetto counting location remains constant during a weekday and weekend day in terms of percentage of total incoming excursionists (30%), we felt that the site was perfect for the proxy count. In the Recommendations Chapter, the proxy and cost analysis of doing such a count will be discussed.

5.3.2 Sestieri Density Study

We conducted sample density tests to see which sestieri was the most popular for tourists and non-tourists. The test consisted of team members walking through each sestieri at the same time and followed a pre-determined path. Since the team was limited to five members, only five of the six sestieri could be covered at the same time on the same day. The remaining sestiere, San Polo, was completed the following day, also a weekday, at the same time and the results were compared. The time frame that all of the sestieri were evaluated was from 12:00-12:30PM. The distances were not analyzed because the team realized that some sestiere would be more crowded than others but we assumed that using the same timeframe would allow for comparable results. The results are summarized in Table 21

	San Marco	Cannaregio	Castello	Dorsoduro	Santa Croce	San Polo
Tourists	6,247	4,014	1,704	1,503	426	3,378
Non-Tourists	469	830	379	226	212	321
Tourist Density	**93%**	**83%**	**82%**	**87%**	**67%**	**91%**

Table 21: Density Test Results

The sestiere with the highest percentage of tourists San Marco, this is expected as this sestiere contains St. Mark's Square, a tourist attraction. Santa Croce has the lowest percentage of non-tourists. These results are fairly logical but can be improved. This test was an informal density study, although it gives a general measurement of tourist density there is some error.

5.3.3 Redentore Count

The Redentore was the only festival that the Tourism 2000 team was able to count at and be able to make comparisons to a normal weekend day. The team decided to count from 9:30AM to 12:00PM and from 2:00PM to 4:00PM. We performed counts during these times because we wanted to catch the morning visitors and the afternoon visitors. In looking back, the team believes that in order to get the full picture of the Redentore, which is a night affair, a counting team should perform counts for 24 hours

straight. The team counted **19,053** excursionists for the four and a half hour period. In order to extrapolate the Redentore data to a full day count we simply took the full weekend day counts and found out what percentage of the total influx for the day came in during the time period. The extrapolation resulted in **32,289** excursionists for the Redentore. As one can see, the team noticed an increase for the Redentore compared to a normal weekend day. We saw a 32,289/27,715 = **1.17 X** increase. Due to the extremely low increase, the team could not draw any conclusions. The Redentore was considered a bad weather day. This could have had some effect on excursionists.

5.4 Validity of Estimates

In extrapolations there is always some amount of inaccuracy. It is the very nature of extrapolations. If we can minimize this error, then we can provide the APT with a reliable estimate that has meaning. As projects on this matter continue to evolve, newer and more accurate data can be acquired. Error having to due with human counting inaccuracy and how we dealt with it will be explained in this section, as well as error due to extrapolation techniques.

5.4.1 Error in Raw Data due to Human Inaccuracies

Inaccuracies on a lower level than the statistical extrapolation are bound to occur as well. Human counting and visualization of excursionists differed among group members. The team conducted test counts where group members identified excursionists, business, and residential tourists and asked for verification from the subject. If these results did not fall within a certain acceptable range then additional counts were conducted. This minimized the inaccuracy due to multiple counters in the group. Another test that was performed was done to receive an overestimate and an underestimate for the team. The overestimate pertains to residential tourists who look like excursionists. This percentage was a bonus result of the survey. The first two questions verified if the subject was a tourist and whether they were an excursionist or a residential. The team was 96% accurate in identifying excursionists to survey.

5.4.2 Counting Site Specific Error

Once tests and counts began it was obvious to team members that the different sites were unique. Different types of exits and open areas at each site created unique sources of error. This section is dedicated to describing the sites in detail. The sources of error that each site creates in our counts will be discussed in the following sections.

Piazzale Roma was the most difficult location to perform an accurate count of excursionist tourists. This was due to the physical layout of the counting site. The Piazzale Roma has three main bridges connecting it to the historic center of Venice. In addition there is a sidewalk circumventing the

Piazzale. Therefore the layout of the square made our job of performing accurate counts extremely difficult.

People arriving at the Piazzale Roma consist of Venetians, excursionist tourists coming from the mainland, residential tourists, students going to school at the universities, businesspersons and relatives of Venetians. The last group of people could very easily be mistaken for Venetians, since they will move around the Piazzale with the same speed and orientation of a Venetian and most likely will not be carrying any bags. There are two options in determining who is a Venetian or a relative of a Venetian. The first would be to listen to them to determine if their pronunciation or dialect has the common Venetian accent. The second would be to ask them directly. This is possible in theory but technically impossible to ask each and every person. Distinguishing residents and local tourists contributed the most amount of error in our final estimate.

The sidewalk surrounding the Piazzale Roma creates the second major source of error. No matter where we counted, we encountered a small percent of double counting. It was observed that some excursionists, who do not know the area very well, crossed over one bridge then realized they made a mistake and returned to cross over another bridge, which would result in a double count. We understand this phenomenon occurred occasionally and cannot make an exact estimate of it.

Once counts were completed, it was found out that team members counting at the white bridge at the P.le Roma were counting different people. One counter would count tour groups getting onto Gondolas and taxis as well as excursionists crossing the bridge, whereas the other counter only counted excursionists crossing the bridge. We figured that this was the reason why our partial day counts where lower at the end of the week because the counters switched places during these days. We suggest to future groups to keep all counters consistent at every site in order to minimize this error.

The Tronchetto sees the largest influx of excursionists. Tour buses are the main transportation into the Tronchetto. Therefore, an overflow of excursionists at any point could have attributed to a small degree of inaccuracy. The Tronchetto was the easiest of the four major counting sites to get accurate counts.

At the Punta Sabbioni, as discussed in the Background Chapter, there were many excursionists who camp and arrive daily from northern Italy, Germany, and Switzerland. During the main influx hours of 9:00AM to 12:00PM Punta Sabbioni was extremely crowded. At the peaks, there were up to 500 visitors getting on to on one boat. These tourists rushed onto the big Actv boats in under 2 minutes. This created inaccuracy due to human counting because the counting process was very fast. Most of all of the people at the Punta Sabbioni are excursionists however and were easy to identify.

The same type of errors occurred at the Santa Lucia train station as did at the Piazzale Roma. Double counting arose when tourists entered the main lobby and then decided to re-enter the train arrival area. Team members minimized this error occasionally if the tourist was identified as already counted. Otherwise, this error was inevitable and could not be avoided. Error also occurred in the case of an overflow of excursionists at any point in time. For example, the Rome train coming in at 12:00PM

created an overflow of excursionists. Lastly, error due to bathroom and food breaks were minimized by checking the arrival board and breaks were worked in between arriving trains.

The Zattere boat stop was used to count visitors coming into Venice from Fusina, which is located on the west side of the lagoon. This site has only one exit; therefore the only error was team member consistency.

We conducted a couple of counts at the site where the Chioggia boat docked at the Pallestrina. This is where the excursionists got onto the buses that took them across the Pallestrina and the Lido. The trip is fully explained in the Methodology Chapter. A single counter easily counted this site, thus the only error was with team member consistency.

The choice of counting locations has been explained in the Methodology Chapter. Test counts done at these less popular transit sites told us and the 1999 WPI project team that the number of these people would be small enough as to not affect the estimate. Further estimates that intend to be more accurate should cover all of the ingress sites whether they are legal or illegal, or at least be factored in somehow in the yearly estimate.

5.4.3 Error Due to Extrapolation

Error also arises when one extrapolates raw counts to a yearly estimate. Factors that can create error include annual festivals, weather affects, and international incidents. The three will be discussed and we have dealt with each in a unique manner.

Annual festivals cause increases in tourism, Venice holds a significant amount of carnivals and festivals throughout the year that deserve special attention. We will be counting tourists on the day of the Redentore. The flow of tourists on these days is different than that of a non-festival day. These inaccuracies are understood and were taken into consideration in the yearly estimate algorithm. Each festival day was removed from its month, turned into a "festival day count", and re-entered into the yearly estimate.

Weather can also effect the extrapolations; bad weather days are bound to occur everywhere. The team decided that these days needed to be taken into consideration in our "yearly extrapolation algorithm". However, during the month of June 2000 there was not one bad weather day. Future projects need to perform counts on bad weather days and compare results to a similar day to see if there are substantial differences.

International incidents could affect the counts, such as war or other conflicts. International incidents did not show up in our "yearly extrapolation algorithm". This was because we had no data that compared a non-international incident day to an international incident day. In addition this type of inaccuracy usually lasts a long period of time. For these reasons there was no international incident factor in the year estimate.

6 CHARACTERIZATION RESULTS AND ANALYSIS

This chapter is dedicated to describing the results of the surveys and analyzing the surveys. The first result is the number of responses and response rate; this is an important indicator of sampling error. Then the answers to each question will be discussed and summarized. The survey provided a test of our visual identification method acting as a measure of accuracy. The exact types of excursionist entering each site will be determined and examined, as well as the spending of each type. The number of Jubilee 2000 travelers and demographics are other important results of the survey.

6.1 Number of Responses and Response Rate

The most basic result of the survey is the number of responses we received. We received 270 completed written surveys and 40 shortened surveys. When summed, this came to 310 surveys overall. The number of responses can be further broken down by site. The number of responses received for each site is show in Figure 43.

Site	Responses
P.le Roma	100
Punta Sabbioni	49
Santa Lucia	104
St. Mark's	17
Tronchetto	40
Total	**310**

Figure 43: Survey Responses by Site

It should be noted that responses for the Tronchetto are for the shortened survey; this shortened survey was needed due to low response rates at the Tronchetto bus park. These shortened surveys only provided information as to age, size of tour group, nationality, and involvement with Jubilee 2000. To obtain complete information about these tourists we surveyed them as they left St. Mark's square to return to the Tronchetto. The site for these particular surveys is St. Mark's, but these responses will be applied to the population entering through the Tronchetto.

Response rate is an important indicator error. We received 310 responses and 192 non-responses this results in a response rate of 62%.

6.2 Confirmation of Visual Identification

The first two questions of the survey served as a confirmation of our visual identification method. We attempted to survey only excursionist tourists. Therefore, the surveyors only gave the

survey to visitors identified as excursionists. The first two questions of the survey tested this identification.

For the first question, "For what purpose are you entering Venice?" several possible choices were given. If the respondent selected "Recreational reasons/Tourism reasons" then the respondent was classified as a tourist.

1. For what purpose are you entering Venice?
   - ❑ Business purposes
   - ❑ Student of a Venetian University
   - ❑ Resident of Venice
   - ❑ Recreational reasons/Tourism reasons
   - ❑ Other _____

The second question asked, "Are you spending the night or did you spend last night in Venice or on the Lido?" If the respondent answered "No" then the respondent is an excursionist tourist and the surveyor was correct. Table 22 shows the results of these two questions.

Purpose	Tourist Type	P.le Roma	P. Sabbioni	S. Lucia	St_ Marks	Tronchetto	Total Excursionists
Business	-	1		1			
Resident	-	2		3			
Student	-	2		4			
Tourism	Residential	5	1	7			
Tourism	Excursionist	89	49	89	17	40	**284**

Table 22: Responses to First Two Survey Questions

Dividing the number of excursionists surveyed by the total number of surveys results in 0.916, which is an overall accuracy of 91.6%.

6.3 Determining the Weighting Factor

We conducted surveys at the four main counting locations, Santa Lucia, Piazzale Roma, Tronchetto, and Punta Sabbioni. Different numbers of tourists enter Venice through these locations. Due to time and personnel restraints we were unable to obtain a proportionate number of completed surveys from each site. In order to draw conclusions about the total excursionist tourist population it was necessary to assign each site a weighting factor.

Site	Weighting Factor
P.le Roma	0.23
St. Lucia	0.24
Tronchetto	0.3
P. Sabbioni	0.21

Table 23: Weighting Factors for Each Site

For simplicity sake, we used the proportions of excursionist entering each site for the full aggregate weekday for these factors. These factors can be seen in Table 23. The some of these represents the total number of excursionists entering the city of Venice.

6.4 Excursionist Types

At each site, excursionists were questioned to find out if they were a local, commuting or stopover excursionist. These types of excursionists are defined as follows; Local excursionists visit from their permanent residence, stop-over excursionists visit once and move on, and commuting excursionists stay outside the city and commute in.

Question 3

Are you spending tonight at your permanent resident?

  ❑ Yes
  ❑ No

Question 4

Are you spending the night in a location outside of Venice and visiting Venice multiple times?

  ❑ Yes
  ❑ No

If the respondent answered yes to question 3, then they were classified as local excursionist tourist. If they answered yes to question 4, then they were classified as a commuting excursionist. The results to these questions are summarized in Table 24.

	Local	Commuting	Stop-Over
P.le Roma	26	37	25
P. Sabbioni	2	27	21
S. Lucia	24	34	34
St. Mark/Tron	2	5	10

Table 24: Excursionist Type by Site

This is one question that the shortened Tronchetto survey did not adequately cover. To compensate for this we applied the data collected for tour groups in St. Mark's Square to the Tronchetto bus parking lot and it will be referred to as St. Mark/Tron.

Santa Lucia, the train station, receives nearly an equal percentage of each excursionist type with slightly more stop-over and commuting excursionists than locals. At the P.le Roma bus and car lot, commuters are the most prevalent tourist type with 42%, followed by locals with 30%. This is likely because at P.le Roma there are busses, which run from Venice to the surrounding cities, such as Mestre and Marghera. Thus, this is the main entry point for commuting excursionists staying on the mainland of Venice.

S. Lucia — Local 26%, Comm 37%, Stop-Over 37%

P.le Roma — Local 30%, Comm 42%, Stop-Over 28%

P. Sabbioni — Local 4%, Comm 54%, Stop-Over 42%

St. Mark/Tron — Local 12%, Comm 29%, Stop-Over 59%
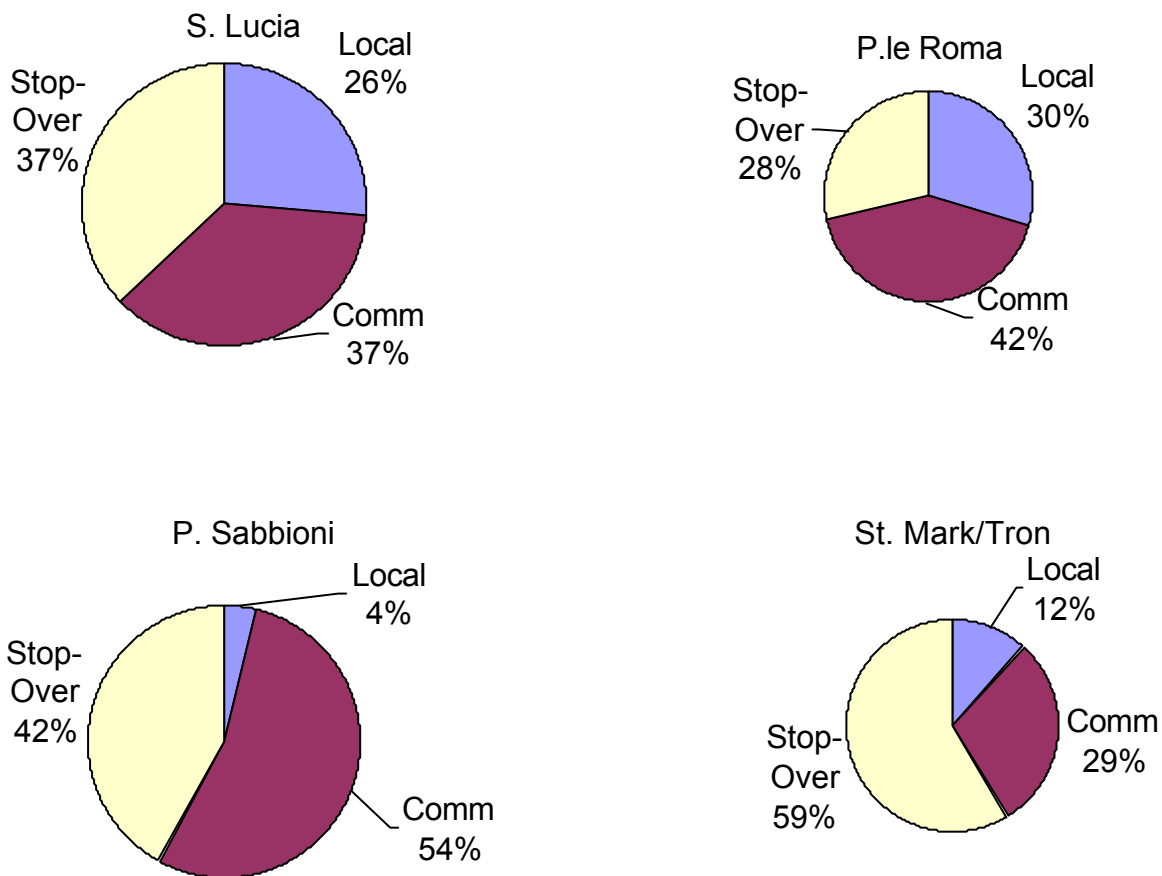
Figure 44: Percent of Excursionist Type Entering Venice Through Each Site

Punta Sabbioni shows a high percentage of commuting and stop-over excursionists and very few locals. This was expected, as there is a large camping area at Punta Sabbioni. Many tourists camp there as a stop-over location or as a point from which to commute to Venice. The physical location of Punta Sabbioni is probably why it receives a small percentage of local excursionists. Punta Sabbioni is located on the opposite side of Venice from the mainland. Where Santa Lucia and P.le Roma are fed by the cities of the Veneto. So they have a larger percentage of local excursionists.

The Tronchetto receives a large percentage of stop-over excursionists. This is because the Tronchetto is a point of entry for tour groups. (Percentages of tour groups to non-tour groups based on partial day count). Tour groups tend to spend the night in one location, visit a city for the day, and move on to the next stop on the tour. Some of these groups stay on the mainland and visit Venice repeatedly;

these commuters make up 29% of the population. Some tours are run for locals, there are not as many of these, which is why they only make up 12% of the tourists entering the Tronchetto.

To obtain the percentage of each type of excursionist entering Venice through all monitored sites, we weighted the percentage entering each site, and then summed these weighted percentages for each type of excursionist. The results of this are in Table 25.

	P. Roma (Weighted)	Tronchetto (Weighted)	P. Sabbioni (Weighted)	S. Lucia (Weighted)	Totals
Local	6.8%	3.5%	0.8%	6.3%	**18%**
Commuting	9.7%	8.8%	11.3%	8.9%	**39%**
Stop-Over	6.5%	17.6%	8.8%	8.9%	**43%**

Table 25: Total Number of Excursionists Entering Venice by Type

We found that the majority of excursionists were stop-over excursionists; they accounted for 43% of the excursionists. The commuting excursionists, who constitute 39% of the respondents, closely followed the stop-over type and local excursionist made up the smallest portion, accounting for only 18% of the excursionists. The pie graph of Figure 45 shows the make-up of the types of excursionists entering Venice through all the surveyed sites.
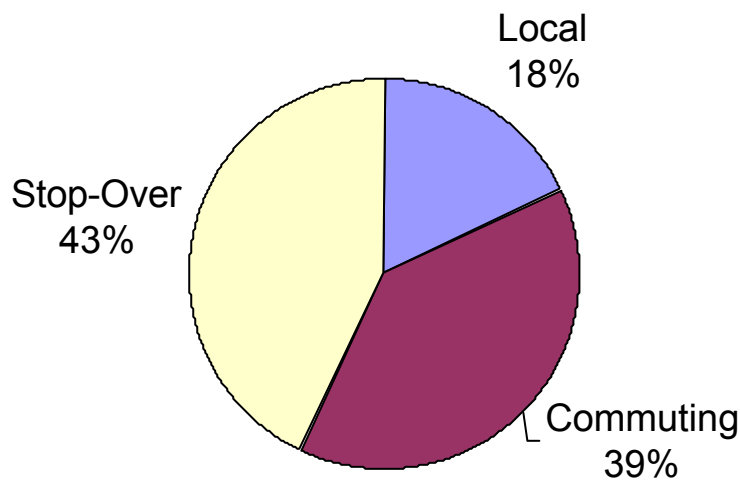
Figure 45: Types of Excursionists Entering Venice (all survey sites included)

6.5 Jubilee 2000

This year, the year 2000, is marked by the Jubilee 2000, a celebration of the 2000 [th] anniversary of the birth of Christ. To determine the number of excursionists who came to Venice in celebration of Jubilee 2000 we asked the question, "Are you traveling in celebration of Jubilee 2000?" The results of this question are summarized by site in Table 26.

Site	Number of Excursionists	Jubilee 2000 Travelers	Percentage
Ple Roma	99	11	11.1%
Punta_Sabbioni	50	1	2.0%
Santa_Lucia	104	5	4.8%
Tronchetto	40	11	27.5%

Table 26: Percent of Excursionist Tourists Traveling in Celebration of Jubilee 2000 by Site

Tronchetto saw the largest percentage of Jubilee 2000 travelers with 27.5 %. P.le Roma received less Jubilee traffic with 11.1%, P. Sabbioni and Santa Lucia received very few Jubilee travelers with 2.0% and 4.8% respectively.

The large percentage of Jubilee 2000 travelers entering the Tronchetto is the result of excursionists traveling as part of Jubilee 2000 tour groups. We observed many of these tour groups entering through the Tronchetto. It is difficult to say if these tours were organized specifically for the Jubilee as an addition to regularly scheduled tours, or if these tours were standard tours renamed Jubilee 2000 tours.

To find the percentage of excursionists entering Venice we must again weigh the responses by site. These are shown in Table 27. This weighing and summation leads to a total percentage of excursionists traveling in celebration of Jubilee 2000 of 12.4%.

Site	CountOfExc	SumOfJub	Percentage	Weighting Factor	Actual Percentage
P.le Roma	99	11	11.1%	0.23	2.6%
P. Sabbioni	50	1	2.0%	0.21	0.4%
S. Lucia	104	5	4.8%	0.24	1.2%
Tronchetto	40	11	27.5%	0.3	8.3%
Perentage of Jubilee 2000 Travelers for All Sites Surveyed					12.4%

Table 27: Percent of Excursionists in Venice Traveling in Celebration of Jubilee 2000

6.6 Monetary Expenditure

Excursionist tourists are believed to spend less than residential tourists. This is because excursionists do not spend the night, thus avoiding the cost of accommodations. To determine the validity of this speculation we asked excursionists, "How much you plan to spend in Venice today?" The respondent was asked to pick from multiple monetary ranges. We did not notice a significant difference in spending by site; therefore we grouped all responses to this question. The results of this question are displayed in Figure 46.
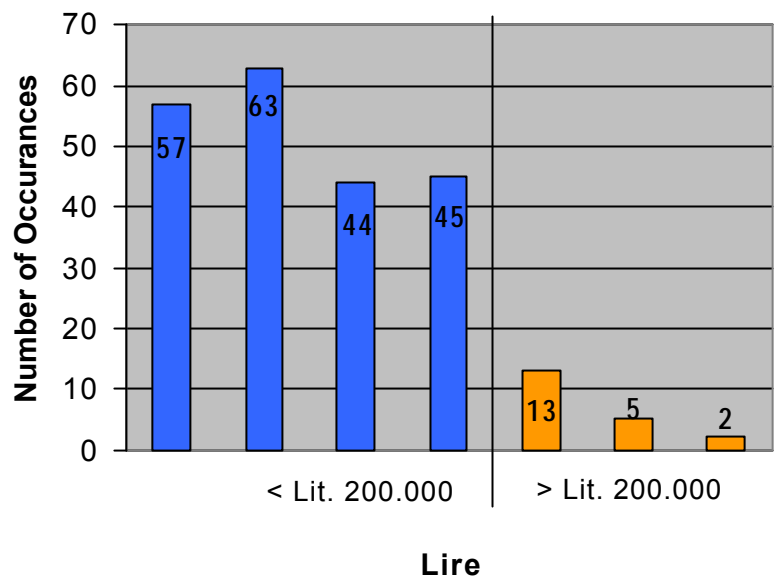
Figure 46: Total Responses to Spending Question by Range

The main division in these responses is at £ 200.000. Out of the 229 responses to this question (this question was optional) 209 excursionists planned to spend under £ 200.000. That is, 91.3% of excursionists spend below £ 200.00.

6.7 Excursionist Spending by Type

Spending can be further broken down by type of excursionist. The average spending for each type as derived from survey results is shown in Table 28.

	Lit.	Euro
Local Excursionists	72,200	37.29
Stop-Over Excursionists	105,600	54.54
Commuting Excursionists	138,500	71.53

Table 28: Expenditure of Excursionist Tourists, 2000

Weighting these expenditures by the percentage of each type of excursionist, the average spending by an excursionist is £112.419 or 58.06 Euros. Multiplying this expenditure by our prediction for the number of excursionist entering Venice in the year 2000 results in a total spending by excursionist tourists of

£895,979,430,000 or 462,728,576.62 Euros. There is some error in this as it assumes that excursionist types stay constant throughout the year. It is more likely that the types fluctuate.

6.8 Ages

The age of each excursionist tourist surveyed was visual estimated by the surveyor. We used the age divisions: under 18, 18 to 30, 30 to 50, and 50+. The number of respondents, which fell into each category, is summarized in Figure 47.
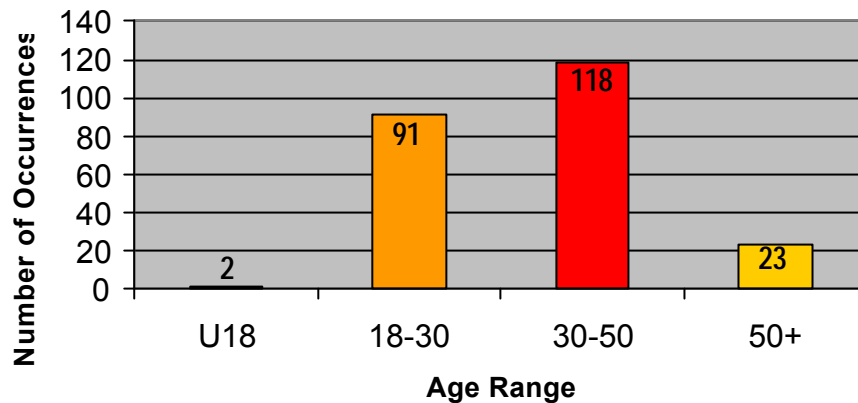
Figure 47: Ages of Excursionists Surveyed

Most excursionists surveyed fell into the 18 to 30, or 30 to 50 category. There is only a 12.9% difference between the 18-30 and 30-50 ranges, but 89.3% of the respondents fell into the 18 to 50 categories combined. It is likely that the under-18 age range is under represented. This is because when the survey was given to a family, a parent was surveyed instead of a child.

6.9 Nationalities

Nationality is an important characteristic of the excursionist tourists. It is not surprising that the majority of excursionists entering Venice are Italian. The only exception to this is at Punta Sabbioni were the most prevalent nationality was German, closely fallowed by Italian. This is encouraging because it indicates that our survey was not extremely biased towards English speaking nationalities.

Punta Sabbioni

German 28%
Other 11%
Canadian 4%
Austrian 4%
French 7%
Danish 22%
Italian 24%
23%

Tronchetto

Other 15%
Italian 23%
ese %
American 18%
ish %
German 10%
French 10%
olish 8%

Ple Roma

Other 23%
Italian 28%
Swedish 5%
American 11%
French 6%
German 8%
British 9%
Danish 10%
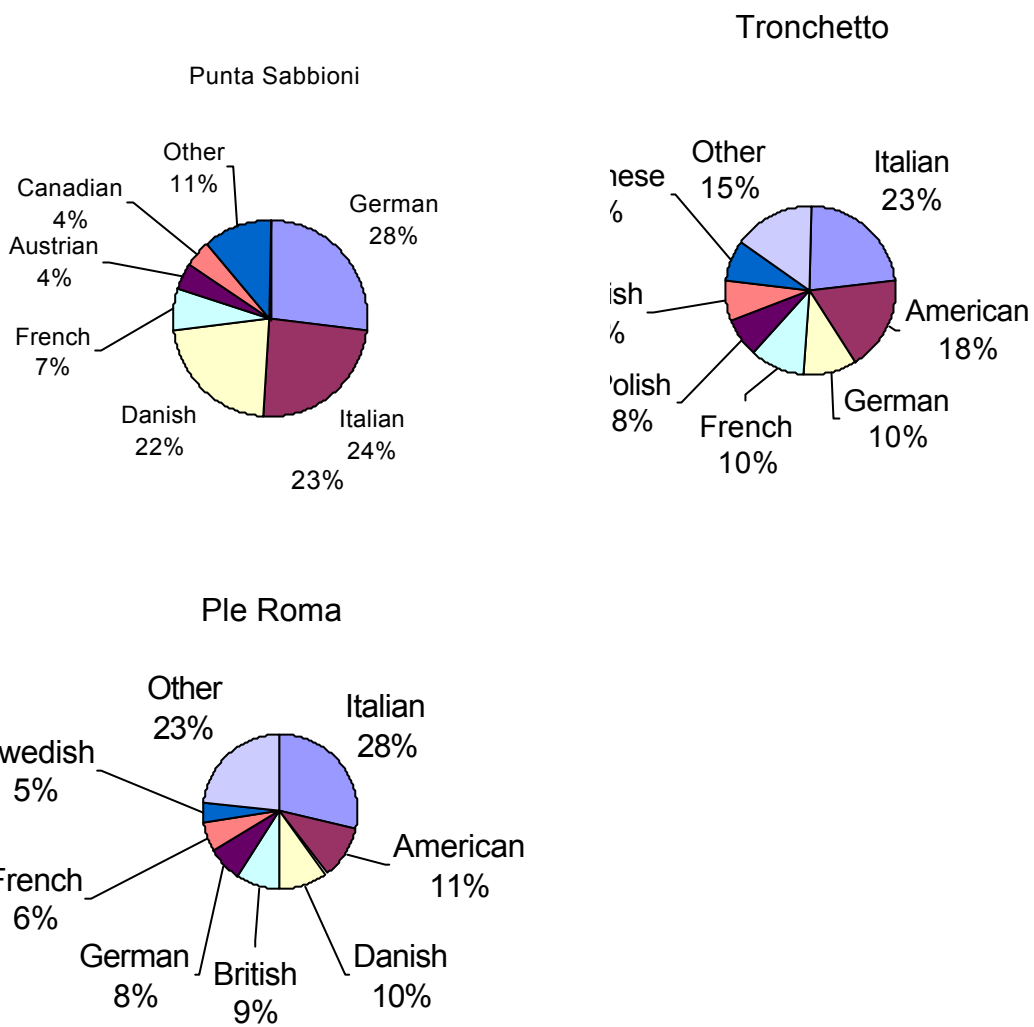
Figure 48 Nationalities of Excursionists by Site

The overall nationality of the excursionists entering Venice can be found by weighing the percentage of each nationality, which enters each site with, the percent of the total excursionist population counted at the site. The result of this calculation can be seen in Figure 49.
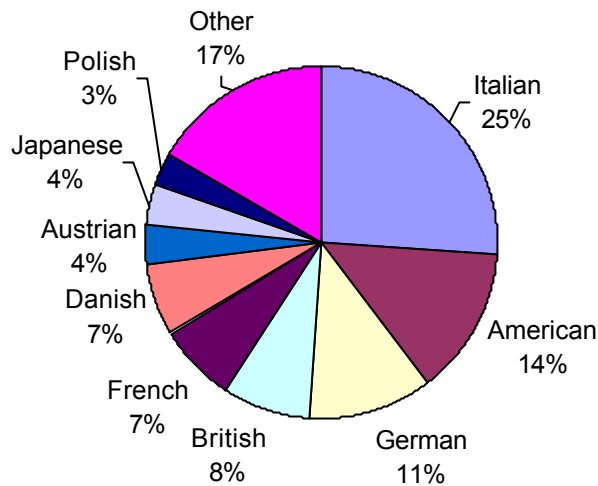
Figure 49: Overall Excursionist Nationalities

Since Venice is in Italy, it is not surprising that the largest percent of excursionist tourists are Italian, 25%. The next tree nationalities are American, German, and British. There may be some bias towards the Americans and British because they spoke English, and English was the primary language of four out of five of the surveyors.

6.10 Tour Groups

We observed that the majority of tourists entering the T ronchetto, a car and bus park, we're members of organized tour groups. To confirm this, during two partial day counts, separate counts were taken of excursionists who were members of a tour group and those who were not. The results of this count are summarized in Table 29.

	Saturday 7/1/00	Sunday 7/2/00	Totals
Group member	2718	2716	5434
Non-group member	296	357	653
Percentage that are group members	90.2%	88.4%	**89.3%**

Table 29: Number of Excursionists Entering the Tronchetto as Members of Tour Groups Versus Those Who are Not

This shows that the average percentage of excursionists who enter Venice via the Tronchetto, on these two days, as members of a tour group versus those who are not members of a tour group is 89.3%. It should also be noted that the number of excursionists who are part of tour groups stays relatively constant over the course of this weekend. On Saturday July 7 [th], 2,718 excursionists entered as part of tour groups and on the Sunday of that weekend 2,716 entered. This is a significant finding because it

suggests that the number of tour groups at the Tronchetto remains constant from day to day, making any fluctuation in the number of excursionists a result of the independent excursionists. These are the only counts we performed which separated tour groups from non-tour groups, so it is difficult to draw any definite conclusions. This phenomenon should be monitored by future studies.

Based on the shortened tour group survey performed at the Tronchetto the average tour group has 38 members.

6.11 License Plates

To gain additional data about the nationality of the tourists, we conducted license plate counts at Punta Sabbioni and the Tronchetto. We counted the number of license plates coming from various nations. We did this at the car park at Punta Sabbioni, in the parking garage at the Tronchetto and at the bus park at Tronchetto.

Punta Sabbioni

Other 11%
Canadian 4%
Austrian 4%
French 7%
Danish 22%
German 28%
Italian 24%
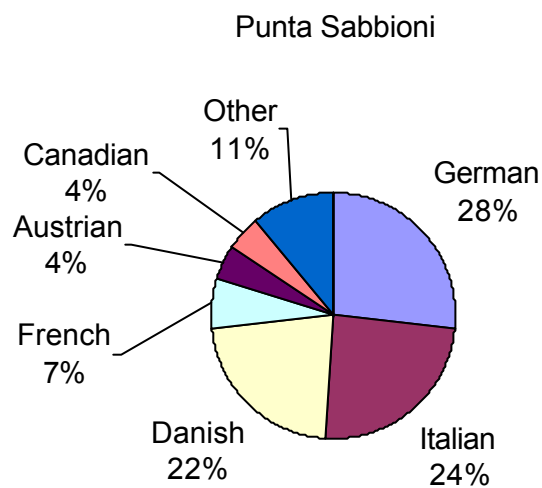
Figure 51: Nationalities of Excursionist Tourists at Punta Sabbioni

Punta Sabbioni 4/7/2000

France 3%
Other 4%
Austria 7%
Hungary 8%
Sweden 9%
Denmark 20%
Germany 28%
Italy 21%
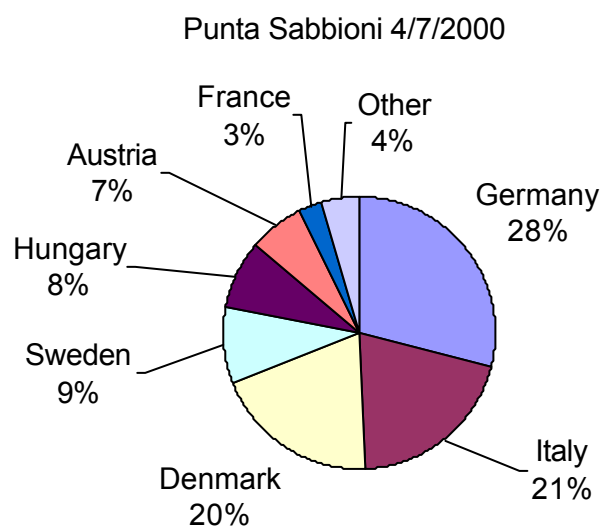
Figure 50: Result of License Plate Tally at Punta Sabbioni Parking Lot

At the Punta Sabbioni car parking lot we counted license plates of 345 cars from 11 nations. The percentage of cars by nation lines up well with the nationalities of the excursionists surveyed. As one can see, there were exactly the same percentage of German license plates and German surveys given. Italian surveys and license plates are close at 24% and 21% respectively. The third most prevalent nationality, the Danes, match up closely as well at 22% surveys and 20% license plates. The rest of the top nationalities are close but not as close as the first three.

6.12 Error Analysis

There are four types of error that can affect the accuracy of a survey: coverage error, when a sample does not include all elements of the population in question, sampling error, the error do to selecting a subset of a total population, measurement error, the errors in collecting the data resulting from answers, which are unclear or inaccurate, and non-response error due to a significant number of people surveyed who do not respond to the questionnaire and are different from those that do respond in a way that effects the study.

Venice has a limited number entry points and we have previously determined which of these receive the most excursionist tourist traffic. By surveying at these points we minimize the coverage error in our results. A small amount of error was introduced by not surveying at the minor entry points, such as the Fusina-Zattere and Chioggia boat lines. This is a small source of error, as our counts show that these sites, combined, take in only 3% of the excursionist tourist population. By surveying at the points of entry to Venice we minimized our coverage error.

We minimized measurement error by making the survey questions as direct and easy to answer as possible. Four out of the eight questions were simple yes/no questions. Out of the remaining four questions three were multiple choice and one was open ended. The one open-ended question produced the most error. It asked commuting excursionists for the city and nation in which they were staying. Many respondents were unsure where they were staying, or did not know the spelling of the location. Altogether, we received 49 different responses to city and six different nations. Some tourists were even unsure as to whether or not they spent the night in Venice. Performing a face-to-face survey, we were able to further explain these questions to respondents on the spot. We also used visual aides, such as a map of Venice. Thus, minimizing measurement error.

Sampling error is always present when conducting a survey. The only way to completely eliminate this error is to conduct a census, that is question every excursionist tourist who enters the city of Venice. We could not do this; instead we questioned every tenth excursionists at the entry points. This resulted in a sample of 310 surveys.

Non-response error occurs when members of the sample do not respond to the survey. Whenever the tenth excursionist would not answer our survey questions this was recorded as a non-response. The biggest problem we had with non-responses was at the Tronchetto car and bus parking

lot. Tour groups moved through this location quickly and were therefore difficult to stop. In order to decrease these non-responses, we used a partially visual shortened survey at the Tronchetto, and then gave the complete survey to tour groups in St. Mark's square who were returning to the Tronchetto. We had some trouble in surveying tourists who spoke languages that our survey had not been translated into, such as Polish, Russian, and Japanese. The team tried to minimze the error due to non-responses.

7 CONCLUSIONS

Tourism is the single-most influential phenomena in one of the most delicate cities in the world, Venice, Italy. The extremely rich cultural and political history of Venice makes it an extremely popular area for artists, writers and filmmakers in the nineteenth and twentieth centuries and before. Ernest Hemingway, Shakespeare, Ezra Pound and William Wordsworth just to name a few. Once a tourism city begins to attract tourists, the artists and writers leave to find more isolated places to represent using the pen or the brush.

Tourism is to Venice like the pen or brush is to a writer or artist. To take tourism away from Venice would be like taking the brush or the pen away from an artist of writer. Without tourism, Venice would struggle to survive, as would the artist or writer. It would be possible to for both to survive or simply move on if the connection is not extremely strong. Basically, if Venice gets to a point, which it is not at in the year 2000, where it is totally based around tourism and if the "tourism paradox" is true, then Venice will eventually collapse in terms of economic stability.

The Tourism 2000 team has attempted to fit Venice into the tourism lifecycle model described and referred to throughout this document. Figure 52 below is the lifecycle model that shows up in the Background Chapter.
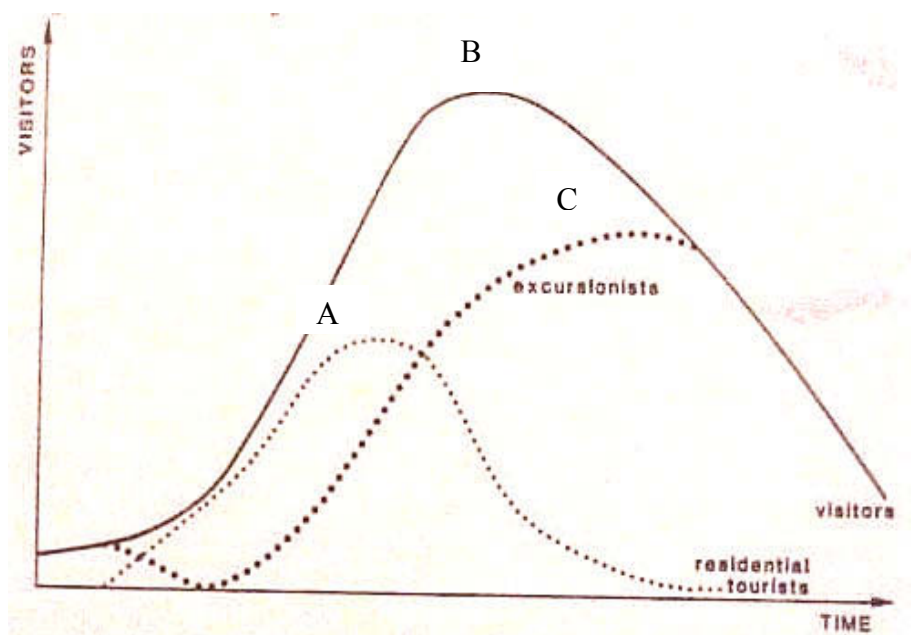
Figure 52: Tourism City Lifecycle Model

Since Venice has a limited amount of beds for residential tourists to use; there is an asymptote that is created at around 3.99 million presences of residential tourists. (This number is for only Venice and the Lido) If one adds Mestre, Marghera, and Cavallino this number increases to approximately 11 million presences (These are 1999 numbers). This basically allows for as many residential and

excursionist tourists that want to come. In the Recommendations Chapter, the Tourism 2000 team suggests that Venice could potentially hold about 3 million tourists during a day because it has 3 million square meters of open space. This is obviously ridiculous and one can rule out the idea of ANY city ever receiving 3 million tourists in one day. For these two reasons, Venice does not need to adjust the lines in the plot of Figure 52. This is just an assumption and changes will be made if the data available to us does not place Venice on the plots in Figure 52.

Now that we are assuming that Venice can be fit into the graph of Figure 52, we can begin to draw conclusions using the data collected this year and in the previous years by previous WPI project teams and the APT. We know, from comparison to the 1999 WPI project team estimate, that the number of excursionists has increased from 1999 to 2000 (From approx. 6.125 million to approx. 7.550 million). This could be due to the Jubilee 2000 celebration. For this reason, it will not be know whether the increase will be followed by a continued increase or a fall back to the level of 1999. For the purposes of this conclusion, we will subtract the 12% of excursionists that we found traveling in celebration of the Jubilee 2000 and arrive at approximately 6.64 million excursionists. This is still an increase in excursionists from 1999 to 2000.

If we look at the past 8 years of residential tourist data from the APT we can see an increase in presences every year. Table 30 summarizes this data.

Year	Number of Stays
1992	8,268,257
1993	8,895,717
1994	9,843,617
1995	10,754,557
1996	10,889,580
1997	10,868,307
1998	11,147,646
1999	

11,262,458

2000 (through March)
1,018,885

Table 30: Past 8 years of APT residential data for Venice, Lido, Mestre, Marghera and Cavallino

We can assume from these eight years that the residential tourist population of Venice is still increasing every year. The increase, however, is not exaggerated between these years. The team concluded from this data that the residential tourist population is beginning to level off. This is represented as point A in Figure 52. If we now draw a line straight down from line A, we can see where the excursionist population is in its timeline. This can be seen in Figure 53. If we wish to further our analysis, we can draw a line over to the y-axis, and if assume that our residential tourists are leveling off at approximately 11 million we can create an approximation to the number of excursionists at this point.
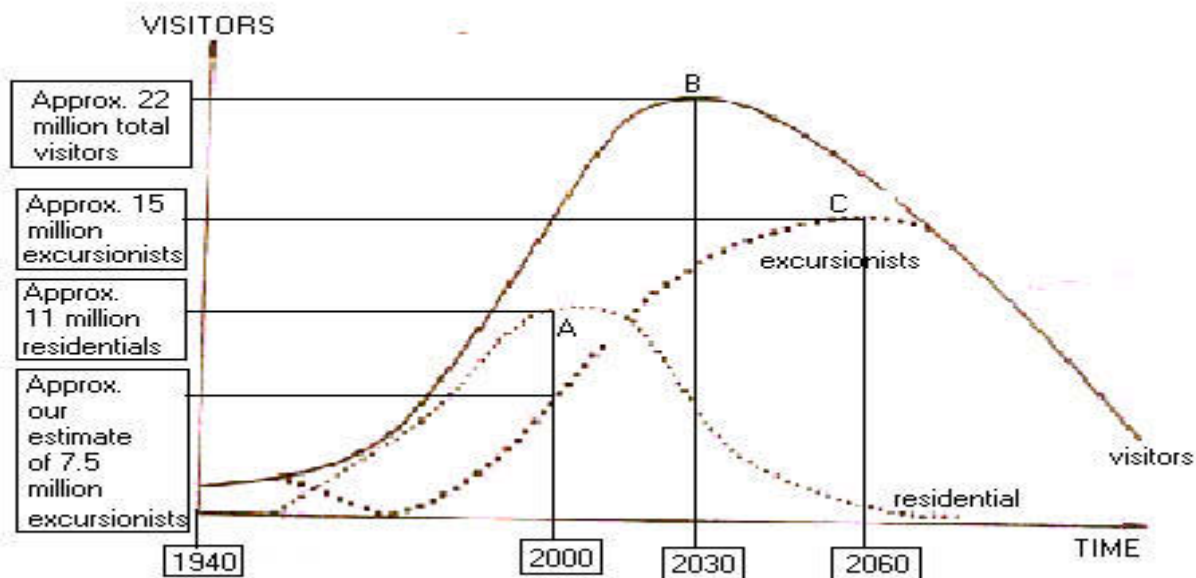
Figure 53: Life Cycle Model with the Placement of Venice

This results in approximately 7-7.5 million excursionists, which is what we approximated excursionists at for the year 2000. We can also approximate the pinnacle of the number of total visitors, point B in Figure 53, to be around 22 million.

If we now go back to our Background Chapter Section 2 (Trends in Tourism) and assume that tourists began to come to Venice at around 1940-50, we can further predict the year that the pinnacle of

total visitors will occur and the pinnacle of excursionists will occur. Using proportions of our year 2000 to our beginning, 1940, we predict the peak of the total number of visitors to be the year 2030 and the peak of the excursionist population to be the year 2060.

Assuming all predictions are correct, the overall tourist population of Venice will begin to decline in 2030 because of the "tourism paradox". Once the residential tourists leave, and the excursionists are spending very little in the center, the costs of bringing in tourists are outweighing the benefits for the city. The aesthetics of the city will be very hurt at this point due to the overflow of excursionists and little to no funding in the city. Less aesthetics equals less tourists.

All assumptions and predictions are based on real APT data, the 1999 WPI project team and the Tourism 2000 estimate and surveys.

8 RECOMMENDATIONS

Our recommendations are meant to aid the Azienda di Promozione Turi stica (APT), possible future WPI project teams, and the city of Venice in viewing and analyzing the state of tourism in Venice. We explain ways for the APT and future project teams to implement our methodology of counting and surveying tourists in a cost effective and labor efficient manner.

Inevitable errors arose from limited time and resources. Certain areas of the project could have benefited greatly from a continuous study. The monthly flux of excursionists for the year 2000 has been estimated through a model integrated from Actv ticket sales, museum admission records and APT hotel occupancy data. To receive an accurate estimate, all of the sites of entry would have to be monitored for the duration of a year. We have proposed a method, as described in this chapter, which can be implemented by the APT in the future to provide an estimate of the excursionist tourist influx for a year.

We integrated the ideas presented by the 1999 WPI Tourism project team, in both methodology and recommendations, and used them to perform our data collection. Hopefully future projects will do the same and use the recommendations presented in this chapter to improve the excursionist tourist analysis in Venice. The recommendations are structured into two main categories: a guide to implement accurate yearlong estimates and surveys, and recommendations to the APT and the city of Venice to increase tourist knowledge of Venetian history in order to make visitors more respectful of the city and its inhabitants and also to increase the quality of residential living.

8.1 Establishing a Yearly Estimate of Excursionists

Due to the limited number of beds in Venice, the number of residential tourists cannot increase beyond a certain number. The number of beds is not expected to increase, due to the hold put on the building of hotels by the city of Venice as of the year 2001. The APT receives daily hotel information on residential tourists regarding their nationality and length of stay. This data in addition to Actv records allowed the team to look into the monthly trends for tourism in Venice. This data, however, is not as exact as would have been provided by a continuous study of sample counts performed throughout the period of a year. Variables such as weather, festivals, special events, and international incidents were analyzed. The team has analyzed three different scenarios, in terms of cost and manpower, to perform such a study. The first described will be referred to as the all-out method. This method involves counting everyday of the year at the six counting locations listed in Table 31. The second method is to count a full week in each month at the same counting locations, and the third will be reduced even further to include just a single weekday and a single weekend day in each month.

8.1.1 Methods of Yearly Analysis

The following sections describe how to go about performing an estimation of excursionist tourists for a year.. The period of this procedure would involve an intense data collection occurring over the length of one year. The intention of this project is to find a distribution of traffic between the entry sites, and a monthly and daily fluctuation of excursionists in Venice.

This test involves counting at six sites of entry for a complete year. From our counts we have determined that the numbers shown in Table 31 to estimate the number of counters necessary for future projects.

Location	Number of Counters
Tronchetto	1
Santa Lucia	2
Piazzale Roma	3
Punta Sabbioni	1
Zattere	1
Chioggia	1
Total	9

Table 31: Number of Counters Required at Each Location

Using nine assumes nine counters to cover all the specified sites. Each counter would work for eight hours (8:00AM to 4:00PM) everyday of the year (26,280 man-hours), and it was estimated that they would receive 20.000 lire per hour, results in 525.600.000 lire a year, which may be more then resources allow. This is the most accurate method but it is expensive.

The next procedure that will be analyzed involves counting for one full week in each month of the year. This would involve a set team of nine people counting simultaneously at the six sites previously mentioned over the same eight-hour period, counting for seven days in the month for one year, and getting paid the same 20.000 lire per hour. This would lead to 6,048 man-hours, and 120.960.000 lire ($60,480).

The final procedure is the most feasible and cost effective, but it introduces a larger amount of error. Utilizing the weeklong fluctuation matrices in the appendices of this document and the truncated time period described in the Methodology Chapter, the APT could count for only a single weekday and a single weekend day each month for two and a half hours each day. The weekday and the weekend day should stay consistent in each month. For example, if the third Tuesday and the second Sunday are counted in January, then for the remaining months the same days should be counted. This results in 540 man-hours and 10.800.000 lire ($5,400). By conducting sample counts every month the year long

fluctuation of excursionists can be found, making possible a more accurate extrapolation to a year. This is the least expensive of the tree method proposed here, but it has the highest error.

8.1.2 Festivals and Weather Conditions

The team analyzed costs of counting during the festival days as well. Additionally, in order to achieve a more accurate estimate, a comparison between bad and a good weather day, would be necessary.

The many festivals and special events produce peaks in the excursionist tourist flow. Special counts should be performed on these days, or years, to determine exactly how they affect the number of day-trippers entering the city. These include the scheduled festivals held each year such as Carnevale in February and the Redentore in July, as well as special exhibitions in the museums, church tours with Jubilee 2000, and Biennale Art Expo every other year on odd years. These times would require special attention because the excursionist flow on these days would be different from usual, and most likely heavier than on non-festival days. With this festival number, a ratio can be set up against other festival days as well as to a non-festival day.

To get an estimate for the Carnevale the same nine counters would be needed. The counters would work for the same eight-hour period (8:00AM to 4:00PM) for all of the 11 days of the Carnevale. This results in 792 man-hours and 15.840.000 lire ($7,920).

An estimate for the Redentore, which was done by the this years team, would require the same nine counters for an eight hour period for two days. This results in 144 man-hours and a cost of 2880000 L. lire ($720). As estimated by the results of the our team, the amount of tourists counted for a single Redentore day would be equal to that of all the other single day events that Venice holds (The Feast of the Ascension, St. Marks Day, Velentine's Day, and Feast Day of the Salute to name a few).

A special case would be the Biennale year. The Biennale takes place not from June to the beginning of November. An analysis of the excursionist influx for a Biennale year, and could be compared to that of a non-Biennale year. Since there were 149 days of Biennale in 1999, using nine counters, and an eight hour time period accurate results could be obtained. This requires 10,728 man-hours and 214.560.000 lire ($107,280). In Table 32 below, one can see all of the costs previously described.

Counting Period Intervals	Man-Hours	Cost
All Year (365 days)	26,280	525.600.00 lire ($262,800)
7-Day per Month (84 days)	6,048	120.960.000 lire ($60,480)
Most Cost-Effective (24 days)	540	10.800.000 lire ($5,400)
Carnevale (11 days)	792	15.840.000 lire ($7920)
Redentore (2 days)	144	2.880.000 lire ($1,440)
Biennale (149 days)	10,728	214.560.000 lire ($107,280)

Table 32: Summary of Cost Analysis

Changes in weather conditions are important to consider when analyzing excursionist flow. We kept a record of the weather for each counting period. However, there was never a bad weather day during our counts. In the future, teams should keep records of weather and comparisons should be made in order to further the accuracy of the estimates.

8.1.3 Training for an "Excursionist Team"

Training a team to perform the estimations described above would involve studying the visual identification methods as mentioned in the Methodology Chapter, going to the chosen counting locations to observe and discuss the types of tourists, and then to surveying selected tourists to test accuracy. These tests lead to percentages of correct and non-correct guesses and retesting would be necessary until all members are above 90% correct. As explained in our Methodology Chapter, other tests involving counting simultaneously at the same location to test the intra-team consistency need to be performed. These tests are not only to train the individual but also the team as a whole, and they should be implemented both before and during the estimation process.

Another aspect of the count deals with the different clothes of excursionists due to the various seasons. The Tourism 2000 team conducted counts only in the summer; therefore teams should propose and test an identification method similar to that defined in the methodology of this project with modifications for the respective seasons.

8.1.4 Alternative Counting Techniques

Counting excursionists at entry points is not the only way to estimate their number. An alternative method would be to install turnstiles at all entry points. These turnstiles would count the total number of people entering Venice. Simultaneously, a systematic survey could be performed in St. Mark's square, which involves asking every X number of tourists if they are spending the night in Venice.

Multiplying the percentage of excursionists in St. Mark's square by the total number of people entering Venice would provide an estimate of the number of excursionists in the city.

Actv records could be further utilized as a proxy measure of excursionists. To use the tickets sales a ratio between numbers of tickets sold at each entry point and the number of excursionists entering through this site must be found. This could be done by counting excursionists for several hours then comparing this count with the tickets sold during the same period. From these ratios the number of excursionists could be estimate from the number of tickets sold.

8.1.5 Density Study

We performed a sample density study to measure the dispersal of tourists throughout the city of Venice, the method we used was not very scientific, but the basic idea is sound. Instead of taking thirty minute "walks", as we did, counters should be stationed in every sestiere at random points. These counters would first need to be trained to recognize tourists and non-tourists through accuracy and consistency tests. They would count the number of tourists passing by a pre-determined point. This would result in several point measurements of tourists, which could be combined and extrapolated to show the tourist density for the entire city.

8.2 Survey Suggestions

Surveys are useful to obtain characterization data on who is entering Venice as an excursionist tourist. We performed a face-to-face, written survey at the entry points to Venice. Through or experiences of the methods we used to administer the survey and some of the questions we asked could use improvement.

8.2.1 Alternative Surveying Methods

We used a method of face-to-face surveying in which we approached people and gave them a questionnaire to fill out and return on the spot. Although this allows for randomness, we found this method was difficult and time consuming for the surveyor and inconvenient for the respondents. To minimize the disturbance to the respondents we suggest the use of mail-in surveys which are handed out to tourists entering the city. These surveys would be postage paid, the respondent could fill them out when convenient and mailing them in. The drawback to this is the expense of postage and the possibility of a high non-response rate.

An even simpler way to conduct a survey of excursionists is to put questionnaires in tourist information booths. When tourists visit these booths they can be given a short questionnaire to determine if their overnight plans, demographics, spending plans, travel motivations etc. This is a simple

and inexpensive surveying method, but it is not highly accurate as it is bias towards tourists who visit information booths.

8.2.2 Additional Survey Questions

We believe that some modifications to the survey questions themselves be useful. For instance, to determine if someone is a commuting or stop-over excursionist you should ask where the subject slept last night, then ask where they will sleep tonight. If the person is spending the night at the same location they spent the previous night, then they are a commuting excursionist. If these answers are different, then the person is a stop-over excursionist. If either of these answers are Venice, then the respondent is a residential tourist.

Now that we had counted the excursionist tourists and differentiated them by type, spending and nationality, the next logical step was to determine why excursionists do not spend the night. From our contact with tourists we discovered the four main reasons why excursionists do not spend the night in Venice:

- They could not find a hotel vacancy
- They could not afford to spend the night in Venice
- They did not want to spend the night
- Their bus tour made other plans preventing them from spending the night in Venice

When asking the excursionists why they are not spending the night in Venice, providing these four options would make it possible to determine the most popular reason why excursionists do not stay overnight in Venice. Knowing this, the APT could focus its efforts on the most prevalent reason excursionists do not spend the night.

8.3 Recommendations to the City of Venice

After working and living in Venice, the group wanted to make recommendations to the city of Venice and the Azienda di Promozione Turistica (APT) that dealt with educating the tourists about the rich history of Venice and improving general aesthetics of the city. One of the main functions of the APT is to improve the quality of tourism in Venice. They want to educate the tourists of Venice about the history, therefore increasing the respect tourists have for the city. This could be achieved many different ways, including utilizing information booths and hotels.

The tourist information booths located around the city offer information to visitors including maps, hotel information, concert information, museums information and transportation information. If these booths were used to give out pamphlets from the APT with more information and facts about the history of Venice, its festivals and special events, its present exhibits and its people, then tourists could get a bigger picture of what Venice is and used to be. Concerts, instead of only being advertised in posters on walls, should be mentioned in these brochures and possibly on a main board at each Actv boat stop –

the upcoming events board. Survey forms could also be available to excursionists at the information booths. Another suggestion for the education of tourists involves residential tourists rather than excursionists. The APT could make available the previously mentioned pamphlets in hotel rooms, with the events of that month, the prices, and a map of the walking tour between each one.

Sites around the city that are not often known about - certain churches, museums, the Giardini, and the beautiful, quiet areas of each sestiere - need to be shown in an appealing way to the incoming tourists. More tours could be offered that would take tourists to these less visited areas of Venice, therefore spreading out the population of visitors and showing them the real city, not just St. Mark's Square and the Rialto Bridge.

8.3.1 Reduction of Litter

One thing that the Tourism 2000 team observed in relation to the impact of tourism on Venice is the problem of the disposal of trash within the city. As one walks through the streets of Venice, he/she can observe a lack of trashcans. It is said that tourists are the only ones who throw their trash on the ground and in the water, yet actually there are many Venetians that we saw disperse of their trash not near a trashcan. There are many trashcans in St. Mark's Square, but when moving away from the square there are considerably fewer and they are usually full. It has been observed that tourists have a hard time recognizing a trash can when they see one. The tall rectangular and cylindrical trashcans around the city, which usually have maps on them, resemble advertisement billboards as shown in Figure 54.

Figure 54: Typical Trash Can

If trash is a problem, which it is, our suggestion for the city of Venice (AMAV) is to put aesthetically pleasing trashcans aside and use industrial size trashcans. They should at least be placed in every square in the city, and in the alleyways in which a trashcan would not highly affect tourist traffic.

The numbers of tourists have been increasing and seem to be shifting to a plateau. There is not much anyone can do to thwart the number of incoming tourists. What they can try to accomplish is the dispersal of tourists throughout Venice and the education of them in order to make the visitors more respectful.

8.3.2 Restricting Access to Venice

The majority of excursionist tourists who enter Venice daily do so by passing over the bridge connecting Venice to the mainland. The railway bridge, the Ponte della Liberta`, was first built in 1846

and the road bridge was built in 1932. We suggest that the bridge be restricted to commercial and residential traffic only forcing tourists to take boats to Venice.

Currently the Ponte della Libertà carries four lanes of cars and four railroad tracks. It takes approximately 4-5 minutes to cross the bridge. It is inexpensive to access Venice by bus. A bus ticket from Padua to Venice costs only 5.000 L (2.90 °)[52].

All tourists who cross the bridge are dispersed to the P.le Roma, the Santa Lucia, or the Tronchetto. We counted excursionist tourists at these sites. For the month of June we estimated that approximately 698,000 excursionist tourists passed through these points.

Covering the distance from the mainland to Venice by vaporette it would take approximately ten minutes. These boats could carry passengers directly to attractions (St. Mark's) or to various points around Venice, much like the current mainland-to-Venice lines do. Alternatively, these lines could directly replace the bridge by carrying passengers to the Tronchetto, P.le Roma and Santa Lucia, where passengers would be dispersed to the established intra-city transit system.

Comparing the distance an Actv boat would cover traveling from Mestre to Venice with the established lines from the airport, P. Sabbioni and Fusina, it would take approximately thirty minutes, at an approximate cost of 10.000 L for a single one-way ticket. This is a considerably longer time commitment and more expensive than traveling by bus or train. This would deter most casual day-trippers, forcing them to either spend the night or not come. The more committed, knowledgeable tourists who simply could not find or afford accommodations within the city would probably still make the trip despite the added cost and time. Thus, by eliminating non-commercial use of the bridge, the quality of tourism in Venice would increase.

Future feasibility studies for this idea must be conducted to draw any solid conclusions. For instance, excursionists should be surveyed to determine what effect not being able to cross the bridge would have on their travel plans.

8.3.3 Increasing the Accessibility of Venice

Another option is to make it very fast and easy for day-trippers to get into and out of Venice. One way to do this is by constructing an underground subway running under the lagoon connecting Venice to the mainland. The subway would run from the mainland to Venice with stops at the Rialto and in St. Mark's Square. This would allow excursionists to visit the main attractions for a short period of time without disturbing the rest of the city.

Unfortunately, this may encourage tourists to stay in hotels on the mainland and commute to Venice. This would lower the number of tourists who stay overnight in Venice, thus hurting the hotel industry. By sleeping and eating outside the location they are visiting, commuting excursionists do more to help the economy of the cities neighboring Venice than Venice itself.

---

[52] Frommer's Portable Venice, 1999, p14

Additionally, tourists may not confine themselves to St. Mark's Square, but instead they would probably wander around the city as they do now. A solution to this is to contain the tourists to the "touristy areas".

8.3.4 Containing the Day-Tourists

Our density studies show that tourists are not evenly dispersed throughout the city. Instead they are mainly concentrated around St. Mark's Square. An interesting possibility is to contain the excursionist tourists to St. Mark's. This would allow the tourists to see the main attractions, while leaving the rest of
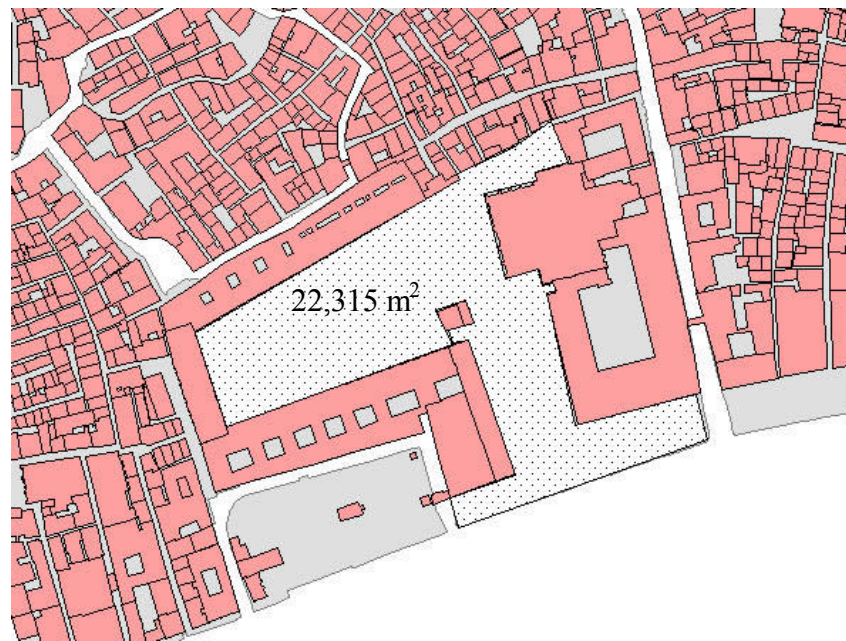
Figure 55: Area of St. Mark's Square

the city undisturbed. The carrying capacity of St. Mark's Square is directly related to the size of the piazza. The open area in St. Mark's Square, as seen in Figure 55, measures 22,315 m².

Assuming that each tourist requires one square meter of room, we figure that 22,315 tourists can "fit" in St. Marks Square. This number is extremely close to our estimate of the number of excursionists that visit on a normal weekday (22,500). So, if all the day-trippers went to St. Mark's square at once, they would fit. It is also a possibility to contain the excursionist tourists to the area between St. Mark's Square and the Rialto Bridge. This area is shown in Figure 56.
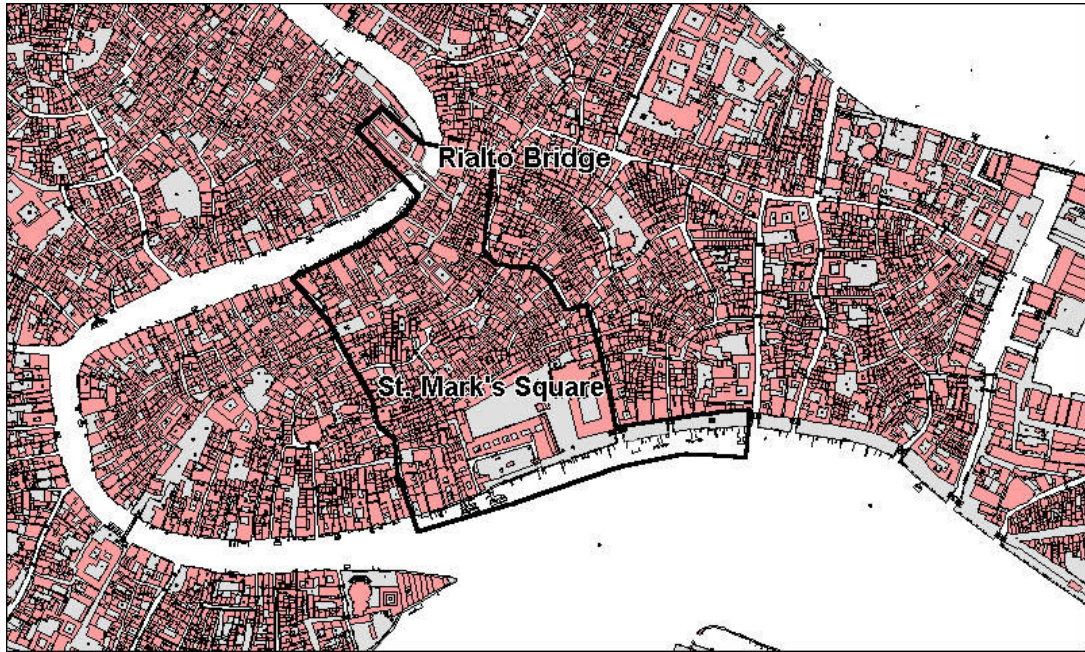
Figure 56: Tourism Containment Area Between St. Mark's Square and the Rialto Bridge

This containment would ease the pressure of tourism on the locals. Decorative tourist containment gates would be installed to keep tourists within this designated area. Since many hotels fall outside this area, it would be impossible to contain the residential tourists. Therefore, residential tourists, residents, businesspeople, and University students would be given a special pass that would allow them access to this section of the city. This is not the most practical solution, as it would likely hurt tourism-related businesses outside this region. Additionally, this would make it difficult for excursionists to visit museums and attractions outside of this region.

8.3.5 Dispersing the Day-Tourists

On the other end of the spectrum is the possibility of further spreading the excursionist tourists throughout the city. This would increase the area benefited by the money spent by excursionists. It would also lead to a better experience for the tourists, as it would allow them to see more of the city.

This could be accomplished by providing excursionists with walking tours that take them away from the "touristy areas"; the APT already does this. A more effective way is by altering the public transportation routes within the city. Currently, Actv boat lines take tourists directly to St. Mark's Square. Dropping off tourists further from St. Mark's would be a valuable way to disperse the tourists throughout the city, and thus force them to walk to St. Mark's Square and view the entire city.

The draw back though to further dispersing the tourists is that it would put a strain on the permanent residents and could cause excessive foot traffic throughout the city. The total area of the historic center of Venice is 6,325,841 m², with the total area of the buildings in this region being

2,521,146 m². When the area of the buildings is subtracted from the area of the entire island the result is 3,804,694 m²; this is an overestimate, as it does not account for private open areas. This means that this amount of area is open to be occupied by tourists. If each tourist takes up 1 m², then Venice can hold up to 3,804,694 tourists at one time. At this point Venice would be completely physically saturated with tourists.

8.3.6 Reducing Foot Traffic

Venice has many small streets and alleyways that are easily congested by tourists. To prevent such congestions, signs could be put up in small alleys to remind tourists to stay on their right hand side. Tour guides should be given special instructions to either keep large groups on wide streets or to keep groups in a single file line when on narrow roads.

Deliveries and trash pickup should be timed to avoid foot traffic jams. A handcart or dolly can easily block of an alley. Based on our Ponte della Paglia weekend count, to avoid the peak time of tourist traffic in the St. Mark's area all trash pickup and deliveries should be completed by 9:30 in the morning.

8.4 Final Recommendations

Tourism is vital to the economy of Venice, thus it is necessary to establish a sustainable level of tourism within the limited confines of the city. The first step in sustaining tourism is to measure and analyze the tourists. The methods we have used for counting, extrapolation, and surveying are sound, but could use improvement. But, this research must be performed on a continuous basis to detect negative trends early so that they can be reversed.

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www.comune.venezia.it/org

APPENDIX A – FIELD FORMS

Visual Identification Of Excursionist Tourist Test

Team Member	Site	Date	Time

	Prediction				**Actual**			**Notes**

	Exc	Res	Non		Exc	Res	Non
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
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30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							

	Totals				Totals		
Exc	Res	Non		Exc	Res	Non	

Consistency Between Team Members

Counts made in 10 minute intervals

Site		Date	Time			

	1	2	3	4	5	6	7	**Total**
Amy								
Francesco								
Marc								
Marianne								
Russell								

Site		Date	Time			

	1	2	3	4	5	6	7	**Total**
Amy								
Francesco								
Marc								
Marianne								
Russell								

Site		Date	Time			

	1	2	3	4	5	6	7	**Total**
Amy								
Francesco								
Marc								
Marianne								
Russell								

Notes:

Ratios of Exits from P.le Roma

Exit	Number of Excursionists					
1						
2						
3						
4						
5						
6						
7						
8						
9						

Tourism 2000

Excursionist Tourist Count: Field Form

Site	Location	Date	Counter

Time	
8:00	
8:15	
8:30	
8:45	
9:00	
9:15	
9:30	
9:45	
10:00	
10:15	
10:30	
10:45	
11:00	
11:15	
11:30	
11:45	
12:00	
12:15	
12:30	
12:45	
13:00	
13:15	
13:30	
13:45	
14:00	
14:15	
14:30	
14:45	
15:00	
15:15	
15:30	
15:45	
16:00	

Weather:

Festivals:

Notes:

Tourism 2000

Weeklong Excursionist Tourist Count: Field Form

Site	Location	

Monday		Tuesday		Wednesday		Thursday	
Date		Date		Date		Date	
Counter		Counter		Counter		Counter	
Weather		Weather		Weather		Weather	

Monday		Tuesday		Wednesday		Thursday	
9:30		9:30		9:30		9:30	
9:45		9:45		9:45		9:45	
10:00		10:00		10:00		10:00	
10:15		10:15		10:15		10:15	
10:30		10:30		10:30		10:30	
10:45		10:45		10:45		10:45	
11:00		11:00		11:00		11:00	
11:15		11:15		11:15		11:15	
11:30		11:30		11:30		11:30	
11:45		11:45		11:45		11:45	
12:00		12:00		12:00		12:00	

Friday		Saturday		Sunday	
Date		Date		Date	
Counter		Counter		Counter	
Weather		Weather		Weather	

Friday		Saturday		Sunday	
9:30		9:30		9:30	
9:45		9:45		9:45	
10:00		10:00		10:00	
10:15		10:15		10:15	
10:30		10:30		10:30	
10:45		10:45		10:45	
11:00		11:00		11:00	
11:15		11:15		11:15	
11:30		11:30		11:30	
11:45		11:45		11:45	
12:00		12:00		12:00	

Austria

V 79.416

SL 65 AA · BN 5510

Albania

DR· 5567· A TR 8350 B

Andorra

3757 9228 49360

PRINCIPAT D'ANDORRA PRINCIPAT D'ANDORRA PRINCIPAT D'ANDORRA

MT-1201 0327 OFICIAL

PRINCIPAT D'ANDORRA

Belarus

7880 AA

Belgium

HXZ·475 BXH-796

SB.1928 I68094

Bosnia

BC-11 255 A TR-0659 CA

725-M-436 БЛ 30-84

CC 447-45 12-35 БЛ

Bulgaria

С·П·1976 C·6719·CC

XX·2105

Croatia

ZG 618-ER

Czech Republic

·DOC 04·35·

ABB·25·43

Denmark

ST 22 266 | DK 89 ·71 229

13.356 | 30.793

Finland

1929 H 1531 | T·102

34 VA 1087 | SFO·657

AKE·001

France

9462 SD 72 | 2998 TM 72

F 4472 TV 01 | 2998 TM 72

7882 0648 | 46 CD 301

4650-TTA75 | 35770 WW·D

Germany

IK 10930 | B 62064

GT 54-1560

A 15-07*34

MK D 8548 | D·489 U

KE·04703 | X·3210

PI MM 119 | EMD HF 11

Greece

ZB-2392 | YAE 2691

84509 | ΑΝΑΓ.ΠΟΛΕΜΟΥ 376 | IX N 17168

Hungary

UI·31·21 | CCG-628

Italy

MI D2 7084
LU ·498769
CE ·548808
CA 386301
AJ ·854 HR
EI ·00 0000
AA ·000AA

Lithuania

KVN ∗ 126
BKT : 456
LITHUANIA

Macedonia

SK ·217-409
OH 701-HA
SK ∎923-AM

Romania

3·BV·8132
5·B∘1041
AR·01EUZ
B 03180

Russia

67·42 моц
и 7732 ЦП
х 001 уЕ 78

Slovenia

LJ·405·819
NM ∗ 38-36N
LJ ▾ C4-05J

Switzerland

✠ 1071 M
CD GE 247 ·02
ZH 370 763
LU·86869
✠ M 96971
NE 72783
GL 9951 Z
UR 515 Z
TG 117 302
AG 240 732

Tourism 2000
Tour Groups

Site	Date	Time Interval

	Size	Jubilee	Type	Age	Nationality
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
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32					
33					
34					
35					
36					
37					
38					
39					
40					

Tourism 2000
Responses

Venezia
AZIENDA DI PROMOZIONE TURISTICA

WPI
WORCESTER POLYTECHNIC INSTITUTE

Site	Date	Time Interval		Team Member

Non Response	Sex	Age	Nationality	Reason	Language	Hurry	Other
1							
2							
3							
4							
5							
6							
7							
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39							
40							

Italian and English Survey Introductions

SPIEGAZIONE 1.
Scusi, sono uno studente universitario.

Sto facendo una ricerca di statistica sul turismo. Per favore potrebbe compilare questo sondaggio?

Grazie e buona giornata.

Excuse me, I am a university student.

I am conducting a statistics research on tourism. Could you please fill out this Survey?

Thank you, and have a Good Day.

SPIEGAZIONE 2.

Sono studente sto facendo una ricerca di statistica sul turismo. Potrebbe completare questo sondaggio?

Grazie.

I am a student performing statistic's research on tourism. Could you please fill out this Survey?

Thanks

SPIEGAZIONE 3.

Salve, posso farle una domada? Sono uno studente Americano e sto facendo una ricerca sul turismo.

Potrebbe completare questo sondaggio?

Grazie!

Hi, I can I ask you a question? I am an American student and I am conducing research on tourism.

Could you please fill out this Survey?

Than you!

English Survey

1. For what purpose are you entering Venice?
   - ☐ Business purposes
   - ☐ Student of Venetian University
   - ☐ Resident of Venice
   - ☐ Recreational reasons/Tourism reasons
   - ☐ Other_____

If you are here for business purposes, student reasons, or you are a resident, Thank you for your time and have a nice day.

2. Are you spending tonight or did you spend last night in Venice or on the Lido?
   - ☐ Yes
   - ☐ No

If yes to #2, Thank you for your time and have a nice day.

3. Are you spending the night at your permanent residence?
   - ☐ Yes
   - ☐ No

If yes to #3, skip to question #5.

4. Are you spending the night in a location outside of Venice and visiting Venice multiple times?
   - ☐ Yes
   - ☐ No

5. Where are you staying?
   City_____
   Nation_____

6. What is your nationality?
   - ☐ Italian
   - ☐ French
   - ☐ Spanish
   - ☐ German
   - ☐ British
   - ☐ American
   - ☐ Japanese
   - ☐ Other _____

7. Are you traveling in celebration of Jubilee 2000?
   - ☐ Yes
   - ☐ No

8. How much to you plan to spend in Venice today?   **(Optional)**
   - ☐ L 20,000 – 40,000   ($10-20)
   - ☐ L 40,000 – 80,000   ($20-40)
   - ☐ L 80,000 – 100,000   ($40-50)
   - ☐ L 100,000 – 200,000   ($50-100)
   - ☐ L 200,000 – 400,000   ($100-200)
   - ☐ L 400,000 – 1,000,000 ($200-500)
   - ☐ L 1,000,000+   ($500+)

Thank You!
Enjoy your day!

Venezia
AZIENDA DI PROMOZIONE TURISTICA

WPI
WORCESTER POLYTECHNIC INSTITUTE
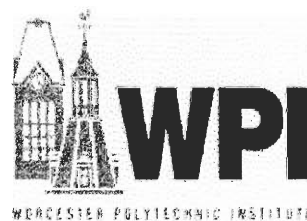
Italian Survey

1) Si e` recato a Venezia per:
   - ❑ Affari
   - ❑ Motivi di studio
   - ❑ Perche` risiede aVenezia
   - ❑ Divertimenti vari o turismo
   - ❑ Altro_____

Qualora si fosse recato a Venezia per affari, motivi di studio o risiede a Venezia, Grazie per la sua attenzione e buona giornata.

2) Trascorrera` la notte o ha trascorso la notte a Venezia o al Lido?
   - ❑ Si`
   - ❑ No

Se ha risposto si` alla domanda numero due, Grazie per la sua attenzione e buona giornata.

3) Trascorrera` questa notte nella sua citta` di residenza?
   - ❑ Si`
   - ❑ No

Se ha risposto si` alla domanda numero tre` vada alla domanda numero 5.

4) Si reca a Venezia da localita` fuori di Venezia e poi ritorna li` per dormire/mangiare
   - ❑ Si`
   - ❑ No

5) Dove si trova la sua citta` di residenza permanente/temporanea?
   - Citta`_____
   - Regione/Nazione_____

6) Quale e` la sua nazionalita`?

   - ❑ Italiana
   - ❑ Francese
   - ❑ Spagnola
   - ❑ Tedesca
   - ❑ Britannica
   - ❑ Americana
   - ❑ Giapponese
   - ❑ Altra_____

7) Sta` viaggiando in occasione del Giubileo 2000?
   - ❑ Si`
   - ❑ No

8) Quanto pensa di spendere oggi a Venezia? (Opzionale)

   - ❑ 20.000-40.000
   - ❑ 40.000-80.000
   - ❑ 80.000-100.000
   - ❑ 100.000-200.000
   - ❑ 200.000-400.000
   - ❑ 400.000-1.000.000
   - ❑ 1.000.000+

Grazie e
Buona Giornata!

Venezia
AZIENDA DI PROMOZIONE TURISTICA

WPI
WORCESTER POLYTECHNIC INSTITUTE

French Introduction

EXPLICATION 1:

Je suis ětudiant à l'universitě.

J' effectue des recherches sur les statistiques dans le tourisme. Pourriez vous complěter

ce sondage?

Merci et bonne journěe.

EXPLICATION 2:

Je suis un ětudiant faisant des recherches sur les statistiques dans le tourisme.

Pourriezvous complěter ce sondage.

Merci.

EXPLICATION 3:

Bonjour, est-ce-que je peux vous poser une question? Je suis un ětudiant aměricain et

j'effectue des recherches sur le tourisme.

Pourriez-vous complěter ce sondage.

Merci!

French Survey

1. Vous vous etes rendu a Venise pour:
   - ❑ Des affaires
   - ❑ Vos etudes
   - ❑ Parce que vous residez a Venise
   - ❑ Divertissement ou tourisme
   - ❑ Autre…………………………

Si vous vous etes rendu a Venise pour des affaires, vos etudes ou parce que vous y residez, merci et bonne journee.

2. Vous passerez ou avez passé la nuit a Venise ou au Lido?
   - ❑ Oui
   - ❑ Non

Si vous avez repondu oui a numero 2, merci et bonne journee.

3. Vous logerez cette nuit dans votre ville de residence?
   - ❑ Oui
   - ❑ Non

Si vous avez repondu oui a la question numero 3, allez a la numero 5.

4. Vous allez aux alentours de Venise et puis vous y retourner pour manger/dormir?
   - ❑ Oui
   - ❑ Non

5. Ou se trouve votre ville de residence permanente/temporaire?
   Ville…………………………………..
   Region/pays……………………..

6. Quelle est votre nationalite?
   - ❑ Italienne
   - ❑ Francaise
   - ❑ Espangnole
   - ❑ Allemande
   - ❑ Britannique
   - ❑ Americaine
   - ❑ Japonnaise
   - ❑ Autre…………

7. Vous voyagez a l'occasion du Giubileo 2000?
   - ❑ Oui
   - ❑ Non

8. Combien pensez-vous depenser aujourd'hui a Venise? (facultatif)
   - ❑ 20.000-40.000
   - ❑ 40.000-80.000
   - ❑ 80.000-100.000
   - ❑ 100.000-200.000
   - ❑ 200.000-400.000
   - ❑ 400.000-1.000.000
   - ❑ 1.000.000+

Merci et bonne journee

Venezia
AZIENDA DI PROMOZIONE TURISTICA

WPI
WORCESTER POLYTECHNIC INSTITUTE
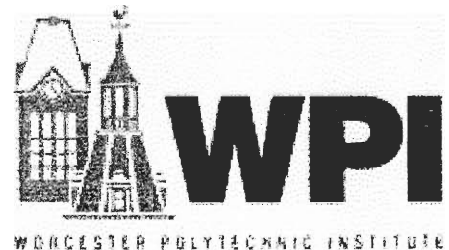
Spanish Survey

1. Por que razon esta usted en Venezia?
   - ❑ Negocio
   - ❑ Estodiante en Venezia
   - ❑ Reside en Venezia
   - ❑ Razones recreacionales/Turismo
   - ❑ Otra_____

Si usted aqui por negocios, estudio o reside aqui le agradecemos por su tiempo. Que tenga un buen dia.

2. Planea pasar o hazasado lanoche en Venezia o el Lido?
   - ❑ Si
   - ❑ No

Si usted respondio si a la pregunta #2 le agradecemos por su tiempo. Que tenga un buen dia.

3. Esta pasando la nochia en su residencia permanente?
   - ❑ Si
   - ❑ No

Si usted respondio si ala pregunta #3 continue ala pregunta #5.

4. Esta usted pasando la noche en un lugar de Venezia y esta visitando Venezia muchas?
   - ❑ Si
   - ❑ No

5. En donde esta Viviendo?
   Ciudad_____
   Pais_____

6. Cuales su nacionalidad?
   - ❑ Italiano
   - ❑ Francies
   - ❑ Espanola
   - ❑ Alemana
   - ❑ Inglesa
   - ❑ Estado Unidense
   - ❑ Japones
   - ❑ Otra_____

7. Esta usted viajando celebrando el Jubileo 2000?
   - ❑ Si
   - ❑ No

8. Cuanto planea usted gastar en Venezia hoy? (Opcional)
   - ❑ L 20,000 – 40,000   ($10-20)
   - ❑ L 40,000 – 80,000   ($20-40)
   - ❑ L 80,000 – 100,000   ($40-50)
   - ❑ L 100,000 – 200,000   ($50-100)
   - ❑ L 200,000 – 400,000   ($100-200)
   - ❑ L 400,000 – 1,000,000 ($200-500)
   - ❑ L 1,000,000 +   ($500+)

Gracias!
Que tenga un buen dia!

Venezia
AZIENDA DI PROMOZIONE TURISTICA

WPI
WORCESTER POLYTECHNIC INSTITUTE

German Introduction

ERKLÄRUNG 1

Entschuldigen Sie bitte, ich bin ein Universitätsstudent. Wir führen eine Statistikuntersuchung im Bereich des Turismus durch. Würden Sie so nett sein unser Fragebogen auszufüllen?

Danke und wir wünschen Ihnen einen schönen Tag

ERKLÄRUNG 2

Ich bin ein Student und führe eine statistische Untersuchung über den Turismus durch. Würden Sie bitte diesen Fragebogen ausfüllen?
Dankeschön.

ERKLÄRUNG 3

Guten Tag, kann ich Ihnen einige kurze Fragen stellen? Ich bin ein amerikanischer Student und führe eine Untersuchung über den Turismus durch. Würden Sie so nett sein diesen Fragebogen auszufüllen?
Danke

German Survey

1) Sie befinden sich in Venedig :
   - ☐ Aus geschäftlichen Gründen
   - ☐ Studienaufenthalt
   - ☐ Sie sind wohnhaft in Venedig
   - ☐ Sie verbringen Ihre Ferien in Venedig

Falls Sie sich aus geschäftlichen - oder Studiengründen in Venedig befinden, oder in Venedig wohnhaft sind, bedanken wir uns und wünschen Ihnen einen schönen Tag.

2) Werden Sie auf dem Lido oder in Venedig übernachten oder haben Sie heute bereits hier übernachtet?
   - ☐ Ja
   - ☐ Nein

Falls Ihre Antwort auf die zweite Frage ja ist, bedanken wir uns und wünschen Ihnen einen guten Tag

3) Weden Sie heute die Nacht in Ihrem Wohnungsort verbringen?
   - ☐ Ja
   - ☐ Nein

Falls Ihre Antwort auf diese Frage bejahend ist, gehen Sie bitte zur Frage 5 über

4) Kommen Sie aus einer Ortschaft in der Umgebung und kehren Sie täglich nach Hause?
   - ☐ Ja
   - ☐ Nein

5) Wo befindet sich Ihr permanenter/temporärer Wohnort?
   Stadt…………………………………………
   Region/Staat……………………………

6) Ihre Nazionalität?
   - ☐ Italiensiche
   - ☐ Französische
   - ☐ Spanische
   - ☐ Deutsche
   - ☐ Englische
   - ☐ Amerikanische
   - ☐ Japanische
   - ☐ Andere

7) Ist Ihre Reise mit dem Jubiläum 2000 verbunden?
   - ☐ Ja
   - ☐ Nein
   - ☐

8) Ungefähr wieviel haben Sie die Absicht heute in Venedig auszugeben?
   - ☐ Lit. 20.000-40.000
   - ☐ Lit. 40.000-80.000
   - ☐ Lit. 80.000-100.000
   - ☐ Lit. 100.000-200.000
   - ☐ 200.000-40.000
   - ☐ 400.000-1.000.000
   - ☐ 1.000.000

Dankeschön

Portuguese Introduction

SPIEGAZIONE 1:

Desculpa , eu sou um studente, ando na universidade. Faco procure sobre as statisticas

no turismo. Se faz favore, podia completare este sondagio.

Obrigado e bom dia.

SPIEGAZIONE 2:

Eu sou studente, fazendo procure sobre as statisticas no turismo. Podia completare este

sondagio?

Obrigado

SPIEGAZIONE 3:

Ola, posso Ihe fazer uma progunta? Eu sou um student americano fazendo procure sobre

o turismo.

Podia completare este sondagio.

Obrigado.

Portuguese Survey

1) Se vem a Venezia e` por:
   - ❑ Trabalho
   - ❑ Studos
   - ❑ Porque mora a Venezia o turismo
   - ❑ Altro_____

2) Passara a noite o tem passado a noite a Venezia o no Lido?
   - ❑ Sim
   - ❑ Nao

Se tem risposto a progunta numero dois, obrigado por a sua attencao e bom dia.

3) Passara a noite na sua villa onde mora?
   - ❑ Sim
   - ❑ Nao

Se tem risposto a progunta numero tres, anda a progunta numero cinco

4) Esta usted pasando la noche en un lugar de Venezia y esta visitando Venezia   muchas?
   - ❑ Sim
   - ❑ Nao

5) A villa onde mora sempre?
   - ❑ Villa_____
   - ❑ Zona_____

   - ❑ Italiana
   - ❑ Frances
   - ❑ Espagnola
   - ❑ Alemanda

6) Quale e` a sua nazionalidade?

   - ❑ Italiana
   - ❑ Frances
   - ❑ Espagnola
   - ❑ Alemanda
   - ❑ Inglesa
   - ❑ Americana
   - ❑ Japones
   - ❑ Otra

7) Esta viajando por a occasio do jubileo 2000?
   - ❑ Sim
   - ❑ Nao

8) Quanto pensa gastar hoje a Venezia? (Opzional)

   - ❑ L 20,000-40,000   ($10-20)
   - ❑ L 40,000-80,000   ($20-40)
   - ❑ L 80,000-100,000   ($40-50)
   - ❑ L 100,000-200,000 ($50-100)
   - ❑ L 200,000-400,000   ($100-200)
   - ❑ L 400,000-1,000,000 ($200-500)
   - ❑ L 1,000,000+   ($500)

Gracias!
Que tenga un buen dia

Venezia
AZIENDA DI PROMOZIONE TURISTICA

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APPENDIX B – SITE SPECIFIC COUNT RESULTS

Appendix B - Results and Analysis by Site

Tronchetto

Results of Full Day Counts

Weekday		Weekend Day	
TIME	TRON	TIME	TRON
8:15	197	8:15	189
8:30	240	8:30	450
8:45	387	8:45	124
9:00	392	9:00	505
9:15	367	9:15	279
9:30	353	9:30	706
9:45	291	9:45	339
10:00	381	10:00	376
10:15	367	10:15	300
10:30	386	10:30	617
10:45	338	10:45	345
11:00	488	11:00	503
11:15	386	11:15	182
11:30	284	11:30	300
11:45	386	11:45	221
12:00	85	12:00	156
12:15	161	12:15	283
12:30	203	12:30	121
12:45	76	12:45	286
1:00	164	1:00	113
1:15	125	1:15	92
1:30	247	1:30	206
1:45	4	1:45	138
2:00	109	2:00	244
2:15	46	2:15	277
2:30	47	2:30	285
2:45	49	2:45	174
3:00	156	3:00	69
3:15	9	3:15	155
3:30	18	3:30	195
3:45	18	3:45	105
4:00	6	4:00	146
Total	**6766**	**Total**	**8481**

Table 1: Full Weekday and Weekend Day at the Tronchetto
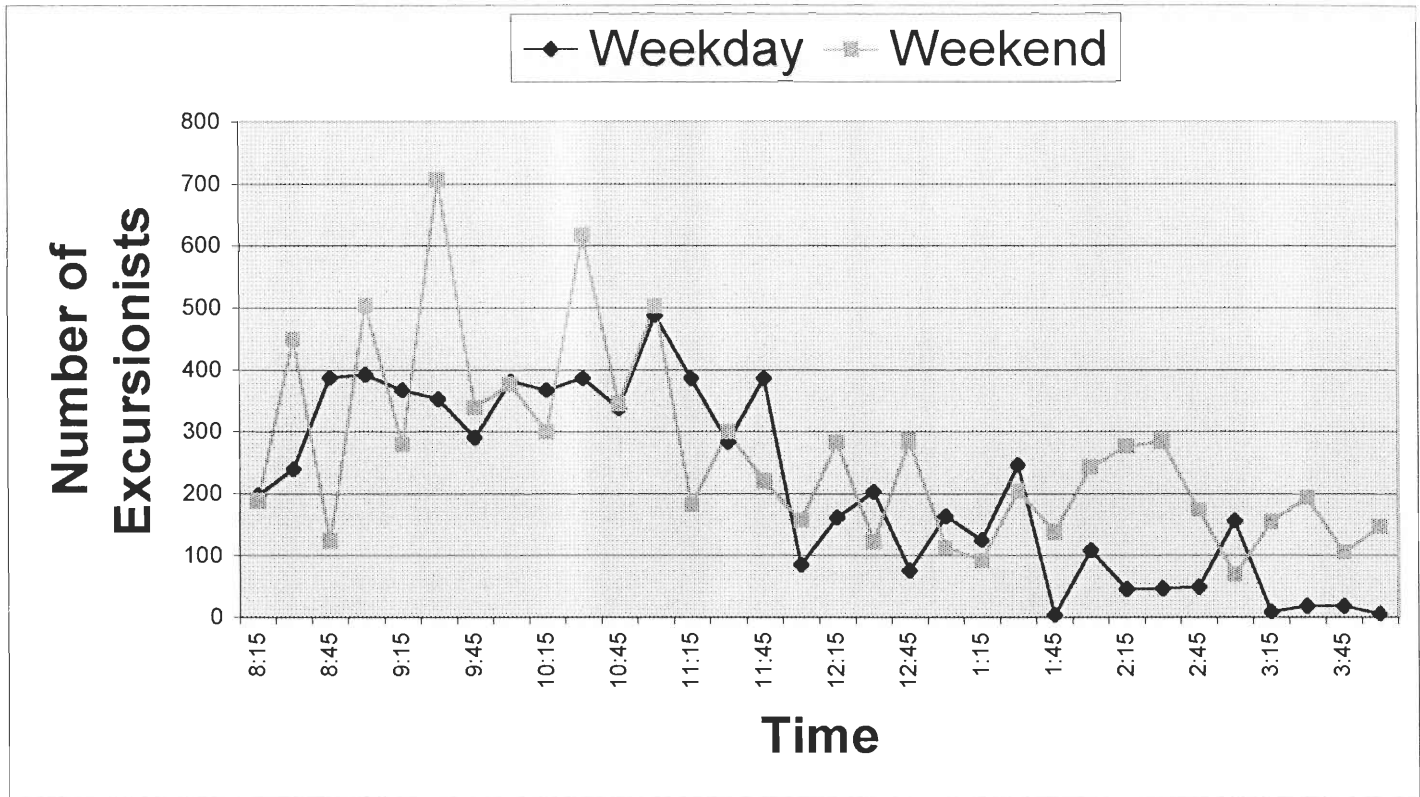
Figure 1: Graph of Full Weekday and Full Weekend Day at the Tronchetto

Results of Full Week Truncated Counts (TRONCHETTO)

Monday   Tuesday   Wednesday   Thursday

Date	26-Jun	Date	27-Jun	Date	21-Jun	Date	22-Jun
Counter	Marc	Counter	Francesco	Counter	Marc	Counter	Marc
Weather	Cool	Weather	Hot	Weather	Hot	Weather	Hot

9:45	327	9:45	343	9:45	357	9:45	324
10:00	447	10:00	467	10:00	433	10:00	402
10:15	281	10:15	530	10:15	588	10:15	478
10:30	247	10:30	353	10:30	263	10:30	324
10:45	288	10:45	452	10:45	573	10:45	456
11:00	248	11:00	485	11:00	445	11:00	477
11:15	263	11:15	382	11:15	280	11:15	332
11:30	277	11:30	591	11:30	573	11:30	429
11:45	265	11:45	302	11:45	148	11:45	260
12:00	277	12:00	190	12:00	147	12:00	117
	2920		**4095**		**3807**		**3599**

Friday		Saturday		Sunday	
Date	23-Jun	Date	1-Jul	Date	2-Jul
Counter	Marc	Counter	Marc	Counter	Marc
Weather	Hot	Weather	Beautiful	Weather	Very Hot

9:45	392	9:45	446	9:45	341
10:00	369	10:00	291	10:00	718
10:15	222	10:15	270	10:15	168
10:30	277	10:30	177	10:30	266
10:45	336	10:45	137	10:45	125
11:00	335	11:00	154	11:00	352
11:15	557	11:15	331	11:15	558
11:30	371	11:30	464	11:30	121
11:45	382	11:45	469	11:45	165
12:00	285	12:00	245	12:00	259
	3526		**2984**		**3073**

Table 2: Full Week Truncated Counts at the Tronchetto
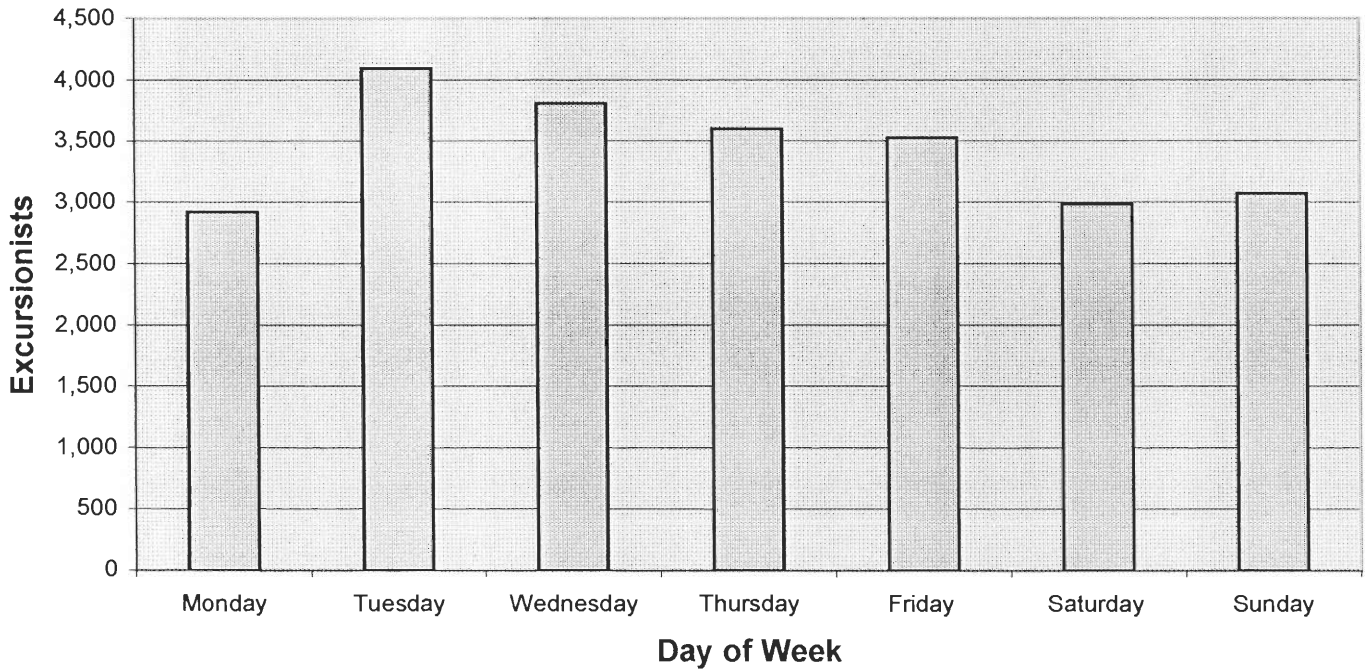
Figure 2: Fluctuation during the week at the Tronchetto

Piazzale Roma

Results of Site Selection

	A	B	C	D	E
10:00	-	-	-	-	-
10:15	117	10	2	87	18
10:30	124	6	6	100	11
12:00	-	-	-	-	-
12:15	97	8	3	83	26
12:30	76	16	9	90	32
1:00	-	-	-	-	-
1:15	86	16	6	40	44
1:30	97	6	4	23	24
Totals	**597**	**62**	**30**	**423**	**155**
Percentage	**47%**	**5%**	**2%**	**33%**	**12%**

Table 3: All Egress Location Results at the Piazzale Roma for Final Counting Location Test
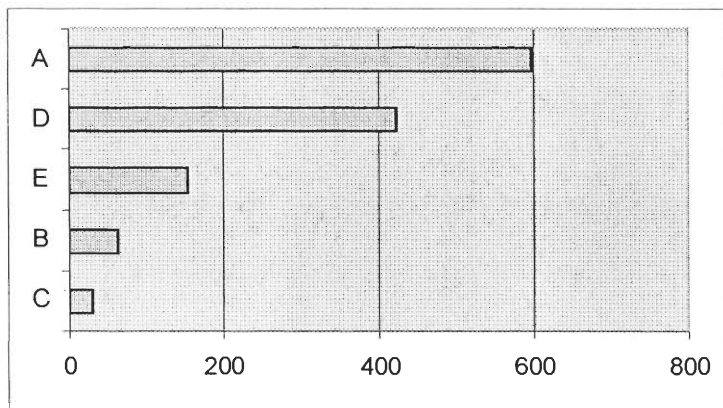
Figure 3: Bar Graph of Site Selection Results

Results of Full Day Counts

Weekday

TIME	PR1	PR2	PR3	PR_TOT
8:15	14	46	7	67
8:30	34	22	5	61
8:45	62	43	2	107
9:00	78	90	7	175
9:15	114	56	4	174
9:30	106	72	8	186
9:45	94	63	7	164
10:00	121	65	6	192
10:15	139	90	21	250
10:30	145	117	4	266
10:45	129	47	11	187
11:00	119	121	32	272
11:15	149	103	37	289
11:30	138	113	20	271
11:45	75	38	68	181
12:00	163	47	33	243
12:15	93	90	30	213
12:30	80	84	28	192
12:45	82	59	37	178
1:00	60	32	34	126
1:15	82	38	46	166
1:30	51	25	22	98
1:45	78	28	36	142
2:00	94	49	18	161
2:15	72	52	19	143
2:30	68	23	32	123
2:45	30	63	21	114
3:00	58	44	20	122
3:15	52	17	17	86
3:30	69	2	25	96
3:45	65	8	19	92
4:00	66	16	12	94
			Total	**5231**

Weekend Day

TIME	PR1	PR2	PR3	PR_TOT
8:15	17	33	5	55
8:30	40	39	9	88
8:45	76	82	11	169
9:00	102	99	3	204
9:15	74	69	1	144
9:30	53	111	17	181
9:45	57	174	79	310
10:00	150	161	61	372
10:15	305	159	32	496
10:30	280	234	18	532
10:45	381	107	50	538
11:00	195	166	25	386
11:15	205	184	28	417
11:30	208	155	49	412
11:45	148	95	79	322
12:00	92	124	58	274
12:15	85	135	45	265
12:30	33	93	101	227
12:45	119	138	59	316
1:00	79	65	45	189
1:15	57	63	51	171
1:30	128	88	59	275
1:45	137	32	54	223
2:00	76	58	45	179
2:15	195	110	49	354
2:30	69	73	37	179
2:45	128	42	52	222
3:00	71	79	41	191
3:15	126	35	26	187
3:30	117	49	18	184
3:45	81	67	31	179
4:00	101	37	23	161
			Total	**8402**

Table 4: Full Weekday and Weekend Day at the Piazzale Roma
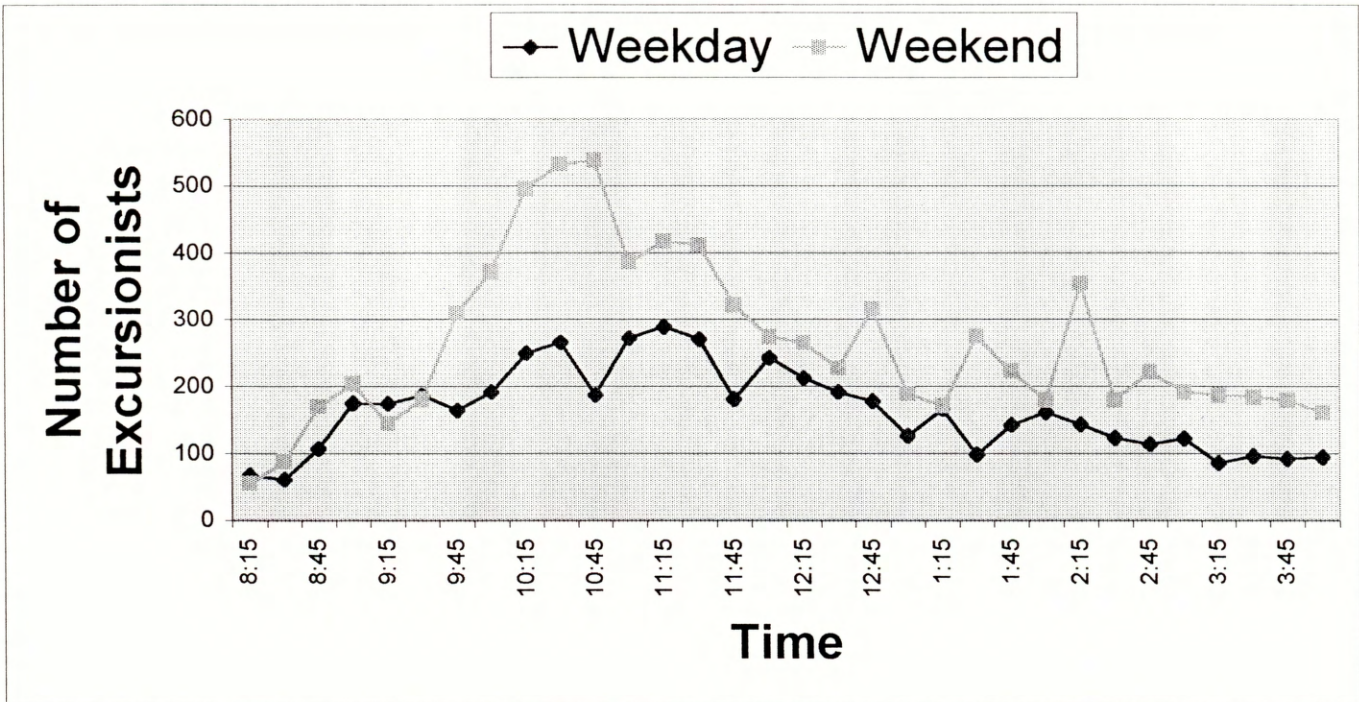
Figure 4: Graph of Full Weekday and Full Weekend Day at the P.le Roma

Results of Full Week Truncated Counts (P.LE ROMA)

Monday				Tuesday				Wednesday			
Date	3-Jul			Date	4-Jul			Date	5-Jul		
Counter	Amy	Marianne		Counter	Amy	Marianne		Counter	Marianne	Amy	
Weather				Weather				Weather			
	1	2	TOT		1	2	TOT		1	2	TOT
9:45	259	61	320	9:45	128	79	207	9:45	133	127	260
10:00	138	137	275	10:00	148	147	295	10:00	210	98	308
10:15	185	186	371	10:15	151	245	396	10:15	154	67	221
10:30	203	219	422	10:30	164	178	342	10:30	190	156	346
10:45	281	232	513	10:45	118	279	397	10:45	145	189	334
11:00	167	205	372	11:00	99	156	255	11:00	120	119	239
11:15	180	150	330	11:15	170	246	416	11:15	123	107	230
11:30	146	215	361	11:30	90	96	186	11:30	134	89	223
11:45	110	83	193	11:45	141	112	253	11:45	237	105	342
12:00	75	101	176	12:00	133	108	241	12:00	206	41	247
	1744	1589	3333		1342	1646	2988		1652	1098	2750

6

Thursday			
Date	6-Jul		
Counter	Marianne	Amy	
Weather			
	1	**2**	**TOT**
9:45	129	60	**189**
10:00	117	47	**164**
10:15	213	62	**275**
10:30	200	107	**307**
10:45	204	158	**362**
11:00	155	195	**350**
11:15	156	158	**314**
11:30	98	83	**181**
11:45	128	51	**179**
12:00	115	86	**201**
	1515	1007	**2522**

Friday				Saturday				Sunday			
Date	7-Jul			Date	8-Jul			Date	9-Jul		
Counter	Marianne	Amy		Counter	Amy			Counter	Amy		
Weather				Weather				Weather			
	1	**2**	**TOT**		**1**	**2**	**TOT**		**1**	**2**	**TOT**
9:45	81	58	**139**	9:45	97	84	**181**	9:45	103	78	**181**
10:00	104	91	**195**	10:00	122	75	**197**	10:00	113	65	**178**
10:15	113	73	**186**	10:15	211	104	**315**	10:15	154	109	**263**
10:30	148	81	**229**	10:30	194	138	**332**	10:30	294	123	**417**
10:45	170	103	**273**	10:45	133	89	**222**	10:45	156	76	**232**
11:00	110	101	**211**	11:00	203	69	**272**	11:00	127	55	**182**
11:15	206	90	**296**	11:15	82	154	**236**	11:15	157	108	**265**
11:30	204	65	**269**	11:30	141	58	**199**	11:30	124	95	**219**
11:45	112	111	**223**	11:45	118	68	**186**	11:45	111	101	**212**
12:00	158	73	**231**	12:00	124	16	**140**	12:00	98	52	**150**
	1406	846	**2252**		1425	855	**2280**		1437	862	**2299**

Santa Lucia Train Station

Results of Full Day Counts

Weekday

TIME	SL 1	SL 2	SL_TOT
8:15	51	47	98
8:30	118	42	160
8:45	128	44	172
9:00	201	115	316
9:15	84	79	163
9:30	99	102	201
9:45	194	53	247
10:00	210	85	295
10:15	162	210	372
10:30	212	85	297
10:45	135	130	265
11:00	40	98	138
11:15	200	151	351
11:30	60	77	137
11:45	28	202	230
12:00	177	98	275
12:15	113	40	153
12:30	19	62	81
12:45	43	77	120
1:00	94	173	267
1:15	36	23	59
1:30	52	37	89
1:45	38	12	50
2:00	21	99	120
2:15	58	92	150
2:30	60	43	103
2:45	27	28	55
3:00	57	34	91
3:15	73	15	88
3:30	29	16	45
3:45	22	24	46
4:00	40	29	69

Weekend Day

TIME	SL1	SL2	SL_TOT
8:15	29	32	61
8:30	38	48	86
8:45	53	36	89
9:00	90	54	144
9:15	60	95	155
9:30	166	76	242
9:45	259	101	360
10:00	274	98	372
10:15	175	326	501
10:30	83	65	148
10:45	194	591	785
11:00	131	157	288
11:15	247	85	332
11:30	90	346	436
11:45	136	123	259
12:00	266	135	401
12:15	48	343	391
12:30	148	175	323
12:45	133	48	181
1:00	28	71	99
1:15	138	51	189
1:30	62	61	123
1:45	64	6	70
2:00	107	22	129
2:15	68	15	83
2:30	94	122	216
2:45	39	30	69
3:00	122	53	175
3:15	61	37	98
3:30	84	60	144
3:45	63	46	109
4:00	45	27	72

Total 5303   Total 7130

Table 5: Full Weekday and Weekend Day at the Santa Lucia Train Station
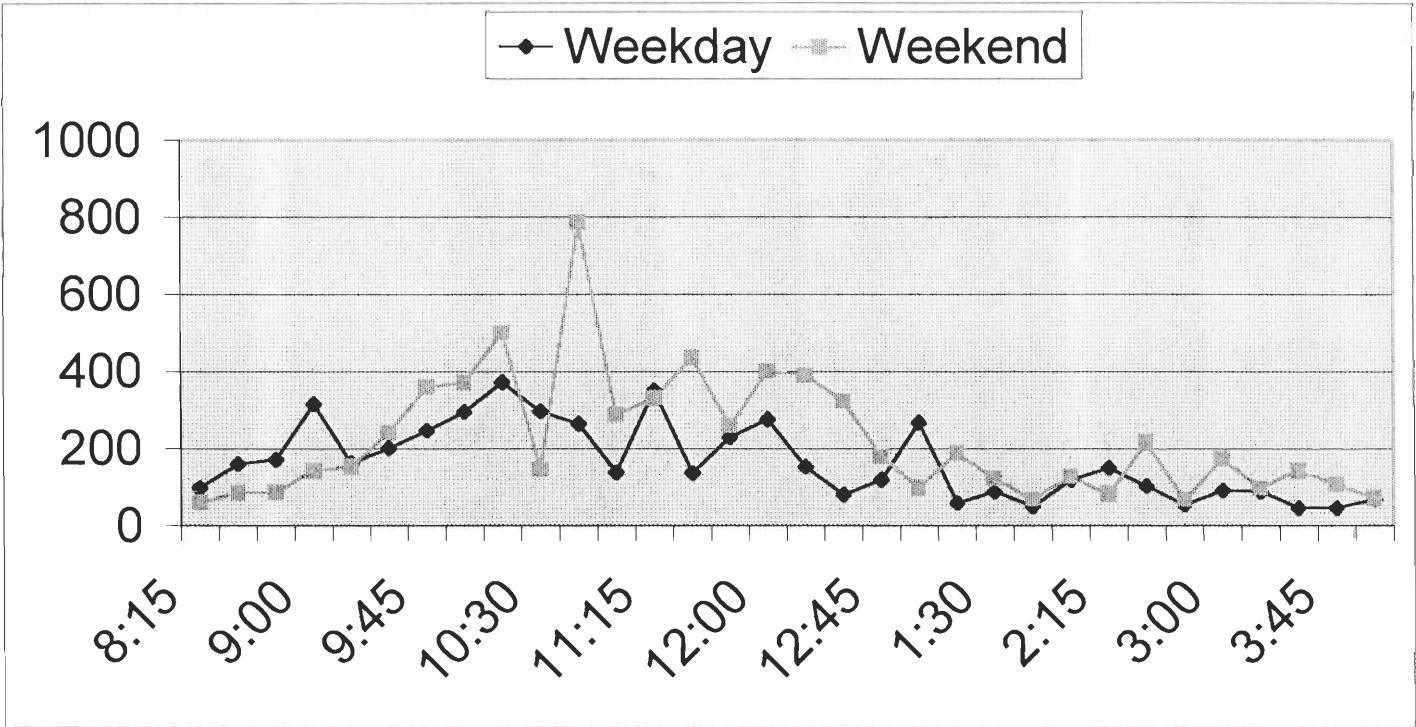
Figure 5: Graph of Full Weekday and Full Weekend Day at the Santa Lucia Train Station

Results of Full Week Truncated Counts (SANTA LUCIA)

Monday				Tuesday				Wednesday			
Date	26-Jun	26-Jun	26-Jun	Date	27-Jun	27-Jun	27-Jun	Date	21-Jun	21-Jun	21-Jun
Counter	Russ	Marianne	-	Counter	Marianne	Russ	-	Counter	Russ	Amy	-
Weather	Cool	Cool	Cool	Weather	Hot	Hot	Hot	Weather	Hot	Hot	Hot
	SL1	SL2	**SL_TOT**		SL1	SL2	**SL_TOT**		SL1	SL2	**SL_TOT**
9:45	150	42	**192**	9:45	118	60	**178**	9:45	120	36	**156**
10:00	76	101	**177**	10:00	304	86	**390**	10:00	81	133	**214**
10:15	61	175	**236**	10:15	78	119	**197**	10:15	75	108	**183**
10:30	208	54	**262**	10:30	172	95	**267**	10:30	224	144	**368**
10:45	156	65	**221**	10:45	169	116	**285**	10:45	139	110	**249**
11:00	107	273	**380**	11:00	88	152	**240**	11:00	133	215	**348**
11:15	52	181	**233**	11:15	209	286	**495**	11:15	51	356	**407**
11:30	93	63	**156**	11:30	132	53	**185**	11:30	109	96	**205**
11:45	64	41	**105**	11:45	36	83	**119**	11:45	49	256	**305**
12:00	81	248	**329**	12:00	99	146	**245**	12:00	77	174	**251**
	1048	1243	**2291**		1405	1196	**2601**		1058	1628	**2686**

9

Thursday				Friday				Saturday			
Date	22-Jun	22-Jun	22-Jun	Date	23-Jun	23-Jun	23-Jun	Date	1-Jul	1-Jul	1-Jul
Counter	Russ	Marianne	-	Counter	Russ	Marianne	-	Counter	Francesco	Marianne	-
Weather	Hot	Hot	Hot	Weather	Hot	Hot	Hot	Weather	Beautiful	Beautiful	Beautiful
	SL1	SL2	SL_TOT		SL1	SL2	SL_TOT		SL1	SL2	SL_TOT
9:45	212	112	324	9:45	192	104	296	9:45	147	106	253
10:00	82	81	163	10:00	179	92	271	10:00	448	109	557
10:15	59	188	247	10:15	169	199	368	10:15	119	279	398
10:30	238	92	330	10:30	153	83	236	10:30	267	51	318
10:45	207	178	385	10:45	196	73	269	10:45	477	96	573
11:00	104	164	268	11:00	193	197	390	11:00	90	389	479
11:15	64	230	294	11:15	37	273	310	11:15	183	247	430
11:30	97	29	126	11:30	98	77	175	11:30	301	149	450
11:45	94	133	227	11:45	158	177	335	11:45	224	151	375
12:00	103	35	138	12:00	234	83	317	12:00	149	128	277
	1260	1242	2502		1609	1358	2967		2405	1705	4110

Sunday			
Date	2-Jul	2-Jul	2-Jul
Counter			-
Weather			
	SL1	SL2	SL_TOT
9:45	217	79	296
10:00	201	147	348
10:15	207	245	452
10:30	288	178	466
10:45	83	279	362
11:00	317	156	473
11:15	212	246	458
11:30	195	96	291
11:45	123	112	235
12:00	299	108	407
	2142	1646	3788

Table 6: Full Week Truncated Counts at the Santa Lucia
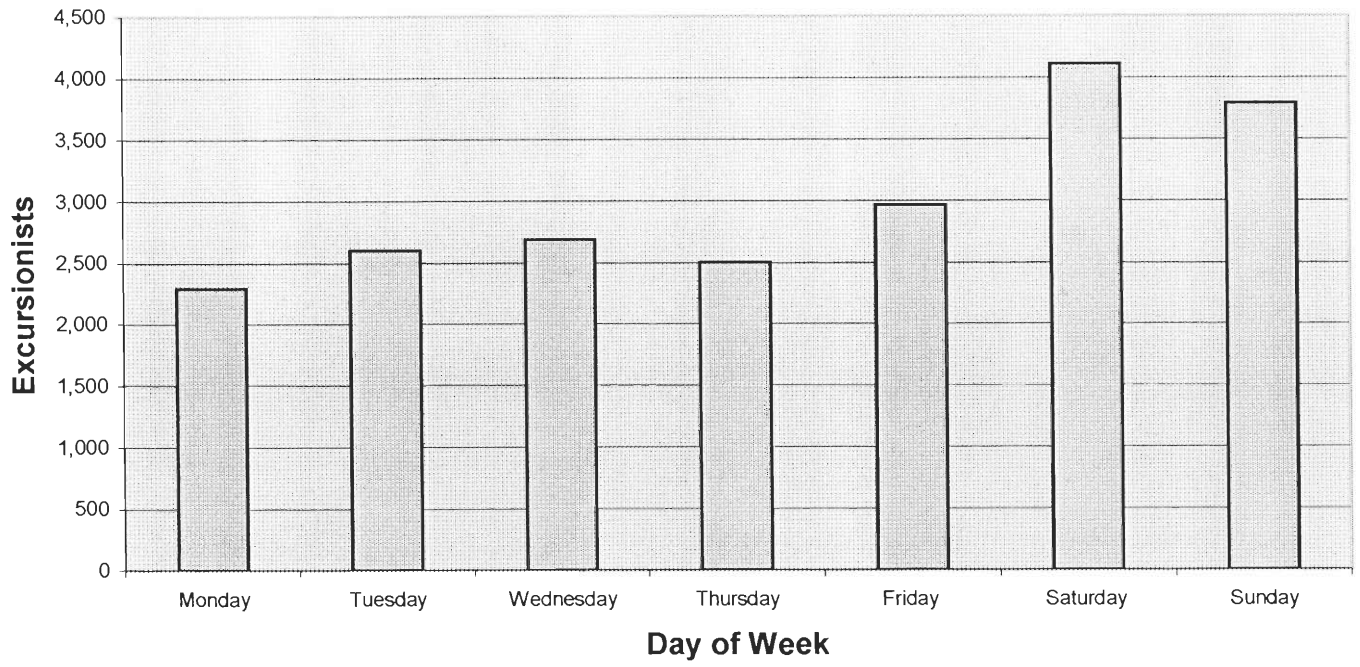
Figure 6: Fluctuation during the week at the Santa Lucia Train Station

Punta Sabbioni

Results of Full Day Counts

Weekday			Weekend Day	
TIME	PS		8:15	211
8:15	218		8:30	0
8:30	0		8:45	227
8:45	217		9:00	0
9:00	78		9:15	345
9:15	365		9:30	253
9:30	0		9:45	56
9:45	525		10:00	35
10:00	322		10:15	470
10:15	511		10:30	50
10:30	0		10:45	0
10:45	538		11:00	541
11:00	118		11:15	0
11:15	490		11:30	265
11:30	25		11:45	0
11:45	204		12:00	379
12:00	79		12:15	0
12:15	145		12:30	91
12:30	0		12:45	0
12:45	129		1:00	173
1:00	38		1:15	0
1:15	64		1:30	90
1:30	0		1:45	0
1:45	36		2:00	93
2:00	43		2:15	0
2:15	162		2:30	193
2:30	0		2:45	0
2:45	64		3:00	77
3:00	16		3:15	0
3:15	56		3:30	49
3:30	0		3:45	0
3:45	93		4:00	104
4:00	93			
Total	**4629**		**Total**	**3702**

Table 7: Full Weekday and Weekend Day at the Punta Sabbioni
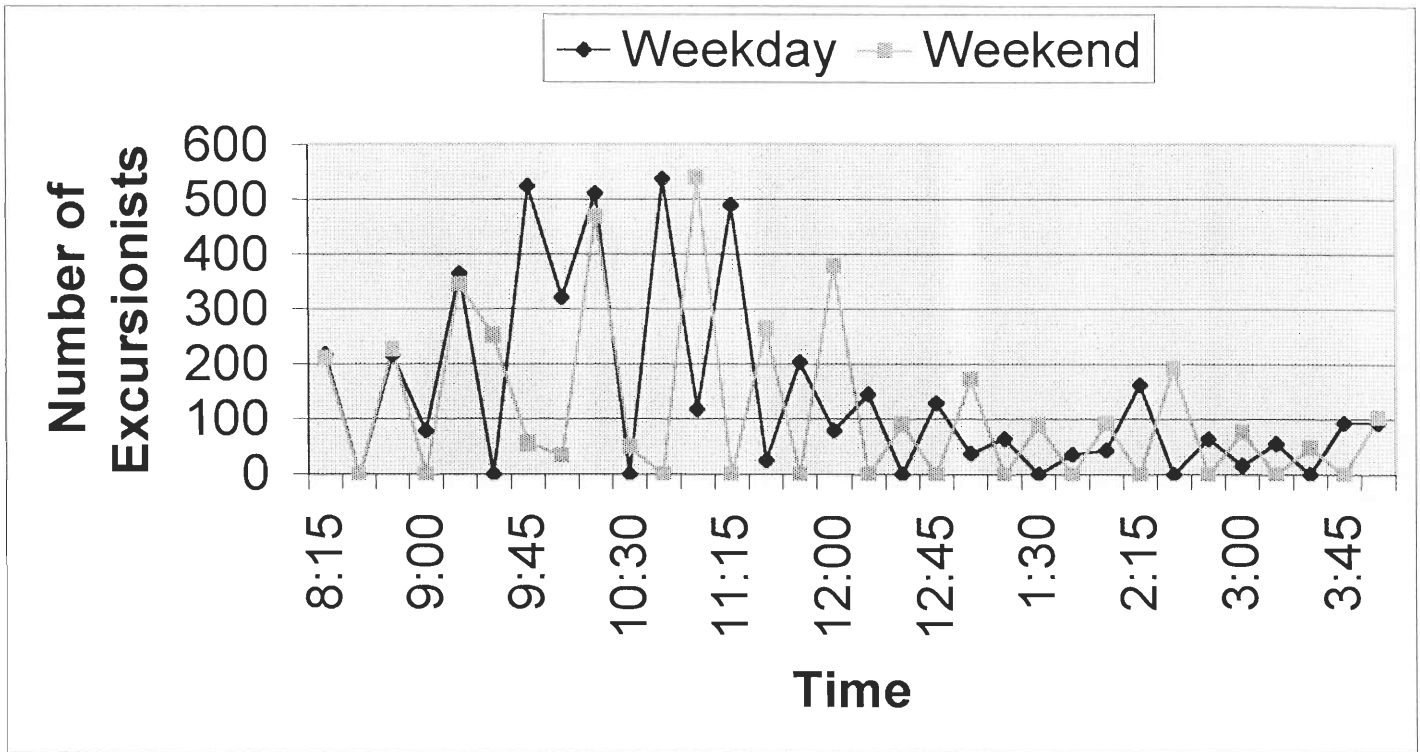
Figure 7: Graph of Full Weekday and Full Weekend Day at the Punta Sabbioni

Results of Full Week Truncated Counts

Monday		Tuesday		Wednesday		Thursday	
Date	26-Jun	Date	27-Jun	Date	21-Jun	Date	22-Jun
Counter	Amy	Counter	Amy	Counter	Marianne	Counter	Amy
Weather	Cool	Weather	Hot	Weather	Hot	Weather	Hot

9:45	0	9:45	585	9:45	97	9:45	0
10:00	691	10:00	703	10:00	648	10:00	769
10:15	0	10:15	0	10:15	0	10:15	0
10:30	611	10:30	273	10:30	576	10:30	309
10:45	0	10:45	0	10:45	57	10:45	0
11:00	592	11:00	339	11:00	683	11:00	475
11:15	0	11:15	0	11:15	0	11:15	0
11:30	492	11:30	190	11:30	249	11:30	187
11:45	0	11:45	0	11:45	0	11:45	0
12:00	640	12:00	244	12:00	468	12:00	312
	3026		**2334**		**2778**		**2052**

Friday		**Saturday**		**Sunday**	
Date	23-Jun	Date	1-Jul	Date	2-Jul
Counter	Francesco	Counter	Russ	Counter	Russ
Weather	Hot	Weather	Beautiful	Weather	Very Hot
9:45	0	9:45	181	9:45	173
10:00	618	10:00	230	10:00	253
10:15	0	10:15	38	10:15	0
10:30	316	10:30	217	10:30	146
10:45	0	10:45	0	10:45	0
11:00	294	11:00	208	11:00	232
11:15	0	11:15	34	11:15	0
11:30	341	11:30	120	11:30	118
11:45	0	11:45	0	11:45	0
12:00	206	12:00	228	12:00	133
	1775		**1256**		**1055**

Figure 8: Full Week Truncated Counts at the Punta Sabbioni
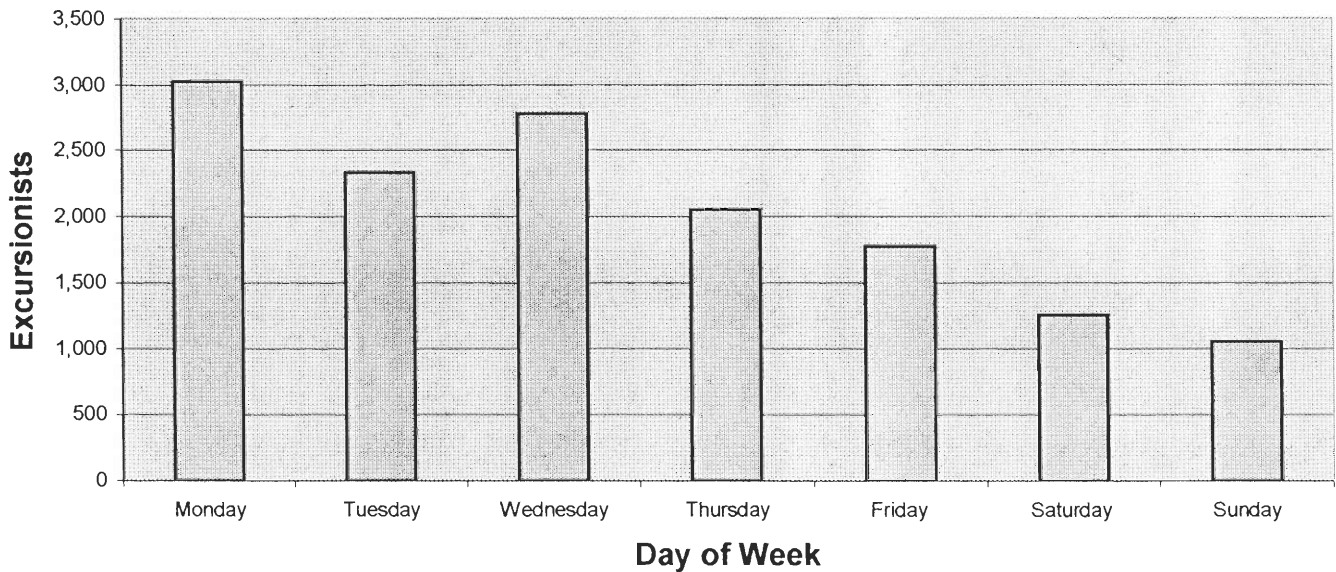
Figure 9: Fluctuation during the week at the Punta Sabbioni

Zattere Boat Stop

Results of Full Day Counts

Weekday		Weekend Day	
TIME	ZAT	TIME	ZAT
8:15	0	8:15	0
8:30	0	8:30	0
8:45	0	8:45	0
9:00	0	9:00	0
9:15	42	9:15	32
9:30	0	9:30	0
9:45	0	9:45	0
10:00	0	10:00	56
10:15	77	10:15	0
10:30	0	10:30	0
10:45	0	10:45	0
11:00	0	11:00	75
11:15	60	11:15	0
11:30	0	11:30	0
11:45	0	11:45	0
12:00	0	12:00	79
12:15	83	12:15	0
12:30	0	12:30	0
12:45	0	12:45	0
1:00	0	1:00	80
1:15	55	1:15	0
1:30	0	1:30	0
1:45	0	1:45	0
2:00	0	2:00	31
2:15	29	2:15	0
2:30	0	2:30	0
2:45	0	2:45	0
3:00	0	3:00	25
3:15	6	3:15	0
3:30	0	3:30	0
3:45	0	3:45	0
4:00	0	4:00	47
Total	**352**	**Total**	**425**
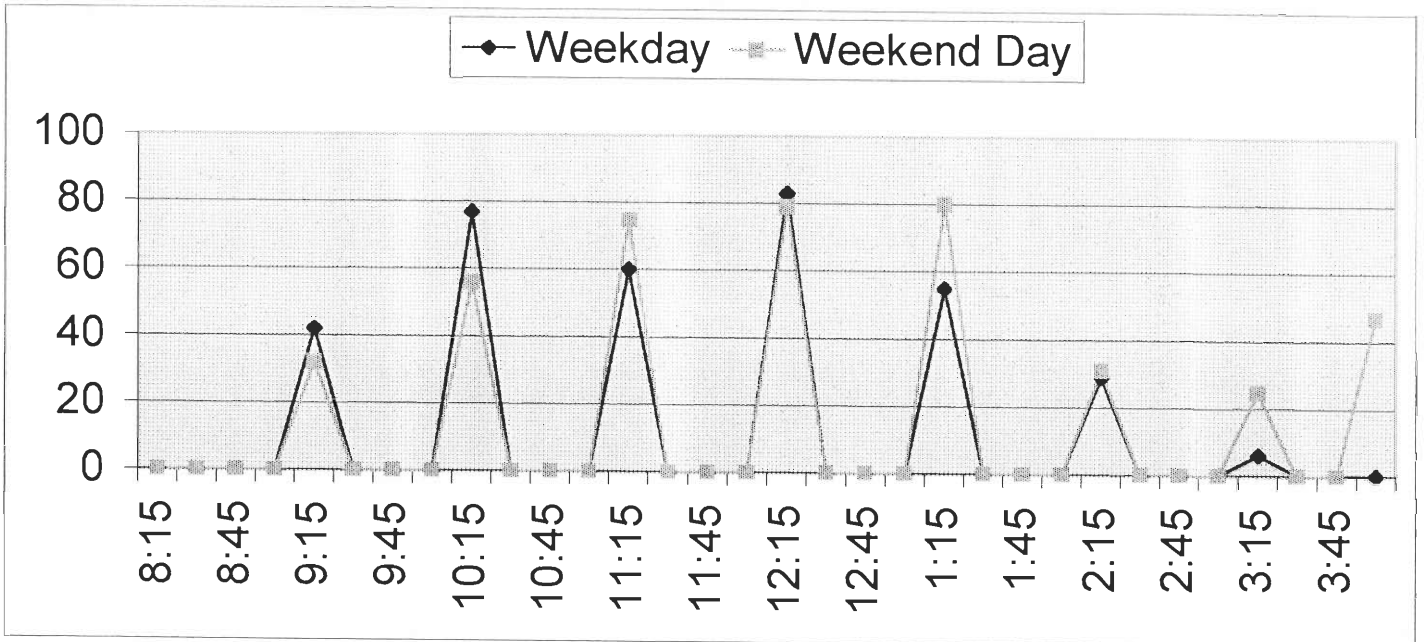
Figure 10: Graph of Full Weekday and Full Weekend Day at the Zattere Boat Stop

Chioggia

Results of Full Day Counts

Weekday

Chioggia	
8:15	0
8:30	0
8:45	0
9:00	0
9:15	0
9:30	0
9:45	84
10:00	0
10:15	0
10:30	0
10:45	0
11:00	77
11:15	0
11:30	0
11:45	42
12:00	0
12:15	0
12:30	0
12:45	0
1:00	16
1:15	0
1:30	0
1:45	0
2:00	0
2:15	0
2:30	0
2:45	0
3:00	0
3:15	0
3:30	0
3:45	0
4:00	0
Total	219

APPENDIX C – SURVEY DATABASE

ID	Site	Purpose	Res	Exc	Loc	Com	Stop	City	Nation	Nationality	Jub	Mon	Date	Adm	Age	Group	Sex
1	Santa_Lucia	Tourism				✓		Vicenza	ITALY	American		B	7/2/2000	MC	50+	Family	F
2	Santa_Lucia	Tourism		✓	✓			Verona	ITALY	Italian		B	7/2/2000	R	50+	Couple	F
3	Santa_Lucia	Tourism		✓			✓			American	✓		7/2/2000	R	18-30	Couple	F
4	Santa_Lucia	Tourism		✓		✓		Mestre	ITALY	Mexican		G	7/2/2000	R	30-50	Single	M
5	Santa_Lucia	Tourism		✓		✓		Brescia	ITALY	Polish	✓	D	7/2/2000	R	30-50	Family	M
6	Ple Roma	Tourism		✓			✓		GERMANY	Chinese	✓	D	7/1/2000	MC	18-30	Family	M
7	Ple Roma	Tourism		✓		✓		Mestre	ITALY	American			7/1/2000	MC	30-50	Family	F
8	Ple Roma	Tourism		✓		✓		Mestre	ITALY	American		B	7/1/2000	MC	18-30	Single	F
9	Ple Roma	Tourism		✓	✓			Navare	ITALY	Italian		A	7/1/2000	MC	30-50	Family	M
10	Ple Roma	Tourism		✓		✓		Lignano	ITALY	Finnish		A	7/1/2000	MC	18-30	Family	F
11	Ple Roma	Tourism		✓		✓		Fusina	ITALY	German		A	7/1/2000	MC	18-30	Couple	F
12	Ple Roma	Tourism	✓										6/30/2000	R	18-30	Single	M
13	Ple Roma	Tourism		✓	✓				ITALY	Italian		A	6/30/2000	R	30-50	Couple	F
14	Ple Roma	Tourism		✓			✓			British	✓	B	6/30/2000	R	30-50	Couple	F
15	Ple Roma	Tourism		✓	✓			Slovakia	SLOVAKIA	Slovak		B	6/30/2000	R	18-30	Couple	M
16	Ple Roma	Tourism		✓		✓		Mestre	ITALY	New Zealand	✓	D	6/30/2000	R	30-50	Couple	M
17	Ple Roma	Tourism		✓		✓		Cavallino	ITALY	Danish		D	6/30/2000	R	30-50	Family	M
18	Ple Roma	Tourism		✓			✓	Firenze	ITALY	Swiss	✓	D	6/30/2000	R	30-50	Single	F
19	Ple Roma	Tourism		✓		✓		Milano	ITALY	American		A	6/30/2000	R	30-50	Single	M
20	Ple Roma	Tourism		✓	✓			Mestre	ITALY	Italian		A	6/30/2000	R	18-30	Couple	F
21	Ple Roma	Tourism		✓		✓		Padova	ITALY	Panamese		E	6/30/2000	R	30-50	Couple	F
22	Ple Roma	Tourism		✓			✓	Paris	FRANCE	French		B	6/30/2000	R	30-50	Couple	F
23	Ple Roma	Tourism		✓		✓		Mestre	ITALY	British		A	6/30/2000	R	50+	Couple	M
24	Ple Roma	Tourism		✓		✓		Aste	ITALY	Cuba		B	6/30/2000	R	18-30	Couple	F
25	Ple Roma	Tourism		✓	✓			Padova	ITALY	Italian		A	6/30/2000	R	18-30	Single	F
26	Santa_Lucia	Student											6/30/2000	F	18-30	Couple	F
27	Santa_Lucia	Tourism		✓		✓		Mestre	ITALY	American		B	6/30/2000	F	18-30	Single	M
28	Santa_Lucia	Student											6/30/2000	F	18-30	Couple	M
29	Santa_Lucia	Tourism		✓			✓	Padova	ITALY	Swedish		B	6/30/2000	F	18-30	Single	M
30	Santa_Lucia	Student											6/30/2000	F	18-30	Single	F
31	Santa_Lucia	Tourism		✓	✓			Verona	ITALY	Italian		A	6/30/2000	F	18-30	Couple	F
32	Santa_Lucia	Tourism		✓	✓			Brescia	ITALY	Italian		D	6/30/2000	F	50+	Couple	F

ID	Site	Purpose	Res	Exc	Loc	Com	Stop	City	Nation	Nationality	Jub	Mon	Date	Adm	Age	Group	Sex
33	Ple Roma	Tourism	☐	✔	☐	☐	✔	Padova	ITALY	American	☐	D	7/1/2000	R	30-50	Single	M
34	Ple Roma	Tourism	☐	✔	✔	☐	☐	Vicenza	ITALY	Italian	☐	A	7/1/2000	R	30-50	Couple	M
35	Ple Roma	Tourism	☐	✔	✔	☐	☐	Napoli	ITALY	Italian	☐	D	7/1/2000	R	30-50	Couple	M
36	Ple Roma	Tourism	☐	✔	☐	✔	☐	Mestre	ITALY	Danish	☐	D	7/1/2000	R	30-50	Family	F
37	Ple Roma	Tourism	☐	✔	☐	✔	☐	Cavallino	ITALY	Japanese	✔	B	7/1/2000	R	18-30	Single	M
38	Ple Roma	Tourism	☐	✔	✔	☐	☐	Marghera	ITALY	Italian	☐	A	7/1/2000	R	50+	Couple	M
39	Ple Roma	Tourism	☐	✔	✔	☐	☐	Padova	ITALY	Italian	☐	A	7/1/2000	R	18-30	Single	M
40	Santa_Lucia	Resident	☐	☐	☐	☐	☐				☐		6/30/2000	A	18-30	Single	F
41	Santa_Lucia	Tourism	☐	✔	☐	✔	☐	Mestre	ITALY	American	☐	G	6/30/2000	A	30-50	Single	M
42	Santa_Lucia	Tourism	☐	✔	☐	☐	✔	Triestre	ITALY	Italian	☐	A	6/30/2000	A	18-30	Couple	F
43	Santa_Lucia	Tourism	☐	✔	☐	✔	☐	Marghera	ITALY	British	☐	A	6/30/2000	A	30-50	Single	M
44	Santa_Lucia	Tourism	☐	☐	☐	✔	☐	Mestre			☐		6/30/2000	A	18-30	Couple	M
45	Santa_Lucia	Tourism	☐	✔	✔	☐	☐		ITALY	Italian	☐	B	6/30/2000	A	18-30	Single	M
46	Santa_Lucia	Tourism	☐	☐	☐	☐	✔	Train		American	☐	B	6/30/2000	A	18-30	Couple	M
47	Santa_Lucia	Tourism	☐	☐	✔	☐	☐	Bologna	ITALY	British	☐	C	6/30/2000	A	18-30	Single	F
48	Santa_Lucia	Tourism	☐	✔	☐	✔	☐	Marghera	ITALY	French	☐	D	7/1/2000	F	30-50	Single	M
49	Santa_Lucia	Tourism	☐	✔	☐	✔	☐	Mestre	ITALY	German	☐	D	7/1/2000	F	30-50	Couple	M
50	Santa_Lucia	Tourism	☐	✔	☐	☐	✔	Trieste	ITALY	Spanish	☐	B	7/1/2000	F	18-30	Single	F
51	Santa_Lucia	Tourism	☐	✔	☐	✔	☐	Marghera	ITALY	American	☐	C	7/1/2000	F	50+	Couple	M
52	Santa_Lucia	Business	☐	☐	☐	☐	☐				☐		7/1/2000	F	50+	Family	M
53	Santa_Lucia	Tourism	☐	✔	✔	☐	☐	Torino	ITALY	Italian	☐	A	7/1/2000	F	18-30	Family	F
54	Santa_Lucia	Tourism	✔	☐	☐	☐	☐			Italian	☐		7/1/2000	F	18-30	Couple	F
55	Santa_Lucia	Tourism	☐	✔	☐	☐	✔	Bologna	ITALY	French	☐	B	7/1/2000	F	30-50	Family	F
56	Santa_Lucia	Tourism	☐	✔	☐	✔	☐	Marghera	ITALY	French	☐	B	7/1/2000	F	30-50	Single	M
57	Santa_Lucia	Tourism	☐	✔	✔	☐	☐	Vicenza	ITALY	Italian	☐	C	7/1/2000	F	30-50	Single	M
58	Santa_Lucia	Tourism	☐	✔	✔	☐	☐	Verona	ITALY	Italian	☐	C	7/1/2000	F	30-50	Couple	M
59	Santa_Lucia	Resident	☐	☐	☐	☐	☐				☐		7/1/2000	F	50+	Single	M
60	Santa_Lucia	Tourism	☐	✔	✔	☐	☐	Torino	ITALY	Italian	☐	C	7/1/2000	F	50+	Couple	F
61	Santa_Lucia	Tourism	☐	✔	☐	☐	✔			Japanese	☐	D	7/1/2000	F	30-50	Family	F
62	Santa_Lucia	Tourism	☐	✔	☐	✔	☐	Torino	ITALY	Italian	☐	C	7/1/2000	F	30-50	Couple	M
63	Santa_Lucia	Tourism	☐	✔	☐	✔	☐	Mestre	ITALY	Italian	☐	B	7/1/2000	F	30-50	Single	F
64	Santa_Lucia	Tourism	☐	✔	☐	☐	✔	Firenze	ITALY	American	☐	C	7/1/2000	F	30-50	Couple	F

ID	Site	Purpose	Res	Exc	Loc	Com	Stop	City	Nation	Nationality	Jub	Mon	Date	Adm	Age	Group	Sex
65	Santa_Lucia	Tourism		✔		✔		Mestre	ITALY	Italian		C	7/1/2000	F	18-30	Family	F
66	Santa_Lucia	Tourism		✔	✔			Trieste	ITALY	Italian		A	7/1/2000	F	50+	Couple	M
67	Santa_Lucia	Tourism		✔			✔	Train	ITALY	Korean	✔	A	7/2/2000	MC	18-30	Single	F
68	Santa_Lucia	Tourism		✔		✔		Marghera	ITALY	German		A	7/2/2000	MC	18-30	Single	F
69	Santa_Lucia	Tourism		✔		✔		Mestre	ITALY	French		A	7/2/2000	MC	30-50	Couple	M
70	Santa_Lucia	Tourism		✔	✔				ITALY	Italian		A	7/2/2000	MC	30-50	Couple	F
71	Santa_Lucia	Tourism		✔			✔	Train	ITALY	Norvegian		B	7/3/2000	R	30-50	Family	M
72	Santa_Lucia	Tourism		✔									7/3/2000	R			
73	Santa_Lucia	Tourism		✔			✔	Firenze	ITALY	British	✔	A	7/3/2000	R	30-50	Couple	M
74	Santa_Lucia	Tourism		✔		✔		Mestre	ITALY	Chilean		C	7/5/2000	MC	18-30	Couple	F
75	Santa_Lucia	Tourism		✔	✔				ITALY	Italian		B	7/5/2000	MC	18-30	Couple	M
76	Santa_Lucia	Tourism		✔		✔		Padua	ITALY	British		A	7/5/2000	MC	18-30	Group	M
77	Santa_Lucia	Tourism		✔		✔		Mestre	ITALY	German		A	7/5/2000	MC	18-30	Group	F
78	Santa_Lucia	Tourism		✔		✔		Padua	ITALY	British		A	7/5/2000	MC	30-50	Group	F
79	Santa_Lucia	Tourism		✔	✔			Triestre	ITALY	Italian		C	7/5/2000	MC	30-50	Single	M
80	Santa_Lucia	Tourism		✔			✔	Mestre	ITALY	Japanese		A	7/5/2000	MC	30-50	Couple	M
81	Santa_Lucia	Tourism		✔			✔	Vienna	AUSTRIA	Austrian		D	7/3/2000	MC	30-50	Couple	F
82	Santa_Lucia	Tourism		✔		✔		Padua	ITALY	Canadian		A	7/3/2000	MC	18-30	Couple	F
83	Santa_Lucia	Tourism		✔		✔		Cavallino	ITALY	British		E	7/3/2000	MC	30-50	Couple	M
84	Santa_Lucia	Tourism	✔							British		D	7/3/2000	MC	18-30	Couple	F
85	Ple Roma	Tourism		✔		✔		Mestre	ITALY	British	✔	D	7/3/2000	MC	50+	Single	F
86	Ple Roma	Tourism	✔										7/3/2000	MC	30-50	Couple	M
87	Ple Roma	Tourism		✔		✔		Marghera	ITALY	Australian		E	7/3/2000	MC	30-50	Couple	M
88	Ple Roma	Tourism		✔		✔		Mestre	ITALY	British		D	7/3/2000	R	30-50	Couple	F
89	Ple Roma	Tourism		✔	✔				ITALY	Italian		A	7/3/2000	R	18-30	Couple	M
90	Ple Roma	Tourism		✔		✔		Caorle	ITALY	German		B	7/3/2000	R	50+	Family	M
91	Ple Roma	Tourism		✔		✔		Iesolo	ITALY	Danish		D	7/3/2000	R	30-50	Family	F
92	Ple Roma	Tourism		✔	✔			Mestre	ITALY	Italian		A	7/3/2000	R	18-30	Couple	F
93	Ple Roma	Tourism		✔		✔		Vicenza	ITALY	Danish		B	7/3/2000	R	50+	Family	M
94	Ple Roma	Tourism		✔			✔	Nazione	ITALY	French		C	7/3/2000	R	30-50	Family	F
95	Ple Roma	Tourism		✔		✔		Verona	ITALY	Dutch	✔	B	7/3/2000	R	50+	Couple	F
96	Ple Roma	Tourism		✔		✔		Slovenia	Slovenia	British		E	7/3/2000	R	30-50	Family	F

ID	Site	Purpose	Res	Exc	Loc	Com	Stop	City	Nation	Nationality	Jub	Mon	Date	Adm	Age	Group	Sex
97	Ple Roma	Tourism	☐	✔	☐	✔	☐	Padova	ITALY	German	☐	B	7/3/2000	R	18-30	Couple	M
98	Ple Roma	Tourism	☐	✔	☐	✔	☐	Lago di Gar	ITALY	French	☐	B	7/3/2000	R	18-30	Couple	M
99	Ple Roma	Tourism	☐	✔	✔	☐	☐	Rovigo	ITALY	Italian	✔	B	7/3/2000	R	18-30	Couple	M
100	St. Marks	Tourism	☐	✔	☐	☐	✔	Iesolo	ITALY	New Zealand	☐	D	7/4/2000	MC	18-30	Group	F
101	St. Marks	Tourism	☐	✔	✔	☐	☐	Treviso	ITALY	Italian	☐	B	7/4/2000	MC	30-50	Group	F
102	St. Marks	Tourism	☐	✔	☐	✔	☐	Mestre	ITALY	German	☐		7/4/2000	MC	18-30	Group	F
103	St. Marks	Tourism	☐	✔	✔	☐	☐	San Marino	ITALY	Italian	☐	C	7/4/2000	MC	18-30	Group	M
104	St. Marks	Tourism	☐	✔	☐	☐	✔	Mestre	ITALY	British	☐	B	7/4/2000	MC	30-50	Group	F
105	St. Marks	Tourism	☐	✔	☐	☐	✔	Iesolo	ITALY	Polish	☐	A	7/4/2000	MC	18-30	Group	M
106	St. Marks	Tourism	☐	✔	☐	✔	☐	Treviso	ITALY	British	☐	A	7/4/2000	MC	30-50	Group	F
107	St. Marks	Tourism	☐	✔	☐	✔	☐	Treviso	ITALY	British	☐	A	7/4/2000	MC	50+	Group	F
108	St. Marks	Tourism	☐	✔	☐	☐	✔	Firenze	ITALY	Japanese	☐	D	7/4/2000	MC	30-50	Group	M
109	St. Marks	Tourism	☐	✔	☐	☐	✔	Mestre	ITALY	American	☐	E	7/4/2000	MC	18-30	Group	F
110	St. Marks	Tourism	☐	✔	☐	✔	☐	Mestre	ITALY	French	☐	B	7/4/2000	MC	30-50	Group	F
111	St. Marks	Tourism	☐	✔	☐	☐	✔			Polish	✔	A	7/4/2000	MC	18-30	Group	F
112	St. Marks	Tourism	☐	✔	☐	☐	✔	Lago di Gar	ITALY	British	✔		7/4/2000	MC	30-50	Group	F
113	St. Marks	Tourism	☐	✔	☐	☐	✔			British	☐	F	7/4/2000	MC	50+	Group	M
114	St. Marks	Tourism	☐	✔	☐	☐	✔	Lago di Gar	ITALY	Swedish	☐	A	7/4/2000	MC	18-30	Group	F
115	St. Marks	Tourism	☐	✔	☐	☐	✔			German	☐	A	7/4/2000	MC	18-30	Group	M
116	St. Marks	Tourism	☐	✔	☐	✔	☐	Lido di Fieso	ITALY	Swedish	✔		7/4/2000	MC	30-50	Group	F
117	Ple Roma	Tourism	☐	✔	✔	☐	☐	Padova	ITALY	Italian	☐	B	7/4/2000	R	18-30	Family	F
118	Ple Roma	Tourism	☐	✔	☐	✔	☐	Mestre	ITALY	British	☐	D	7/4/2000	R	50+	Family	M
119	Ple Roma	Tourism	☐	✔	☐	☐	✔		ITALY	Dutch	☐	A	7/4/2000	R	18-30	Couple	M
120	Ple Roma	Tourism	☐	✔	☐	✔	☐		ITALY	Danish	☐	D	7/4/2000	R	30-50	Family	F
121	Ple Roma	Tourism	☐	✔	☐	☐	✔	Campo Bass	ITALY	American	☐	C	7/4/2000	R	30-50	Family	F
122	Ple Roma	Tourism	☐	✔	☐	☐	✔	Boat	ITALY	Greek	☐	B	7/4/2000	R	18-30	Couple	F
123	Ple Roma	Tourism	☐	✔	☐	✔	☐	Lago di Gar	ITALY	Swedish	☐	B	7/4/2000	R	18-30	Couple	F
124	Ple Roma	Tourism	☐	✔	☐	☐	✔			Dutch	☐	B	7/4/2000	R	18-30	Group	M
125	Ple Roma	Tourism	☐	✔	☐	✔	☐		ITALY	Swedish	☐	B	7/4/2000	R	18-30	Group	F
126	Ple Roma	Tourism	☐	✔	☐	☐	✔	Eraclea	AUSTRIA	Austrian	☐	B	7/4/2000	R	30-50	Family	F
127	Ple Roma	Tourism	☐	✔	✔	☐	☐	Mestre	ITALY	Italian	☐	B	7/4/2000	F	30-50	Single	F
128	Ple Roma	Resident	☐	☐	☐	☐	☐		ITALY		☐		7/4/2000	F	30-50	Single	F

ID	Site	Purpose	Res	Exc	Loc	Com	Stop	City	Nation	Nationality	Jub	Mon	Date	Adm	Age	Group	Sex
129	Ple Roma	Tourism		✓	✓			Salino	ITALY	Danish			7/4/2000	F	30-50	Family	M
130	Ple Roma	Tourism		✓			✓	Lido Pompo	ITALY	Danish		D	7/4/2000	F	30-50	Family	F
131	Ple Roma	Tourism		✓		✓		St.Margherit	ITALY	German		D	7/4/2000	F	30-50	Family	M
132	Ple Roma	Tourism		✓		✓		Mestre	ITALY	Italian		B	7/4/2000	F	50+	Couple	F
133	Ple Roma	Tourism		✓		✓		Salo	ITALY	Danish		E	7/4/2000	F	U18	Family	M
134	Ple Roma	Tourism		✓			✓			Spanish		A	7/4/2000	F	30-50	Family	M
135	Ple Roma	Tourism		✓		✓		Malcontenta	ITALY	Italian	✓	B	7/4/2000	F	30-50	Family	M
136	Ple Roma	Tourism		✓	✓				ITALY	Italian		B	7/4/2000	F	18-30	Single	F
137	Ple Roma	Student	✓										7/4/2000	F	18-30	Couple	F
138	Ple Roma	Tourism		✓	✓			Verona	ITALY	Italian		B	7/4/2000	F	30-50	Family	F
139	Ple Roma	Business											7/4/2000	F	30-50	Single	M
140	Ple Roma	Resident											7/4/2000	F	50+	Single	F
141	Punta_Sabb	Tourism		✓		✓		Camping PS	ITALY	German		D	7/5/2000	R	30-50	Family	F
142	Punta_Sabb	Tourism		✓		✓		Camping PS	ITALY	Polish		B	7/5/2000	R	18-30	Group	F
143	Punta_Sabb	Tourism		✓	✓			Iesolo	ITALY	Italian		B	7/5/2000	R	30-50	Family	M
144	Punta_Sabb	Tourism		✓			✓	Eraclea	ITALY	Danish		D	7/5/2000	R	30-50	Family	M
145	Punta_Sabb	Tourism		✓		✓		Camping PS	ITALY	Italian		A	7/5/2000	R	30-50	Single	M
146	Punta_Sabb	Tourism		✓		✓		Camping PS	ITALY	Danish		D	7/5/2000	R	30-50	Family	M
147	Punta_Sabb	Tourism		✓		✓		Camping PS	ITALY	Danish		E	7/5/2000	R	30-50	Family	M
148	Punta_Sabb	Tourism		✓		✓		Camping PS	ITALY	German		C	7/5/2000	R	30-50	Family	F
149	Punta_Sabb	Tourism		✓		✓		Camping PS	ITALY	German		D	7/5/2000	R	30-50	Family	M
150	Punta_Sabb	Tourism		✓		✓		Camping PS	ITALY	German		F	7/5/2000	R	18-30	Family	M
151	Punta_Sabb	Tourism		✓		✓		Camping PS	ITALY	German		C	7/5/2000	R	30-50	Couple	M
152	Punta_Sabb	Tourism		✓		✓		Camping PS	ITALY	German		B	7/5/2000	R	18-30	Couple	M
153	Punta_Sabb	Tourism		✓		✓		Camping PS	ITALY	German		C	7/5/2000	R	18-30	Family	F
154	Punta_Sabb	Tourism		✓			✓	Iesolo	ITALY	German		B	7/5/2000	R	30-50	Family	M
155	Santa_Lucia	Tourism		✓	✓					Italian		B	7/5/2000	MS			
156	Santa_Lucia	Tourism		✓		✓				American		F	7/5/2000	MS			
157	Santa_Lucia	Tourism		✓		✓		Mestre	ITALY	British		D	7/5/2000	MS			
158	Ple Roma	Tourism		✓			✓	Mestre	ITALY	British		B	7/5/2000	A	30-50		M
159	Ple Roma	Tourism	✓										7/5/2000	A	50+	Couple	
160	Ple Roma	Tourism		✓									7/5/2000	A	30-50	Single	F

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161	Ple Roma	Tourism	☐	☑	☐	☑	☐	Mestre	ITALY	German	☐	C	7/5/2000 F		30-50	Couple	F
162	Ple Roma	Tourism	☐	☑	☐	☑	☐	Mestre	ITALY	American	☐	C	7/5/2000 F		18-30	Group	F
163	Ple Roma	Tourism	☐	☐	☑	☐	☐	Innsbruck	ITALY	Austrian	☐	D	7/5/2000 F		30-50	Couple	M
164	Ple Roma	Tourism	☐	☑	☑	☐	☐	Como	ITALY	Italian	☐	C	7/5/2000 F		18-30	Single	M
165	Ple Roma	Tourism	☐	☑	☐	☑	☐	Marghera	ITALY	German	☑	C	7/5/2000 F		50+	Couple	F
166	Ple Roma	Tourism	☐	☑	☐	☐	☑	Lago di Gar	ITALY	French	☐	D	7/5/2000 F		18-30	Family	F
167	Ple Roma	Tourism	☐	☑	☐	☐	☑	Bologna	ITALY	Spanish	☐	C	7/5/2000 F		18-30	Family	F
168	Ple Roma	Tourism	☐	☑	☐	☐	☑	Lago di Gar	ITALY	Italian	☐	D	7/5/2000 F		30-50	Family	F
169	Ple Roma	Tourism	☐	☑	☐	☑	☐	Fusina	ITALY	Australian	☐	B	7/5/2000 F		30-50	Couple	M
170	Ple Roma	Tourism	☐	☑	☐	☑	☐	Mestre	ITALY	Swedish	☐	D	7/5/2000 F		18-30	Group	M
171	Ple Roma	Tourism	☐	☑	☐	☑	☐	Favaro	ITALY	American	☐	A	7/5/2000 F		30-50	Couple	F
172	Ple Roma	Tourism	☐	☑	☑	☐	☐	Firenze	ITALY	Italian	☐	D	7/5/2000 F		30-50	Family	F
173	Ple Roma	Tourism	☐	☑	☑	☐	☐	Verona	ITALY	Italian	☐	A	7/5/2000 F		30-50	Couple	M
174	Punta_Sabb	Tourism	☐	☑	☐	☑	☐	Cavallino	ITALY	Holland	☐	E	7/6/2000 F		30-50	Couple	F
175	Punta_Sabb	Tourism	☐	☑	☐	☐	☑	Camping PS	ITALY	Italian	☐	A	7/6/2000 F		50+	Couple	M
176	Punta_Sabb	Tourism	☐	☑	☐	☐	☑	Camping PS	IYALY	Danish	☐	A	7/6/2000 F		U18	Couple	F
177	Punta_Sabb	Tourism	☐	☑	☐	☐	☑	Camping PS	ITALY	German	☐	E	7/6/2000 F		50+	Family	M
178	Punta_Sabb	Tourism	☐	☑	☐	☑	☐	Cavallino	ITALY	Italian	☐	C	7/6/2000 F		30-50	Family	M
179	Punta_Sabb	Tourism	☐	☑	☐	☐	☑	Cavallino	ITALY	German	☐		7/6/2000 F		30-50	Family	F
180	Punta_Sabb	Tourism	☐	☑	☐	☑	☐	Iesolo	ITALY	Holland	☐	B	7/6/2000 F		50+	Couple	F
181	Punta_Sabb	Tourism	☐	☑	☐	☑	☐	Camping PS	ITALY	South Africa	☐		7/6/2000 F		30-50	Couple	M
182	Punta_Sabb	Tourism	☐	☑	☐	☑	☐	Camping PS	ITALY	Italian	☐	B	7/6/2000 F		30-50	Family	M
183	Punta_Sabb	Tourism	☐	☑	☐	☐	☑	Iesolo	ITALY	Italian	☐		7/6/2000 F		30-50	Family	M
184	Punta_Sabb	Tourism	☐	☑	☑	☐	☐		AUSTRIA	Austrian	☐	A	7/6/2000 F		30-50	Group	M
185	Punta_Sabb	Tourism	☐	☑	☐	☐	☑	Lido di Fieso	ITALY	Danish	☐	B	7/6/2000 F		30-50	Couple	F
186	Punta_Sabb	Tourism	☐	☑	☐	☐	☑	Camping PS	ITALY	French	☐	E	7/6/2000 F		30-50	Couple	M
187	Punta_Sabb	Tourism	☐	☑	☐	☑	☐	Camping PS	ITALY	Swedish	☐	B	7/6/2000 F		18-30	Family	M
188	Punta_Sabb	Tourism	☐	☑	☐	☑	☐	Camping PS	ITALY	Belgian	☐		7/6/2000 F		30-50	Family	F
189	Punta_Sabb	Tourism	☐	☑	☐	☐	☑			Canadian	☐	A	7/6/2000 F		18-30	Single	M
190	Punta_Sabb	Tourism	☐	☑	☐	☐	☑	Iesolo	ITALY	Swiss	☐		7/6/2000 F		50+	Couple	F
191	Punta_Sabb	Tourism	☐	☑	☐	☐	☑	Camping PS	ITALY	Danish	☐	C	7/6/2000 F		18-30	Couple	M
192	Punta_Sabb	Tourism	☐	☑	☐	☑	☐	Camping PS	ITALY	Russian	☑	A	7/6/2000 F		30-50	Group	F

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193	Punta_Sabb	Tourism	☐	☐	☐	☐	☑	Camping PS	ITALY	Danish	☐	D	7/6/2000	F	30-50	Family	M
194	Santa_Lucia	Tourism	☐	☑	☑	☐	☐	Firenze	ITALY	Italian	☐	B	7/6/2000	MS	30-50	Couple	M
195	Santa_Lucia	Tourism	☐	☑	☐	☐	☑	Mestre	ITALY	American	☐	B	7/6/2000	MS	30-50	Couple	M
196	Santa_Lucia	Tourism	☐	☑	☐	☑	☐	Mestre	ITALY	British	☐	B	7/6/2000	MS	30-50	Couple	F
197	Santa_Lucia	Tourism	☐	☑	☐	☐	☑			German	☐	A	7/6/2000	MC	30-50	Family	M
198	Santa_Lucia	Tourism	☐	☑	☑	☐	☐			Italian	☐	B	7/6/2000	MC			
199	Santa_Lucia	Tourism	☐	☑	☐	☑	☐	Marghera	ITALY	British	☐	A	7/6/2000	MC	30-50	Couple	M
200	Santa_Lucia	Tourism	☐	☑	☐	☐	☑	Padova	ITALY	Japanese	☐	A	7/6/2000	MC	30-50	Family	
201	Santa_Lucia	Tourism	☐	☑	☐	☐	☑	Altino	ITALY	American	☐	F	7/6/2000	MC	30-50	Family	M
202	Santa_Lucia	Tourism	☐	☑	☐	☐	☑			American	☐	D	7/6/2000	MC	30-50	Couple	M
203	Santa_Lucia	Tourism	☐	☑	☐	☐	☑	Iesolo	ITALY	Swedish	☐	C	7/6/2000	MC	18-30	Single	F
204	Santa_Lucia	Tourism	☐	☑	☐	☐	☑	Marghera	ITALY	Italian	☐	A	7/6/2000	MC	30-50	Couple	M
205	Ple Roma	Tourism	☐	☑	☐	☐	☑	Marghera	ITALY	Japanese	☐	A	7/6/2000	R	18-30	Single	F
206	Ple Roma	Tourism	☐	☑	☐	☑	☐	Cavallino	ITALY	American	☐	C	7/6/2000	R	18-30	Family	M
207	Ple Roma	Tourism	☐	☑	☑	☐	☐	Padova	ITALY	Italian	☐	B	7/6/2000	R	18-30	Couple	M
208	Ple Roma	Tourism	☐	☑	☐	☐	☐	Mestre	ITALY	Austrian	☐	B	7/6/2000	R	18-30	2 Group	M
209	Ple Roma	Tourism	☐	☑	☐	☐	☑	Mestre	ITALY	British	☐	C	7/6/2000	R	30-50	Family	M
210	Ple Roma	Tourism	☐	☑	☑	☐	☐	Cividale del	ITALY	Italian	☐	E	7/6/2000	R	50+	Family	M
211	Ple Roma	Tourism	☐	☑	☐	☐	☑	Mestre	ITALY	Swedish	☐	D	7/6/2000	R	18-30	Family	F
212	Ple Roma	Tourism	☐	☑	☐	☐	☑	Mestre	ITALY	American	☐	D	7/6/2000	R	30-50	Family	M
213	Ple Roma	Tourism	☐	☑	☐	☐	☑	Marghera	ITALY	French	☑	C	7/6/2000	R	18-30	Group	F
214	Ple Roma	Tourism	☐	☑	☐	☐	☑	Iesolo	ITALY	German	☐	C	7/6/2000	R	18-30	2 Group	M
215	Ple Roma	Tourism	☐	☑	☐	☐	☑	Cavallino	ITALY	Danish	☐	B	7/6/2000	R	18-30	Couple	F
216	Ple Roma	Tourism	☑	☐	☐	☐	☐				☐		7/6/2000	R	18-30	Family	M
217	Ple Roma	Tourism	☐	☑	☑	☐	☐	Parma			☐		7/6/2000	R			
218	Ple Roma	Tourism	☐	☑	☑	☐	☐	Verona	ITALY	Italian	☐	B	7/6/2000	R	18-30	Couple	M
219	Santa_Lucia	Tourism	☐	☑	☐	☐	☐			American	☐	A	7/7/2000	MC	18-30	Couple	F
220	Santa_Lucia	Tourism	☐	☑	☐	☑	☐	Verona		American	☐	B	7/7/2000	MC	30-50	Couple	F
221	Santa_Lucia	Tourism	☐	☑	☐	☐	☑	Firenze	ITALY	American	☐	B	7/7/2000	MC			
222	Santa_Lucia	Tourism	☐	☑	☑	☐	☐			Italian	☐	A	7/7/2000	MC	30-50	Couple	F
223	Santa_Lucia	Tourism	☐	☑	☐	☐	☑	Marghera	ITALY	American	☐	C	7/7/2000	MC	30-50	Couple	F
224	Santa_Lucia	Resident	☑	☐	☐	☐	☐				☐		7/7/2000	MC	30-50	Couple	

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225	Santa_Lucia	Tourism	☐	✔	☐	☐	✔	Firenze	ITALY	Brazilian	☐	C	7/7/2000	MC	18-30	Group	
226	Santa_Lucia	Tourism	☐	✔	☐	☐	✔			Korean	☐	C	7/7/2000	MC	18-30	Group	M
227	Santa_Lucia	Tourism	☐	✔	☐	✔	☐	Verona	ITALY	American	☐	D	7/7/2000	R	30-50	Family	M
228	Santa_Lucia	Tourism	☐	✔	☐	☐	✔	Train		French	☐	D	7/7/2000	R	30-50	Family	F
229	Santa_Lucia	Tourism	☐	✔	☐	☐	✔	Firenze	ITALY	American	☐	C	7/7/2000	R	18-30	Couple	F
230	Santa_Lucia	Tourism	☐	✔	✔	☐	☐	Vicenza	ITALY	Italian	☐	C	7/7/2000	R	30-50	Couple	F
231	Santa_Lucia	Tourism	☐	✔	✔	☐	☐	Verona	ITALY	Italian	☐	C	7/7/2000	R	18-30	Couple	M
232	Santa_Lucia	Tourism	☐	✔	✔	☐	☐	Padova	ITALY	Italian	☐	E	7/7/2000	R	18-30	Family	F
233	Santa_Lucia	Tourism	☐	✔	✔	☐	☐				☐		7/7/2000	R	50+	Single	M
234	Santa_Lucia	Tourism	☐	✔	☐	☐	✔	Padova	ITALY	British	☐	C	7/7/2000	R	18-30	Couple	F
235	Santa_Lucia	Tourism	☐	✔	☐	☐	✔	Mestre	ITALY	American	☐	D	7/7/2000	R	30-50	Family	M
236	Santa_Lucia	Tourism	☐	✔	☐	✔	☐	Mestre	ITALY	American	☐	C	7/7/2000	R	30-50	Family	F
237	Santa_Lucia	Tourism	☐	✔	☐	✔	☐	Mestre	ITALY	Canadian	☐	A	7/7/2000	R	30-50	Couple	M
238	Punta_Sabb	Tourism	☐	✔	☐	✔	☐	German	ITALY	Italian	☐	E	7/7/2000	F	30-50	Couple	F
239	Punta_Sabb	Tourism	☐	✔	☐	☐	✔	Camping PS	ITALY	Italian	☐	C	7/7/2000	F	30-50	Couple	F
240	Punta_Sabb	Tourism	☐	✔	☐	☐	✔	Camping PS	ITALY	Italian	☐	B	7/7/2000	F	30-50	Family	M
241	Punta_Sabb	Tourism	☐	✔	☐	☐	✔	Iesolo	ITALY	Italian	☐	A	7/7/2000	F	18-30	Single	M
242	Punta_Sabb	Tourism	☐	✔	☐	☐	✔	Camping PS	ITALY	Italian	☐	C	7/7/2000	F	18-30	Group	F
243	Punta_Sabb	Tourism	☐	✔	☐	✔	☐	Camping PS	ITALY	German	☐	D	7/7/2000	F	50+	Couple	M
244	Punta_Sabb	Tourism	☐	✔	☐	☐	✔	Iesolo	ITALY	Austrian	☐	D	7/7/2000	F	30-50	Family	F
245	Punta_Sabb	Tourism	☐	✔	☐	✔	☐	Camping PS	ITALY	Swiss	☐	D	7/7/2000	F	30-50	Couple	M
246	Punta_Sabb	Tourism	☐	✔	☐	✔	☐	Camping PS	ITALY	German	☐	C	7/7/2000	F	30-50	Family	M
247	Punta_Sabb	Tourism	☐	✔	☐	☐	✔	Iesolo	ITALY	French	☐	D	7/7/2000	F	30-50	Family	F
248	Punta_Sabb	Tourism	☐	✔	☐	✔	☐	Camping PS		French	☐	F	7/7/2000	F	18-30	Couple	F
249	Punta_Sabb	Tourism	☐	✔	☐	✔	☐	Camping PS	ITALY	Danish	☐	C	7/7/2000	F	18-30	Group	F
250	Punta_Sabb	Tourism	☐	✔	☐	✔	☐	Camping PS	ITALY	Swedish	☐	B	7/7/2000	F	18-30		FF
251	Punta_Sabb	Tourism	☐	✔	☐	✔	☐	Camping PS	ITALY	Danish	☐	C	7/7/2000	F	30-50	Group	F
252	Punta_Sabb	Tourism	☐	✔	☐	☐	✔	Camping PS	ITALY	Danish	☐	C	7/7/2000	F	18-30	Couple	M
253	Punta_Sabb	Tourism	☐	✔	☐	☐	✔	Iesolo	ITALY	Canadian	☐	D	7/7/2000	F	18-30	Single	M
254	Santa_Lucia	Tourism	☐	✔	☐	✔	☐	Mestre	ITALY	Italian	☐		7/8/2000	A		Couple	F
255	Santa_Lucia	Tourism	☐	✔	✔	☐	☐	Padova	ITALY	Italian	☐	A	7/8/2000	A	18-30	Couple	F
256	Santa_Lucia	Tourism	☐	✔	☐	☐	✔	Train	ITALY	Canadian	☐	B	7/8/2000	A	18-30	Group	F

ID	Site	Purpose	Res	Exc	Loc	Com	Stop	City	Nation	Nationality	Jub	Mon	Date	Adm	Age	Group	Sex
257	Santa_Lucia	Tourism	☐	✔	☐	☐	✔	Mestre	ITALY	Spanish	☐		7/8/2000	A		Couple	
258	Santa_Lucia	Tourism	☐	✔	✔	☐	☐			Italian	☐		7/8/2000	A	18-30	Group	M
259	Santa_Lucia	Tourism	☐	✔	☐	✔	☐	Mestre	ITALY	Spanish	✔	C	7/8/2000	A	30-50	Couple	M
260	Santa_Lucia	Tourism	☐	✔	☐	✔	☐	Padova	ITALY	American	☐		7/8/2000	A	18-30	Group	F
261	Santa_Lucia	Tourism	☐	☐	☐	☐	✔	Mestre	ITALY	British	☐	C	7/8/2000	A	18-30	Couple	
262	Ple Roma	Tourism	☐	✔	☐	☐	✔			American	☐		7/8/2000	A	18-30	Couple	F
263	Ple Roma	Tourism	☐	✔	✔	☐	☐	Parma	ITALY	Italian	☐	B	7/8/2000	A	18-30	Couple	
264	Ple Roma	Student	✔	☐	☐	☐	☐				☐		7/8/2000	A	18-30	Single	M
265	Santa_Lucia	Tourism	☐	✔	☐	☐	✔			American	☐	A	7/8/2000	A		Couple	
266	Santa_Lucia	Tourism	☐	✔	☐	☐	✔	Firenze	ITALY	British	☐	A	7/9/2000	A	18-30	Group	F
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ID	Site	Purpose	Res	Exc	Loc	Com	Stop	City	Nation	Nationality	Jub	Mon	Date	Adm	Age	Group	Sex
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E+04	Tronchetto	Tourism	☐	☑	☐	☐	☐			French	☐						
E+04	Tronchetto	Tourism	☐	☑	☐	☐	☐			Other	☑						
E+04	Tronchetto	Tourism	☐	☑	☐	☐	☐			French	☐						
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E+04	Tronchetto	Tourism	☐	☑	☐	☐	☐			Austrian	☐						
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E+04	Tronchetto	Tourism	☐	☑	☐	☐	☐			Japanese	☐						

APPENDIX D – LICENSE PLATE DATABASE

Location	Tronchetto buses	Denmark	5	Poland	1
Date	6/7/00	Finland	0	Romania	0
Austria	6	France	7	Slovenia	0
Albania	0	Germany	17	Sweden	0
Andorra	0	Great Britian	1	Switzerland	1
Belarus	0	Greece	0		
Belgium	0	Hungary	1		
Bosnia	0	Italy	5		
Bulgaria	0	Lithuania	0		
Croatia	1	Macedonia	0		
Czech Republic	0	Netherlands	1		

Location	Tronchetto car park	Denmark	4	Poland	11
Date	6/7/00	Finland	0	Romania	1
Austria	1	France	27	Slovenia	0
Albania	0	Germany	45	Sweden	4
Andorra	0	Great Britian	2	Switzerland	15
Belarus	0	Greece	0		
Belgium	5	Hungary	12		
Bosnia	0	Italy	1373		
Bulgaria	0	Lithuania	0		
Croatia	2	Macedonia	0		
Czech Republic	2	Netherlands	1		

Location	Punta Sabbioni	Denmark	68	Poland	7
Date	4/7/00	Finland	0	Romania	0
Austria	23	France	10	Slovenia	0
Albania	0	Germany	100	Sweden	30
Andorra	0	Great Britian	0	Switzerland	0
Belarus	0	Greece	0		
Belgium	1	Hungary	28		
Bosnia	0	Italy	71		
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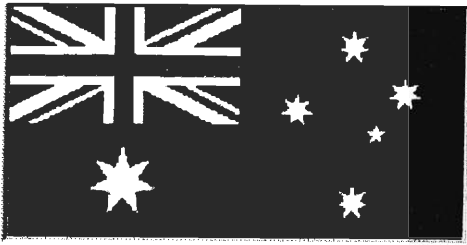
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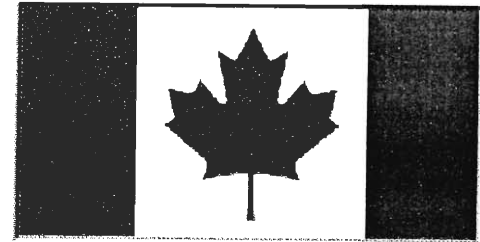
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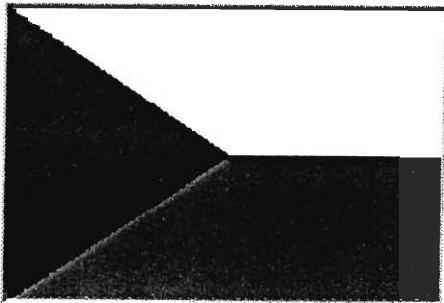
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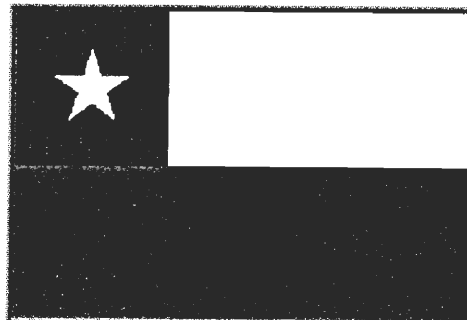
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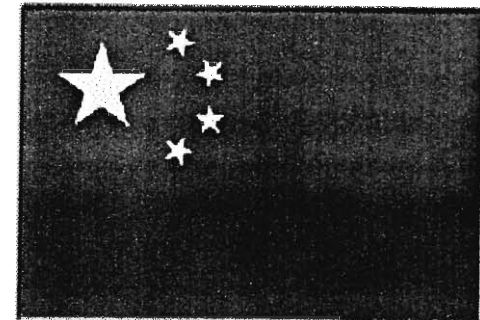
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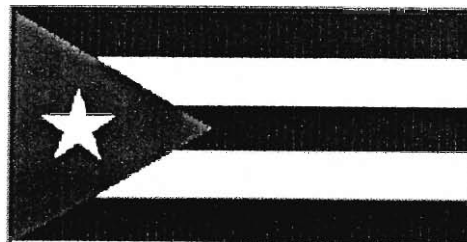
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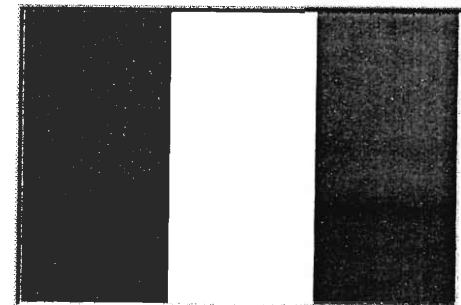
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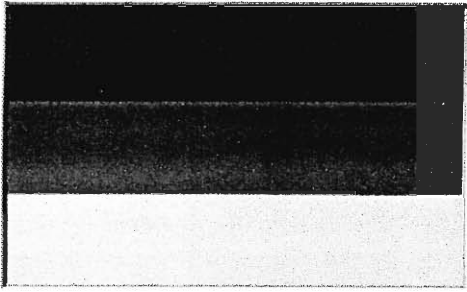
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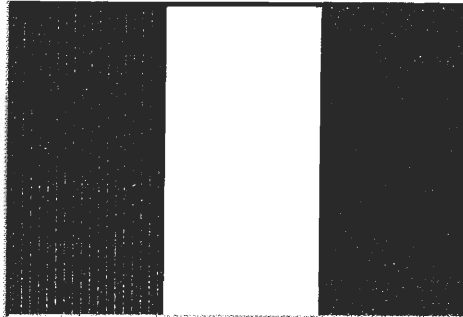
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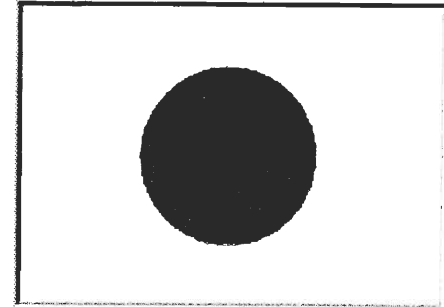
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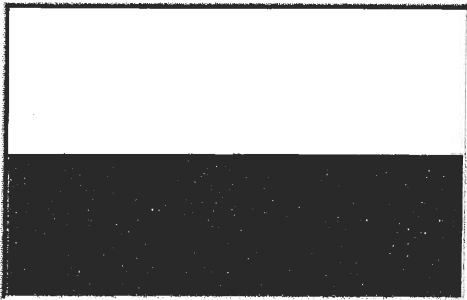
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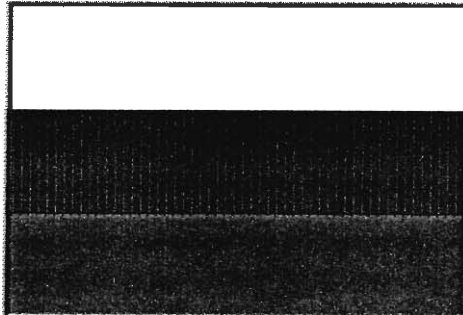
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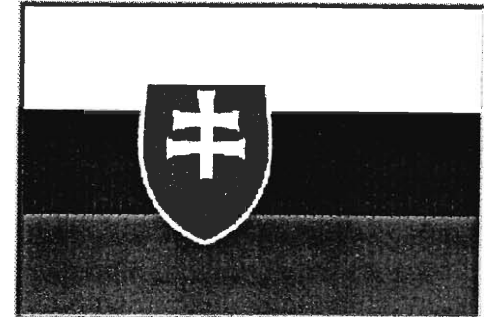
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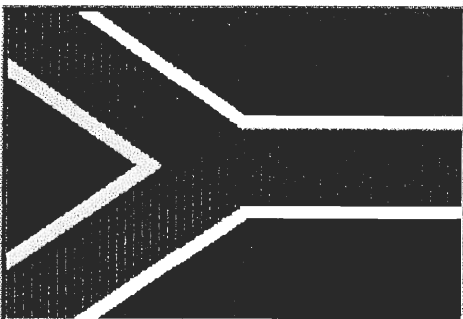
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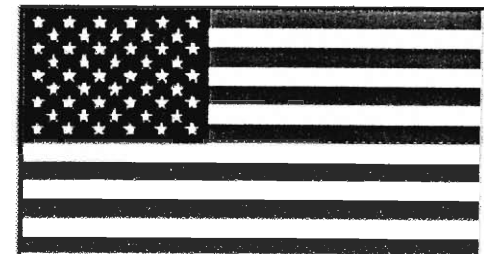
United States

APPENDIX F - PRESENTATION SLIDES

APPENDIX G – WEB PAGES

The 2000 WPI Venice Project Center's Excursionists Tourism Page

This page is dedicated to information researched and collected in the spring and summer of 2000. A project team was asked to quantify and characterize the excursionist tourists entering Venice for the year 2000. We are that project team. We are that dream. Welcome.

Venice is a popular tourist site. A 1999 WPI project team estimated the number of tourists entering Venice at approximately 10 million annually. Our mission was to perform a similar type of tourist estimate and also gather information on the excursionist tourist population by way of face-to-face surveys. Future projects will utilize and improve upon our methods described in this web.

In order to count excursionist tourists it was necessary to first identify them as such. Since it would be impossible to interview each tourist upon entry to find out his or her sleeping arrangements we had to design and use a visual identification method. The 1999 WPI project team in Venice was the first to develop such a method. We reevaluated the 1999 team's identification requirements; we went out to the entry points previously described and saw whether or not there was room for improvement. It turned out that there was a need to update their findings in terms of excursionist dress, demeanor and accessories. Once we changed the observable traits of an excursionist we had to go out in the field and test them. These tests were the first form of data collection pertaining to our project. Once we had our visual identification tests completed, and we were satisfied with our results, we were then prepared to test our consistency between members. These tests consisted of team members counting the same visitors at the same entry location. Results were compared and these tests were continued until acceptable results prevailed. We were then ready to count the excursionists with an extremely small amount of error between members.

I bet you're asking why a study like this necessary? Well, here is some background information on Venice and its present tourism situation. If you read it you'll understand what huge problems Venice has with its tourist population. We can tell you how we are planning to fulfill the task of quantifying and characterizing Venice's excursionist tourists and I can tell you how statistical extrapolation methods we are using will help us get a years worth of data.

APPENDIX H – APT INFORMATION AND DATABASE MANIPULATIONS

As we mentioned before, we worked in collaboration with the APT. For the completion of our project they furnished us with a database showing the Hotel Records for the different areas covered by the APT individually and all together into one database. These different areas covered were: The Venice Storic Centre, the Lido, the Cavallino area (near Punta Sabbioni), Mestre and Marghera, the Riviera del Brenta and all of the other little town which are not separately classified being covered always by the APT.

The only way this information could have been accessed was by using DOS operating system. The files, could only have been accessed by knowing what each directory was standing for. For this reason we retained it was necessary to give some explanations for future projects of this kind dealing with this same data. The codes for these files are as follows.

- LI – Lido
- VE – Venice Historic Center
- MM – Mestre and Marghera
- CA – Litorale Del Cavallino
- CO – Commune di Venezia (Lido, Mestre, Marghera, Cavallino)
- RB – Riviera del Brenta (Mira, Mirano, Dolo)
- AL – Other towns
- AF – Entire APT (Venice, mainland ect.)

To find information for only Venice and the Lido use VE and LI only. For monthly break down of data use the code W, that is LIW112.prn for monthly hotel data for Lido, and so on.

The goal of the Azienda di Promozione Turistica di Venezia, or APT, is to make Venice as pleasant as possible for tourists. The main services of the APT are welcoming incoming tourists and collecting records for hotel stays.

Welcoming tourists to Venice involves two phases; drawing tourists into Venice through advertising and then providing them with information once they arrive. To promote tourism, the APT publishes a tourism magazine *Leo; The Venice Magazine.*[1] This magazine is available by subscription, online[2], and to visitors of Venice. *Leo* provides information on the heritage of Venice and cultural events. In addition to this, the APT provides hotel information. *Venezia 2000* is an APT

[1] LEO, copyright 1999, is a publication of the Azienda di Promozione Turistica di Venezia
[2] http://web.vemod.it/leo/

publication that provides detailed information on hotels, residences, camping, and bed and breakfasts throughout the region of the Veneto. The APT uses these publications to aid tourists in planning trips to Venice.

The second stage of tourism promotion is aiding tourists once they arrive in Venice. The APT has several welcome stations open year round and opens additional stations seasonally. These stations provide visitors with maps of the city and hotel information. Permanent welcome stations are located in Saint Mark's Square, the Santa Lucia train station, and the Marco Polo airport. Additional tourist information offices are opened seasonally in the area surrounding Venice proper, such as on the Lido and in Mestre. As noted in *Venezia 2000*, special "info-points" have been installed for "Giubileo 2000" (Jubilee 2000). These are located at several of the entry points to Venice, such as the Tronchetto bus and car parking area, the Piazzale Roma bus station, and the Zattere boat stop.

The second duty of the APT is the collection of data concerning tourism. The main source of this data is hotel records. All hotels in Venice submit occupancy records to the APT everyday. They provide demographic and stay length information on their overnight visitors. Additionally, all APT tourist information offices maintain daily records of visitors. These records are an indirect indicator of the number of visitors entering Venice, but they do not differentiate between visitor types so conclusions on tourism influx cannot be drawn directly from this information.

In a sponsor meeting with the APT, we learned that the APT is financially limited in the amount of promotion they can perform. At one point the APT was funded by the national government with money raised through hotel taxes. Currently there is very little incentive to provide funding for APT because tourism is high in the city, so little promotion is necessary. The APT receives funding from the regional government and the European Union. The European Union finances projects that involve thematic promotion of an area, such as the general promotion of marinas.

The APT is moving their focus from attracting general tourism to drawing in tourists who are more knowledgeable about and respectful of the Venetian history. One option to possibly reduce tourism

numbers is to raise the price for transportation to and around Venice. The APT is working to educate tourists, making them more informed about Venice and its ways and respectful of the city and its inhabitants.

APPENDIX I – ANNOTATED BIBLIOGRAPHY

Annotated Bibliography

Adelson, Sheldon. "Vega's Latest Character." *About.com,* accessed 4/5/00

        "Vegas' Latest Character" discusses several new resorts and events in Las Vegas. Of interest is The Venetian a resort, hotel, and casino. A description of The Venetian is provided. The Venetian is a "spectacular recreation of the fabled European water-city." This article shows the popularity of Venice as a tourist attraction.

Smith, Stanley K. "Toward a Methodology for Estimating Temporary Residents." *Journal of the American Statistical Association,* Vol. 84, No. 406 (Jun., 1998), pp430-436

        The article discusses the pros and cons of various techniques for estimating temporary residents. Temporary residents include the entire nonpermanent population. Daytime visitors are discussed on p431. Several studies are mentioned. Estimation techniques are divided into two types; direct and indirect. Direct involves counting or surveying temporary residents directly (as we plan to do). The indirect approach relies on changes in product consumption. That is, changes in water use, electricity, traffic, etc. This article is highly relevant to our methodology and provides various other sources to research.

DeTombe, Dorien J. and Dijkum, Cor Van. *Analyzing Complex Societal Problems; A Methodological Approach.* Rainer Hampp Verlag. 1997

        - Vezjak, Marjan and Stuhler, Ellmer A. "System Approach to Some Environmental Problem Solving in Sustainable Tourism" pp. 241 –254

        This chapter evaluates the equilibrium that exists between tourists and the eco-system. A computer model is present which simulates the global circumstances in tourism. The phenomenon of tourists disturbing the eco-system of an area is discussed. It is suggested that visitors overload the resources of an eco-system. This is caused by a combination of a high level of pollution and energy consumption with very low recycling.

Petruccelli, Nandram and Chen. *Applied Statistics; for Engineers and Scientists.* Prentice Hall, NJ 1999

        This textbook, on applied statistics, provides extensive information on data analysis, data summation, statistical modeling, designing studies, obtaining data, estimation, prediction, and many other statistical topics. It is useful for explaining statistical terms found in other sources. Chapter three, *Designing Studies and Obtaining Data,* provides many sampling techniques. This is useful in the developing of our surveying method. Chapter five, *Introduction to Inference: Estimation and Prediction,* explains various aspects of inference. Since we will be extrapolating data collected over the course of

two months to the entire year, this information is useful. This source provides much of the conceptual and mathematical statistical background needed to design our project such that it will yield relevant and reliable results using our limited resources.

http://www.american.edu/projects/mandala/ted/venice.htm "TED Case Studies Venice and Tourism"

Venice was considered as a city where EXPO 2000 could have been held. However a feasibility study left the city officials opposed in having the EXPO in Venice.

Besides Expo 2000, this article discusses the fact that Tourism is the main part of life of Venice, however lately it has become too much. Also the article mentions that in 1986 tourism brought one and a half billion dollars of revenue per year. Tourism however has now become a threat to the city.

The article goes on to discuss some studies made by the Boston Chapter of Save Venice. These studies have found that the number of tourists going to Venice each year (7 million), are affecting Venice's infrastructure. Also it has been found that each year there are about 1500 residents that leave the city for the mainland. Tourists are making rents and pollution increase, and are also making all the shops that are not related to tourism disappear.

The article is based on studies made by TED. (Trade and Environment Database) It definitely gives the reader a bad view of the problem of tourism in Venice, creating air, water and land pollution. We found the article was very useful in gathering information regarding the problem of tourism in Venice.

http://web4.infotrac.galegroup.com/itw/i...xrn_11_0_A17987548?sw_aep+mlin_c_worpoly

Abstract of "The Church's Celebration of the jubilee year 2000"

This article discusses the Church's celebration for the year 2000. As a matter of fact it includes information on how this year is important not only to Catholics but to the entire Christian world, and how Christ's message has been received in human history.
The article also discusses how the Church, during the year 1998, devoted itself to the theme of Jesus Christ and to the Holy Spirit and God the Father during the year 1999.

Additionally, there is a lot of information on how the year 2000 will celebrate the Blessed Trinity. This source provided a lot of information for the part of our research dedicated to the Jubilee 2000. As a matter of fact Venice is expected to have an increase of thirty percent on the number of tourists that regularly visit the city every year.

However the article didn't discuss Venice in great details. And it didn't even refer to Venice as a city that is suffocated by tourism. The article is mainly talking about the Jubilee 2000 under religious terms.

This news article: http://www.iuav.unive.it/~juli/vencal99.htm "CALENDAR OF EVENTS 1999"

This article gives a detailed list of events that occurred in Venice during the year 1999; the part we used was the one referring to July 1999. In July 1999 there was the 6th edition of the boat race in the lagoon. Also there was the Redentore Feast-day, commemorating the end of the plague of 1577. It talks about the fireworks show and the Regatta of the Sunday afternoon. In other words these events during these few days of July are days of Religious ceremonies and feasts all through Venice.

Knopf Guide, published by Alfred A. Knopf, Inc., New York, 1993

The Knopf Guide helped us both in our PQP class and in the IQP, to obtain information pertaining to every aspect of Venice - its history, its inhabitants, its activities, its transportation, its architecture, its art, its traditions, and the areas that make it up and the islands surrounding the lagoon. There were brilliant pictures and descriptions. It was a very well explained and easy to comprehend guide. We used the information from this guide mostly for our Background Chapter information and when we were writing about the attractions to Venice, and in trying to find general information or maps of the area.

Frommer's Portable Venice, 2nd edition, by Darwin Porter and Danforth Prince, Macmillan, USA, 1999

This small book is a guide for tourists in Venice and we were able to find information pertaining to our Background Chapter in this book. It gave us simply-explained information on attractions to Venice and a calendar of events with small descriptions of each. It also gave visitor information, and information on the entry points, the sestieri, the surrounding islands, organized tours, self-walking tours, the nightlife and necessary maps. These guides are reproduced each year.

How to Conduct your Own Survey, by Priscilla Salant and Don Dillman, John Wiley & Sons, Inc., New York, 1994

This book was very useful performing our surveys in order to characterize the excursionist tourists in Venice. The professionals who wrote it give you ideas on the many ways to obtain reliable results in accordance to statistical data in which to relate the answers. It discusses the information needed for a survey, how to choose a method and a sample size, how to write good questions and have good organization, the options for questionnaires, and how to analyze your results and to report them in the appropriate way. It therefore describes every aspect of surveying, no matter how

difficult it may be, and how to do it well. It pertained mostly to our qualitative section of the Methodology Chapter.

"Alternative Tourism Routes in Cities of Art", UNESCO Regional Office for Science and Technology for Europe, Technical Report No.23

This book was highly useful in looking at the state of tourism in Venice comparitive to other art cities in Europe. It looks at the phenomenon of mass tourism and the many impacts and concerns due to the tourism numbers in these cities. There is a look into the numbers of arrivals and the overnight stays, including all information that pertains to this such as length of stay and number of hotel beds. We also looked at the alternative routes in relation to visitor flow management, and at the life cycle of tourism, which is expressed in its own section in the Background Chapter.

APPENDIX J – BIOGRAPHIES

Amy – My name is Amy Elizabeth Holton. I am 22 years old and from Worcester, Massachusetts. I am a student starting my fifth year in Civil Engineering at Worcester Polytechnic Institute, and plan to graduate in May 2001. I am specializing in Construction Project Management. I attended the University of New Hampshire for one year and then received my Associates Degree after 2 years at Quinsigamond Community College, as a member of Phi Theta Kappa Honor Society. I enjoy traveling, singing (I am in Alden Voices at WPI), dancing, playing pool and hockey, driving, writing, meeting new people, being outdoors, and being with my family and friends.

Marc Cryan - I'm a Biomedical Engineer major with a concentration in Electrical Engineering. My hometown is New Hartford, Ct.. In Worcester, I live on Wachusett Street right next to the Bravo Cafe. At WPI, I'm a member of Masque and MWReparatory Theater Ect. I enjoyed my time in Venice and I hope to come back some time for a VACATION.

Marianne Schady – I'm originally from Queens, New York, now living in Summerville, South Carolina. I'm a Biotechnology major starting my third year at Worcester Polytechnic Institute. I am aiming to get into Veterinary school once I graduate. I'm a member of the swim team and Mu Sigma Delta. I enjoy playing with my guinea pig, Sydney, traveling to new places, which I did this summer, and making new friends.

Russ Caruso – Hello, I am a computer engineering major. I was born in Hingham, MA, moved to Tampa, FL at 2 yrs old and back to Hingham at 13 yrs. old. I graduated Hingham High in 1997 with a ton of great kids. I chose WPI on a whim and it turned out to be the best decision of my life. I haven't joined any clubs but I think I have done my college years up fantastically. Well, that's my life. Bye.h

Francesco Pancheri - I was born on October 5th, 1979 in the little town of Cles in the middle of the Italian Alps (Dolomites). I grew up there until 1995, when my family moved to the United States. There, I finished high school and went on to college. I am currently in college at WPI (Worcester Polytechnic Institute), where I am completing my degree of Bachelor of Science, majoring in Mechanical Engineering with a concentration in Mechanical Design. As part of our requirements, we were asked to complete a

project IQP (Interactive Qualifying Project) that does not necessarily have to deal with our major. I had the opportunity to complete this project in Venice, one of the most beautiful cities of Italy and the World. When a person enters Venice, he begins to live history. I am glad to have completed this project in Venice, and I have to admit that on one hand I did the project in fulfillment of my degree, but on the other to aid Venice towards the solution of one of its many problems.

APPENDIX K – ADDITIONAL ACKNOWLEDGEMENTS

Amy – I want to say that Venice has been a once-in-a-lifetime experience for me. In the beginning of the trip, I was homesick and scared to start this project. In the middle, I was aggravated with the project and the people; I felt happy half the time and homesick the other half. As July came, I felt the feeling of being at home. I am sad to leave because Venice has become a part of me, like when one goes away to college. It is so hard to find a new home, and then to have to leave it. The language barrier was obviously a problem at times, but with my classmates and the understanding Italians, I was able to enjoy my time here.

I first want to thank my parents for sending me here, even though it caused them more financial hardship than they needed. And I don't tell them in person enough how much I appreciate them and love them for putting up with me. I want my friends at home, especially Seth, to realize how much they mean to me just for being there with patience and a laugh. I don't even know how I will express my Venice experiences to these people that I wish could have experienced it with me.

Even though I didn't get time to truly see and feel it, I will never forget my time in this city. The gelato, the spritzes, the pigeons, the Italian guys, Auchan, the few times I saw the beach, the salsa night, St. Mark's Square at night, the island dinner, the Redentore, the apartments, the small alleyways, and of course the many smells of Venice.

I will never forget Franco and his bar – the many nights there, the people, making myself some drinks, and Franco's many gestures to the "water and soap" girl. Matteo, mi amor Italiano – I will never forget how he helped me enjoy Venice that much more, and gave me a new piece of my personality with the insight into the differences between Americans and Italians. They are beautiful, gentle people. "A brown-eyed boy meets a blue-eyed girl".

Lastly and most obviously, I would like to thank Russell, Francesco, Marc and Marianne for putting in so much hard work and for making this team a good thing. Also a thanks to Fabio and Peter for giving us this experience, and enabling us to have some laughs with our advisors to feel more like we were all equals.
Ciao! Ci vediamo!

Russ – First, I would like to thank my mommy. She has helped me immensely in every aspect of this trip and my life. This trip has been an extremely great experience and I will never be the same after I return to those United Sates. Thank you mom. Thanks dad for the support. Thanks to my bros, sis, Chris, Gina, Danny, Emily and Roshine for coming to visit me in Venice.

Next, I have to thank the Tourism 2000 team as well as the VPC for putting up with Caruso. You're all better people for it and you know it. J/k.

Thanks to Fabs and PC for the advising and the great times, Spritz and especially the island dinner with yo pop and of course the Redentore. Special thanks to Rick Vaz for helping to find some meaning to this project and drinkin wines with me everywhere.

Finally, the IMC for our IBM pieces of poo laptops and for all those Philippine adapters. Better luck next time. Peace out.

Marc Cryan - I'd like to thank my parents for supporting me in everything I do, especially for sending me to Venice for the summer. I'd also like to thank Meghan for coming to Venice with me.

Marianne - I would like to thank God for the opportunity to complete this project in Venice. My mom and dad also deserve recognition for putting up with and supporting me throughout this project and my life. I would also like to thank them for coming to Venice in order to visit me and see how I was doing. Thanks mom and dad. I would like to thank Fabio and PC for their guidance, also Prof. Vaz for the added insight into our project. I would also like to thank all the cool people that helped out on this IQP, Meghan for counting one day when we were lacking manpower and reading through and editing our paper. Adria and Josh also helped a lot on editing and presentation work and I thank them for that.

Francesco Pancheri - First I would like to thank my parents for giving me the financial support to participate in the WPI Global Perspective Program and for putting up with me. I believe that in order to fully understand what they really go through when they worry about their children, a person would have to be a parent him or herself, therefore I would like to thank them another time for loving me and always being there when I need help. I also want to thank God for giving me the fortune of seeing new things and learning more every day about life and the World and therefore, making me grow more inside.

Furthermore I would like to thank Professors Peter Christopher and Fabio Carrera for following and advising us in our project, and also for sharing festivities with us.

I would also like to thank Professor Richard Vaz for being here with us during the first few weeks of this project and giving us some advise for it.

During the completion of our work we had to make use of different databases and information that was given to me from external agencies. One of these agencies, the APT (Azienda di Promozione Turistica), was also our sponsor. In particular Doctor Massimo Romano, for giving me the data regarding the Iats or info booths here in Venice; Cesare Battisti, for helping me with the translation of our Surveys, and Ragioniere San Niccolo` for giving me the entire database containing the data regarding the hotel stays of the tourists. I also want to point out the fact that all of these people were always available to answer my questions when needed.

I would also like to thank Dr. Pastro for giving me the data concerning the Palazzo Ducale, and Doctor Bianchini and Mons. Meneguolo for giving me the data about St. Mark's bell tower.

Concearning the Actv, I want to give special thanks to Flavia Sala for giving me the database containing the ticket sales for the year 1999 and 2000. I also would like to thank my friend Ambra for coming with me to the counting site for an entire day and helping me with the counts while waiting for me finish may day work. I also want to thank all of the WPI students here with us for the fun times we spent together and especially my teammate Russ for the fun night we spent in Jesolo. Also, the Tourism 2000 group has helped me a lot in keeping my perseverance in working towards the completion of our project.

Finally I want to thank my relatives here in Italy, especially my sister Marina and my grand mother for putting up with me when I was going home to Sanzeno, staying out at night or sometimes leaving in the middle of the night in order to be here in Venice in time on Monday mornings.

Ciao Venezia e a presto!!!