



MUNICIPALITY OF THIRA

REGIONAL PLANNING OF THE ISLANDS OF THIRA AND THIRASIA

PHASE A: ANALYSIS



UNIVERSITY OF CINCINNATI
SUSTAINABLE DEVELOPMENT GROUP

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Regional Planning of the Islands of Thira and Thirasia Phase A: Analysis

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I. THE ULTIMATE GOAL FOR SANTORINI IS TO HAVE GOOD FUTURE REGIONAL DEVELOPMENT

In the future, Thira should be an island, the inhabitants of which should enjoy a high quality of life and which should have a strong economy, as shielded as possible from events external to the island. It should have a tourism sector that would contribute significantly to the economy of the island but at the same time would be the driving force for improvements in the physical, natural and social conditions on the island. It should continue to have a reputation for being beautiful, unique in its landscape and its ecosystem, hospitable, and full of history and culture and it should have lost its reputation for being too expensive, for offering an inferior quality of services, and for exploiting the assets of the island for personal gain.

In Greece, families work hard to build a nest which they will pass on to their children and grandchildren. This sense of obligation to the future generations is called "Sustainability", and is a concept which the world rediscovered in recent years, while the Greeks have practiced it for generations. We would like to contribute to the continuous sustainable development of this island, and make Thira a **model** tourism economy and place to live. This is the beginning of this contribution.

II. THE PRE-CONDITIONS/INGREDIENTS FOR THIS GOOD FUTURE REGIONAL DEVELOPMENT INCLUDE:

1. As many, diverse, viable economic sectors as possible.
2. Good management of land and natural resources ensuring preservation and respect for carrying capacity.
3. Good physical and social infrastructure supportive of the quality of life of local residents and the enjoyment of visitors.
4. A pattern of growth that can be sustainable over the long term.
"Sustainable" means that:
 - (a) the capacity of all physical and natural systems is not overloaded,
 - (b) both physical aspects of culture/heritage and the cultural values are maintained,
 - (c) the natural systems which support life are maintained in good order, and,
 - (d) quality of life for everyone is maintained or enhanced.

III. METHODOLOGY

Our study set out to investigate the state of regional development in Santorini using the above four

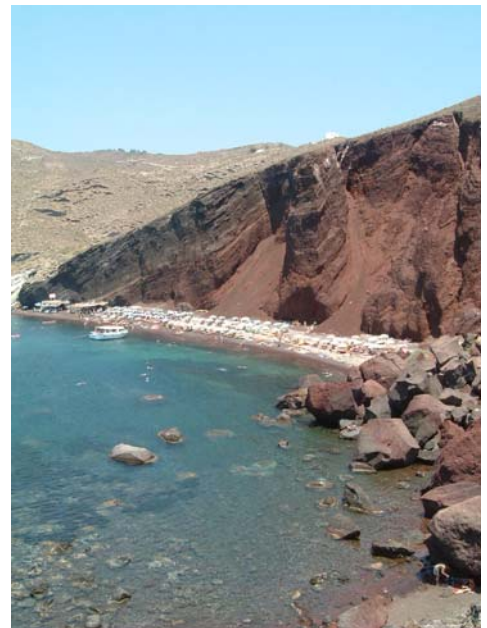


Photo 1 – Red Beach. (Meyer, 2004)



Photo 2 – Fira: The majority of the buildings facing the caldera are hotels or rental rooms. These are the most desirable accommodations on the island. (Chifos, 2004)

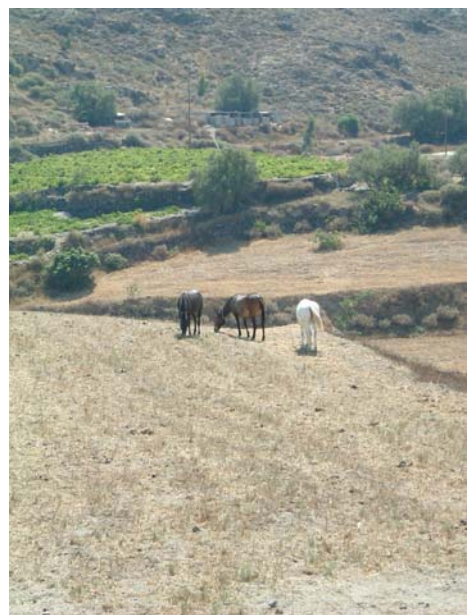


Photo 3 – Agricultural land near Akrotiri. (Meyer, 2004)

Ingredients as a framework. Our approach involved:

- Interviews with all the professional and business groups and associations,
- Interviews with community leaders, agency heads, and technical experts,
- Interviews with knowledgeable members the local communities,
- Systematic review and study of the available reports of all development-related projects conducted for this island and its region in the last 15 years,
- Intensive and systematic library research on the island, the region, the institutions, as well as the principles and models of regional development for island ecosystems with tourism economies,
- Brainstorming sessions with professionals and community leaders,
- Cross verification of all information received from interviews through other external sources
- Charrettes for the debate of issues of the clarification of causal relationships affecting the past and present conditions on the island
- Use of a framework based on the principles of sustainable development for the identification of indicators on the basis of which a number of **issues** were identified and documented.

IV. FINDINGS

A. Characteristics of the Current Economy

POINT: The strength of an economy is measured in terms of the number and size of its export sectors.

ISSUE 1: Santorini has an economy with only one dominant export sector -- tourism.

Current direct employment in tourism related activities is estimated at 1,400 during the summer months plus 1,800 in related activities for a total of 3,200 out of a total employment of 5,200. In terms of business, out of more than 4,000 businesses on the island 83%, or approximately 3,300 businesses, are tourism related. Given the fact that both demand for, and supply of tourism services are greatly influenced by external events, tourism is considered an extremely volatile sector, exclusive dependence on which may have serious repercussions for an otherwise weak economy.

ISSUE 2: The present single-sector economy is in contrast to the diversity of Santorini's past traditional economy.

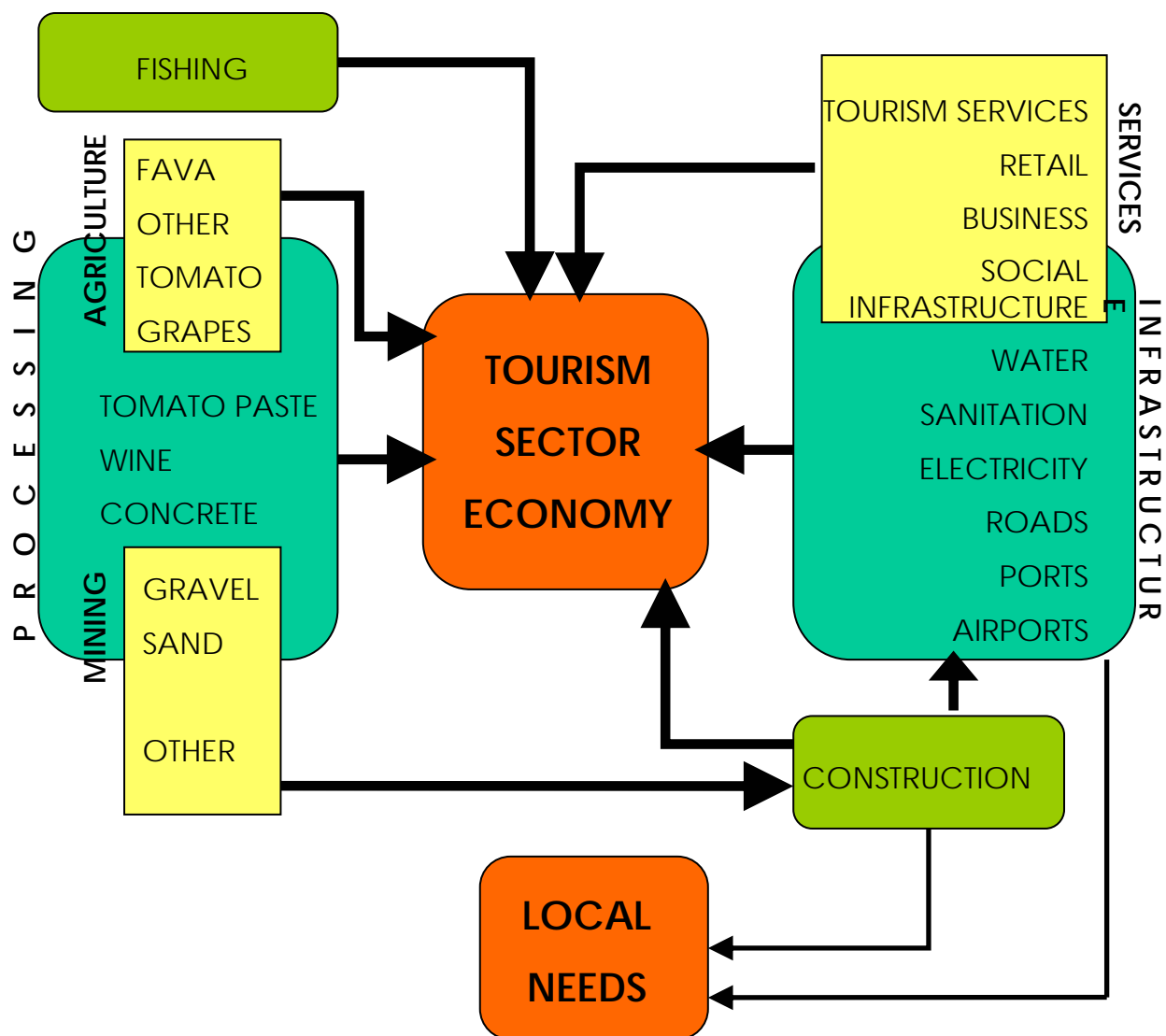


Figure 1 – Connections between tourism and other industry sectors in Santorini.



Figure 2 – Change in Santorini vineyards, pre-1900 to current. (Steele, 2004)

Even though in past centuries the economy of the island was dominated by the production of wine, for most of its economic history the island has relied on multiple economic sectors for its survival, including tomato and fava, cotton and the processing of textiles, extraction of minerals, and shipping.

ISSUE 3: The single sector of tourism determines the economic and social activities on the island (Figure 2).

Most of the production of tomato, fava, vegetables, dairy, fish, wine, and quarry products are used, directly or indirectly, for the support and growth of the tourism sector. Primary sector products are not even enough to fulfill the demand generated by visitors, so much more products are imported, while construction is dominated by the demand for tourism facilities.

ISSUE 4: Simultaneously, other economic sectors are not given incentives to export and play a more basic economic role. In agriculture, farmers are given little incentive to continue cultivating their land.

While the island's agricultural land has been assessed very high by the national government, very few financial incentives exist to encourage farmers to continue cultivating their farmland. Traditional agricultural products have not yet been designated POP, so financial subsidies have not yet been extended to the farmers by EU. Farming as a fulltime profession is declining at a steady rate, as most people involved in agriculture do so for supplemental income only.

ISSUE 5: But even if support is made available, the level of agricultural production is insufficient to generate larger scale exports of agricultural products outside the island.

At present, local production of fruits, vegetables, dairy products, and wine do not suffice for the needs of local residents and visitors. Such items are imported from Crete and the mainland and are often intermixed with the local products, causing product integrity problems. But the capacity of the island for agricultural products is limited. Even if the entire tillable land of 77,000 stremmas were to be devoted to any of the traditional island cultivations, it would not produce enough output to entirely satisfy demand and generate additional processing and exports.

MESSAGE: *It is not possible for other economic sectors to play a significant role in the islands' economy.*

B. State of Tourism Economy

POINT: The continuing strength of tourism is measured in terms of improved quality of service and positive growth in revenues.

ISSUE 6: While the supply of tourism superstructure facilities is sizeable, it does not meet the changing patterns of tourism demand today.

The island has approximately 33,000 hotel and rental room beds, including more than 10,000 non-authorized beds, and has been experiencing a steady decline in their occupancy rates (estimated for rental rooms at the 2004 peak season at 12%, as compared to the expected 80-90%). Despite such trends, construction of new hotels and especially rental rooms continues. At the same time, traditional forms of tourism visits to Santorini are being altered, with cruise boat visits this year expected to rise by 35% to approximately 750,000 visitors, while charter flights, normal flights and boat arrivals have experienced an annual decline of approximately 20% since 2001.

ISSUE 7: Santorini stakes much of its tourism sector on the allure of the caldera, not on other attractions or quality services, marketing, or reasonable prices (Photo 3).

Even though tourism dominates the economy of the island, it is not sufficiently diversified, as the majority of its visitors come lured by the impressive landscape of the caldera. Few other types of tourism have developed to date (sports, culture, conventions, weddings and honeymoons, e.g.) and these in small numbers. At the same time, the quality of tourism services continues to decline, organized marketing is all but non-existent, while the cost of all services, both real and perceived, continues to climb.

ISSUE 8: The natural and cultural heritage of the island, including landscapes, buildings, settlements, museums, and archeological sites, lack appropriate preservation, management, and maintenance programs.

Many historical structures are declining beyond repair, but there are no programs for this preservation and restoration of traditional buildings, complexes or settlements. Even designated assets are not protected, and there are no incentives for individuals or communities to undertake such preservation efforts.

ISSUE 9: Accessibility to cultural resources is uneven. Some sites are difficult to reach due to difficult terrain, incomplete transit connections, poor signage, or poor pedestrian access.



Photo 4 – Fira: The majority of the buildings facing the caldera are hotels or rental rooms. These are the most desirable accommodations on the island. (Meyer, 2004)

ISSUE 10: The visual appearance of the island, especially its first impressions as experienced at the entry points (the airport and the port) does not reflect a high quality destination.



Photo 5 – Abandoned cars on the road from the airport. (Huber, 2004)

The visual character of the island as can be seen from the road network to not protected or enhanced. The roads connecting the port and the airport are the major tourism accommodation. areas are lined with construction material sites, junkyards, and other unsightly uses. There is a lack of street landscaping, or any other efforts to enhance the visual image of the entrance corridors for visitors (Map 1, Photo 4).

ISSUE 11: The cruise tourism industry has placed excessive demands on the existing infrastructure of the island while it provides limited returns to the existing tourism system.

The old port of Fira, which is currently used for cruise ships to dock, is unable to accommodate the growing trend of large cruise ships. Cruise ships bring to the island between 3,000 and 7,000 visitors per day during the high tourist season, in ships with capacities from a few hundred to 4,000. These visitors spend just a few hours in Santorini, but during that time they require large fleets of buses to reach their destinations, and overload the teleferic system of Fira on the way back to the boats.

ISSUE 12: Poor coastal management and indiscriminant infringement in beach areas lowers the quality and appeal of the beaches (Photo 5).

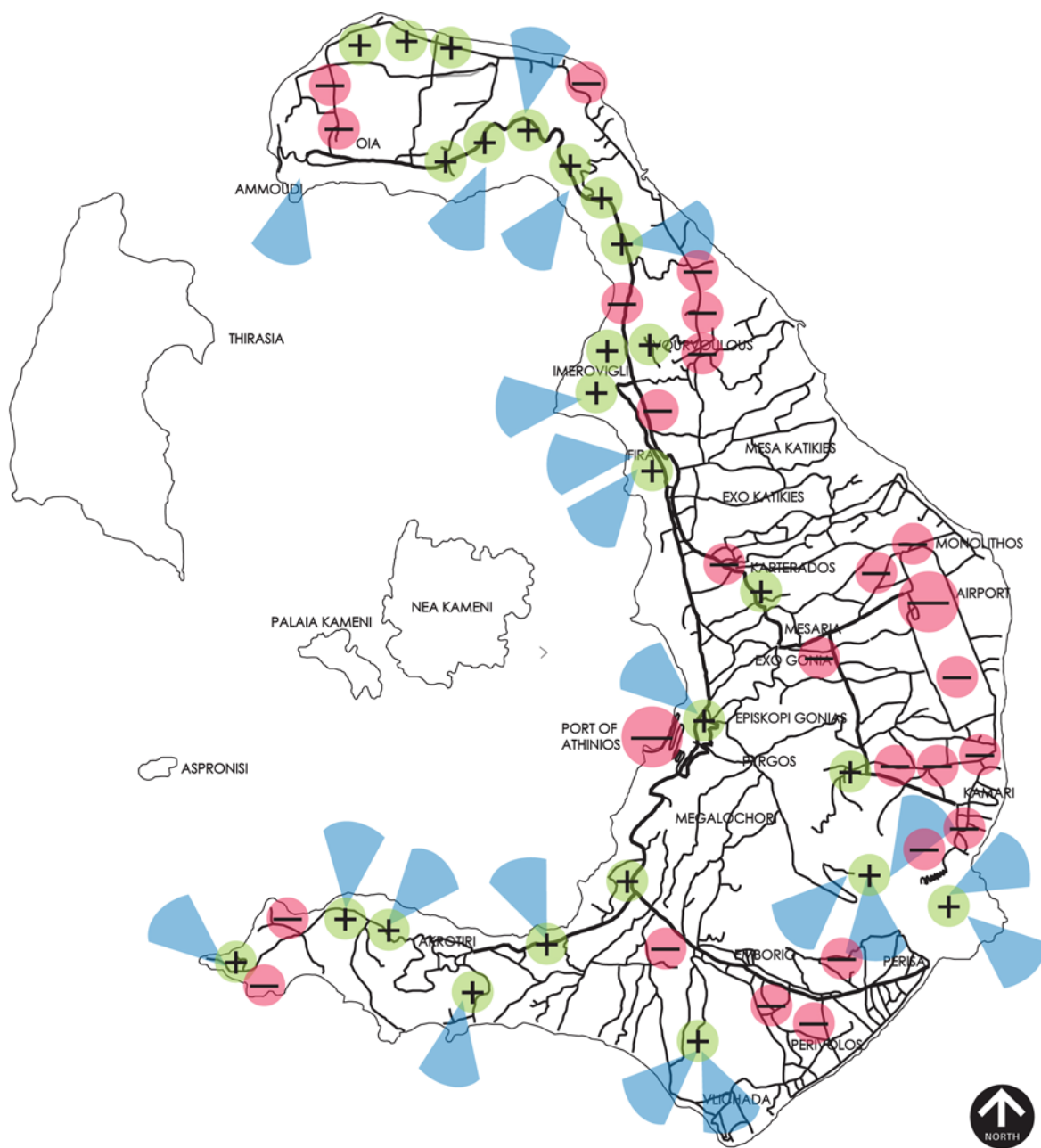
Because of the island's exposure to both northern and southern winds and the relative lack of sheltered coasts along the south, east, and northern coasts, the majority of the beaches in Santorini are prone to damage from severe weather conditions. Major winter storms often deplete large strips of coast of their sand, and that creates the need for sand beach restoration in order to satisfy visitor and resident demand. One additional threat to the beaches of the island comes from random and unplanned interventions in the form of breakwaters and other small port facilities, which alter coastal currents and tend to cause large scale displacement of sand.



Photo 6 – Kamari Beach with eroded sand leaving rocks. (Lopez-Stickney, 2004)

ISSUE 13: The lack of viable marinas on Santorini limits the arrival of private pleasure craft and yachts, and prevents the expansion of alternative, high-end tourism.

ISSUE 14: Lack of trained personnel results in low quality tourism service. There are no opportunities on the island for tourism-related training.



MAP 1
VISUAL EXPERIENCES

Regional Planning of the Islands
of Thira and Thirasia.
Phase A: Analysis



AREAS OF AESTHETICALLY
NEGATIVE ELEMENTS

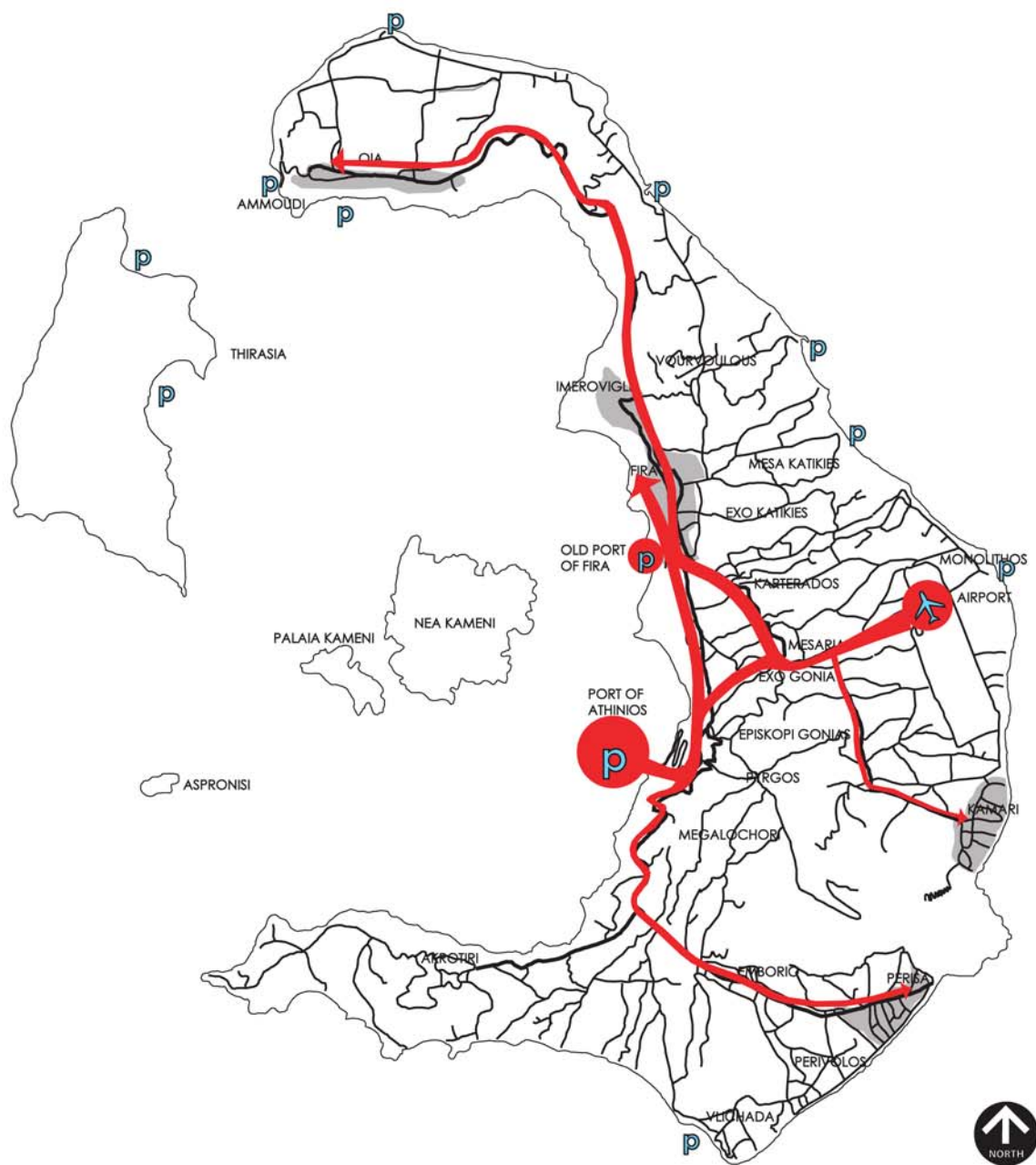


AREAS OF AESTHETICALLY PLEASING
OR ATTRACTIVE ELEMENTS



UNIQUE VIEW SHEDS

0 2500 M



MAP 2
**CONNECTIVITY FROM
ISLAND ENTRY POINTS**

Regional Planning of the Islands
of Thira and Thirasia.
Phase A: Analysis



PRIMARY CONNECTION
FROM ENTRANCE POINTS
TO PRIMARY VILLAGES.



ENTRY POINT. SIZE
CORRESPONDS TO
NUMBER OF PEOPLE
ENTERING.



PORTS



AIRPORT

0 2500 M

MESSAGE: *Even though tourism is the dominant economic sector in Santorini, it shows no quality of service improvements and, in terms of revenues, is on the decline.*

C. Stresses on the State of Spatial Organization and its Support Systems

POINT: *But, successful development depends not only on the health of its economic sectors, but also on how life is organized spatially, i.e. settlements, economic activities, networks, and other human endeavors.*

a. Infrastructure Support Systems

ISSUE 15: The Port of Athinios is inadequate and even unsafe for the load of activity it is expected to accommodate.

The road to the port as well as both its entry points are sub-standard and dangerous. The port itself has limited capacity and cannot accommodate more than two ferry boats at the same time. There is no place in the port for the discharge of bulk freight and no storage for the unloading of hazardous and dangerous loads such as compressed gases. Parking facilities in the port are very limited and other facilities such as fire protection, emergency entrance and signage are inadequate.

ISSUE 16: The lack of a freight port is preventing the importation of construction materials which would replace the materials currently mined from the quarries.

With such a port the quarry activities could be terminated. This would reduce dust, allow the rehabilitation of the landscape, and alleviate conflicts of land uses.

ISSUE 17: The road network design leads to congestion and safety issues in many areas.

Roads and bridges are too narrow for two-directional traffic. A number of intersections are poorly designed and present danger to motorists and pedestrians. Several roads lack adequate lighting and many curves are missing protective railing.

ISSUE 18: The island transportation system has poor signage, both regulatory and way-finding, making it both unsafe and difficult to find destinations.

ISSUE 19: Parking lacks organization and is poorly managed. In addition, several communities have a deficient amount of parking and no system of pricing and management exists.



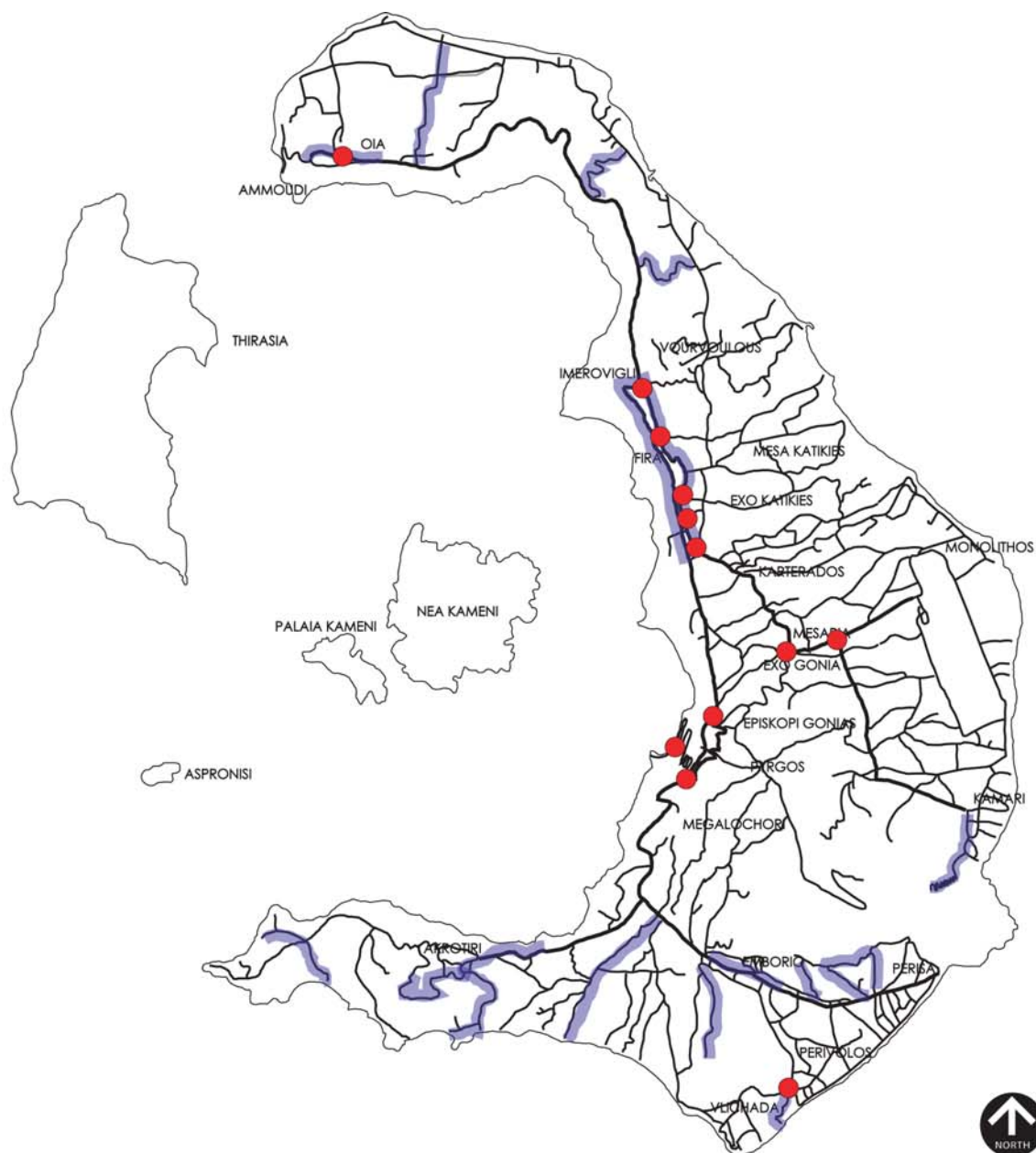
Photo 7 – Athnios Port: Entry point to the island. (Huber, 2004)



Photo 8 – Parking in the public square in Megalohori. (Meyer, 2004)





Photo 9 – Congested and haphazard parking. (Huber, 2004)



MAP 3
ROAD ISSUES

Regional Planning of the Islands
of Thira and Thirasia.
Phase A: Analysis

 NARROW ROADS
 DANGEROUS POINTS AND NODES

0 25000 M

Private businesses do not provide their own parking. Streets are systematically used for parking with cars even taking over sidewalks. Public parking in communities and other destinations is inadequate in general. Even where parking is available it is not designed to accommodate the maximum number of vehicles. No fees are imposed by the municipality, and no enforcement of parking violations exists.

ISSUE 20: There is no pedestrian-safe network of movement within the municipality's settlements outside of the pedestrian-only areas.

Within communities pedestrian movement is impaired by a lack of sidewalks and an excess of parked cars. Pedestrian trails have not been designated or developed so as to encourage walking. Along the main roads connecting major villages with Fira, there is a lack of facilities to accommodate pedestrians.

ISSUE 21: Public transportation does not function so as to provide optimal service to residents and visitors.

While schedules are published detailing the daily itineraries of busses, these schedules are not followed systematically. Occasionally the time tables are violated, routing is not followed (villages are skipped), and busses are overcrowded during the summer months.

ISSUE 22: All current sources of water in the Municipality of Thira do not meet EU water quality standards.

Sixty percent of the water demand of the municipality is covered by municipal wells while private water vendors cover the remaining 40 %. Both sources of water do not meet quality standards set by both EU (#98-83-EK) and Greek (Y2-2600-2001) laws.

ISSUE 23: 40% of the island's buildings do not receive public water service, and are forced to buy water at a higher price from illegal private water providers.

ISSUE 24: The existing sewerage network does not reach all settlements or the scattered development. The quality of this network is also uneven, with non-standardized pipes and connections, making it difficult to plan for maintenance and repair.

The main sewer network of the island is sound however not all communities are served by the network. Those communities that are connected to the main network lack a



Photo 10 – Fira: Parking along roadsides and on sidewalks force pedestrians to walk in the roadway. (Huber, 2004)



Photo 11 - Cistern. (Lopez-Stickney, 2004)



Photo 12 – Nuisance uses like marble cutting and storage disrupt the tourist character of the island. (Huber, 2004)



Photo 13 – Quarry near proposed Natura 2000 site. (Lopez-Stickney, 2004)

strategic plan to be internally connected. Approximately only 50% of the houses with municipal water have municipal sewage connections.

ISSUE 25: While inefficient and outdated technology is used to produce the island's energy, no effort had been made to introduce and exploit alternative, clean energy resources available on the island.

The present power plant has been in use since 1973 and uses non-renewable, imported, inefficient, and costly heavy fuel oil as its energy source. The per capita cost of energy is 10 times higher here than on the mainland. Although renewable resources exist on the island, (wind, solar, and geothermal) there have been no serious efforts to pursue alternative energy sources (besides the solar water tanks).

ISSUE 26: The quality of educational facilities are not sufficient to meet the expanding needs of the island.

Educational facilities in the island are considered obsolete and inadequate. Several classrooms are needed. Quality of education is unclear, but poor education is continually noted in most interviews as a predominant issue.

ISSUE 27: The limited health care on the island makes it necessary to ensure reliable evacuation and emergency health care system under all weather conditions.

ISSUE 28: The absence of locational requirements for nuisance uses results in scattered locations of processing activities and interference with residential and tourism used.

While processing is not an extensive economic activity on the island, there are still numerous small industry and home based industry units scattered throughout the island's settlements (woodwork shops, blacksmiths, marble cutting, concrete mix, etc.) which are considered nuisance uses and interfere with the tourist character of the island. No dedicated location exists at the present for the location or relocation of such uses.

b. Management of Resources

ISSUE 29: Protection of significant and/or unique natural areas is either weak or non-existent. There is proposed Natura 2000 designation for two areas on the island, but this has not been approved by the Greek government. There is an issue of conflict with quarry operation in one of these areas (Photo 13).



MAP 4
AREAS OF ENVIRONMENTAL CONCERN

Regional Planning of the Islands of Thira and Thirasia.
Phase A: Analysis

- Areas of Concentrated Illegal Dumping
- Areas of Coastal Erosion
- Areas for Natura 2000 Protection
- Island Boundaries
- Structures Contributing to Erosion
- Settlements Boundaries

0 2500 M



Photo 13 – Rock formations on the coast near Akrotiri. (Meyer, 2004)



Photo 14 – Beach erosion and structure destruction at Vlichada. (Lopez-Stickney, 2004)

Several areas of unique beauty exist on the island. The caldera is designated within the zone 1 region of the municipality. Even with this designation, several areas of construction and dumping occur here. The rock formations that occur between Akrotiri and Exomitis are a unique landscape and are presently not protected and subject to development. Also, traditional agricultural lands such as the hillside terraces are unused and are under threat of erosion and destruction due to a lack of protective actions. Both the areas of the volcanoes and Profitis Ilias are proposed Natura 2000 sites. Management programs for each site have yet to be approved by the Greek government and thus protection is not guaranteed. In addition, the active quarries located near Profitis Ilias would appear to be in conflict with the provisions of Natura 2000.

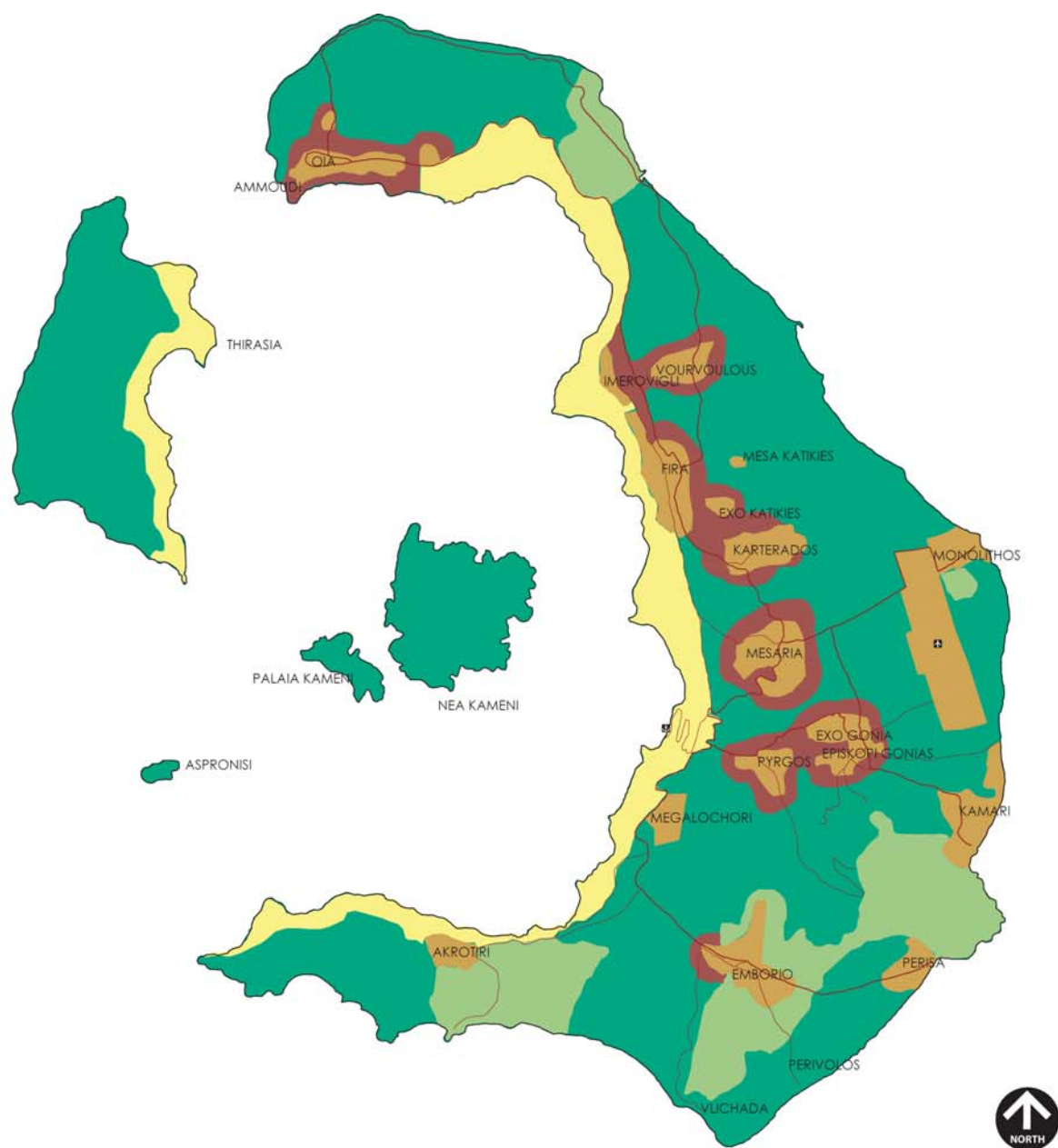
ISSUE 30: By not planning coastal areas as an integrated system, piecemeal interventions and developments are taking place along the coast and are generating environmental and other problems (Photo 10).

Even though a no development zone exists within 100 m of the winter tide zone, several structures including buildings and retaining walls are built within this zone. Retaining walls and unfinished port areas, like that close to Monolithos, have contributed to beaches whose width is much smaller than what has been reported in the past. In addition, coastal erosion has caused structures built too close to the coastline to fall into the sea as seen by several structures near Vlichada. Finally, there are several areas of the coast that systematically loose sand and beach due to both natural and human-caused reasons. There is no strategic plan for maintenance of beaches and re-nourishment of sand on a system-wide basis.

ISSUE 31: The current 3-zone system of land management is inadequate to control rampant and unauthorized construction.

Agricultural land, traditional settlements, natural areas, and sensitive coastal areas are not offered protection from development under the current law. As a result, all parts of the island except the caldera and existing settlements have scattered development. Hence, there is nothing to restrict the loss of agricultural land or the destruction of natural assets.

ISSUE 32: The process for the preparation and approval of urban expansion plans is complex, cumbersome, and very time consuming. As a result, the majority of expansion in fast-growth areas occurs before plans are approved and implemented.

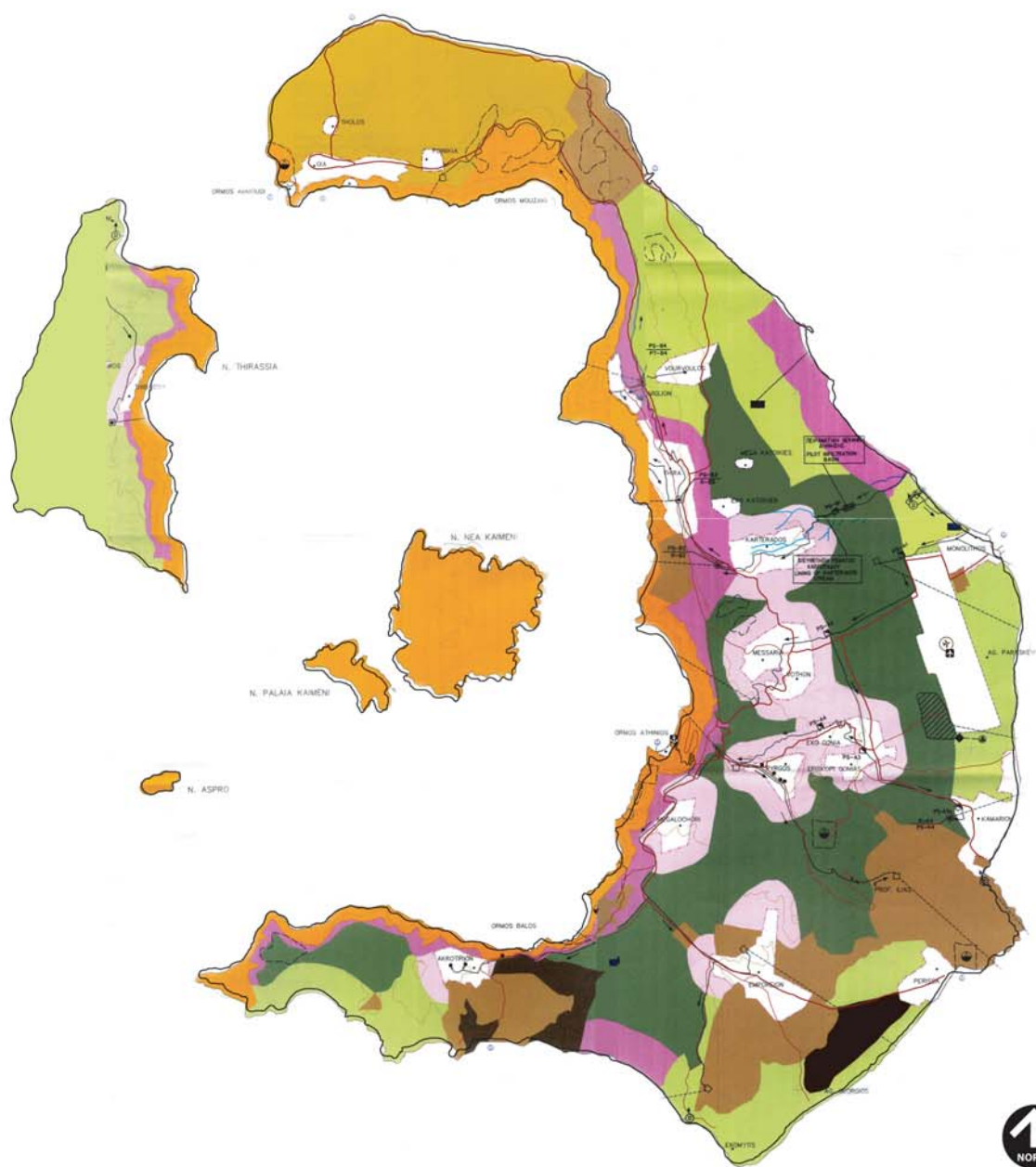


MAP 5
**ZONES OF LAND USE
MANAGEMENT**

Regional Planning of the Islands
of Thira and Thirasia.
Phase A: Analysis

- ZONE 1- CALDERA
- ZONE 2- 200 METER ZONE AROUND SETTLEMENTS
- ZONE 3
- ZONE 3- ARCHEOLOGICAL
- SETTLEMENTS

0 2500 M



MAP 16
ZONES OF LAND USE MANAGEMENT
PROPOSED BY PREVIOUS STUDIES

Regional Planning of the Islands
of Thira and Thirassia.
Phase A: Analysis

- ZONE A- PROTECTED AREAS/ARCHEOLOGICAL SITES
- AREA OF SPECIAL NATURAL BEAUTY
- HIGHLY PRODUCTIVE AGRICULTURAL LAND
- STRICTLY PROTECTED AREA OF HUMAN AND NATURAL ENVIRONMENT
- HIGHLY PRODUCTIVE AGRICULTURAL LAND AND NATURAL BEAUTY
- MODERATELY PROTECTED AREA OF HUMAN AND NATURAL ENVIRONMENT
- TOURISM DEVELOPMENT ZONE
- ZONE B- ARCHEOLOGICAL SITES
- AGRICULTURAL LAND

0 2500 M

The administrative responsibility for approval of expansion plans is scattered across many locations and levels of government (Fira, Syros, and Athens).

ISSUE 33: Enforcement of the building code is ineffective due to a limited review process, inadequate building inspections, and lack of repercussions. This has resulted in many non-conforming buildings.

Even though a detailed process is in place to oversee the permitting of new structures, there are only five people responsible for the inspections in the entire Eparchia. For this reason, many buildings are not thoroughly inspected or not inspected at all. Even with inspections, violations rarely result in repercussions. This leads to a proliferation of non-conforming buildings which pose negative impacts on the environmental and visual resources of the island. The intent of the building code to maintain a traditional image is greatly diluted.

ISSUE 34: There is no integrated water management approach. As a result this has lead to the omission of potential water sources, such as rain water, sea water, and gray water. These water sources that could alleviate some of the water quality and water delivery issues.

There are many missed opportunities to both protect the quality of current water sources and expand the water supply. Over pumping of ground water is causing the primary water quality issue, that of salt water intrusion. Water conservation is not mandated. Building codes do not require rain water collection or water consumption controls such as low-flow showers or half-flush toilets. The lack of stormwater management deprives the island of a source of water, while contributing to erosion and periodic flooding. The problems are exacerbated by the increase in impervious surfaces such as roads, buildings, and paved areas, which reduces water recharge areas and directs water more quickly to the sea. The majority of treated wastewater is directed to the sea and is not utilized as a potential water source for irrigation.

ISSUE 35: Current patterns of building activity are altering the integrity of historic settlement types.

Santorini is a rich example of a variety of environmentally and socially adapted settlement forms. The five patterns; the linear caldera, kastelli, valley, hillside and the newer coastal settlements, offer diversity and interesting examples of a rich history. Not only are the opportunities for new development

To Create a Plan

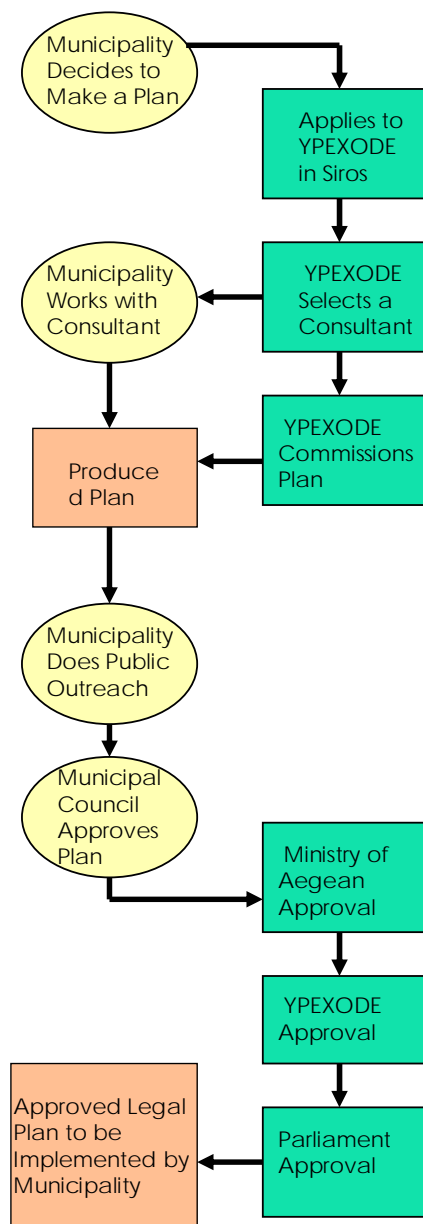
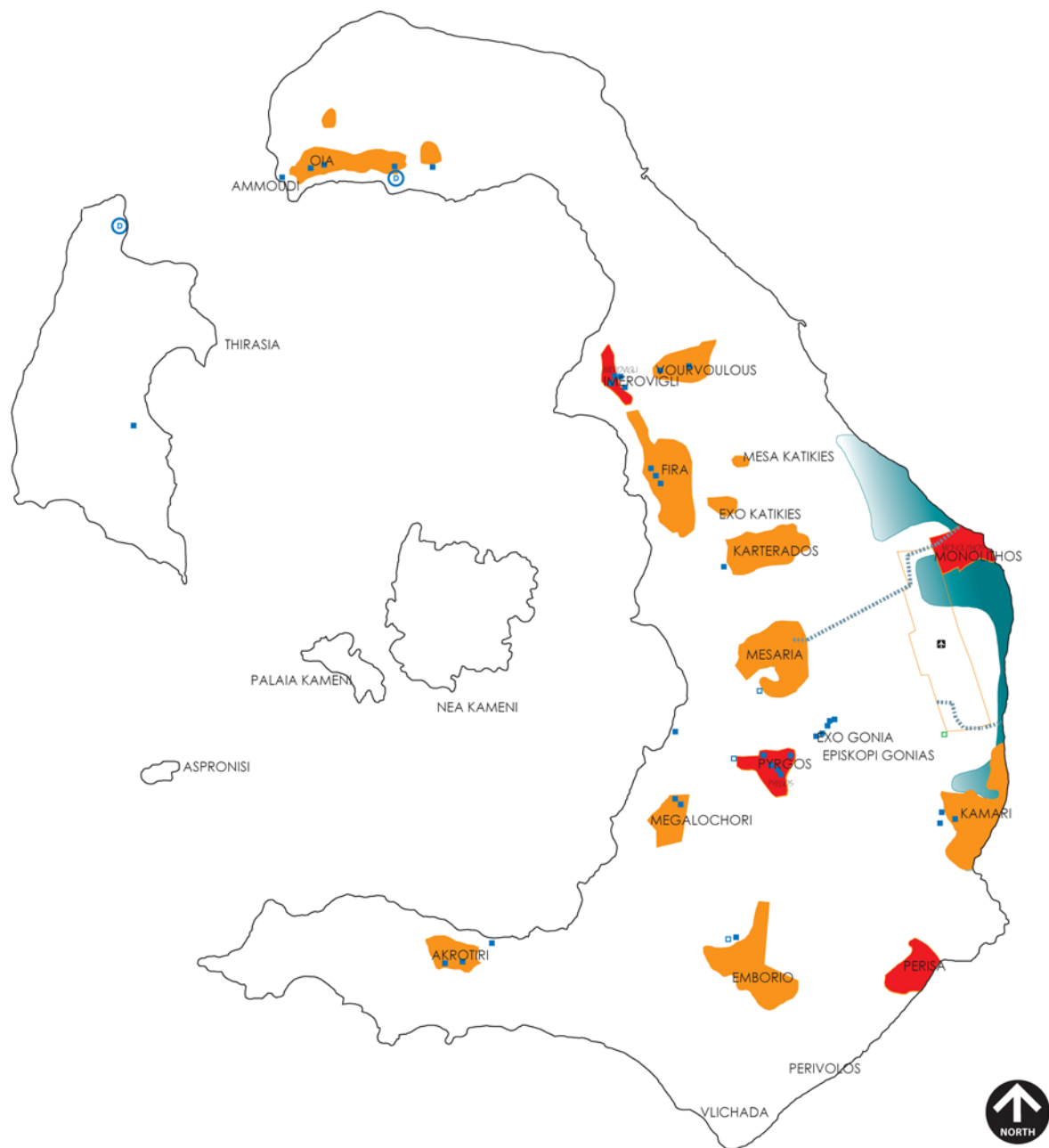


Figure 3 – Illustrates the process of creating a settlement plan. (Meyer, 2004)



MAP 7 WATER MANAGEMENT ISSUES

Regional Planning of the Islands
of Thira and Thirasia.
Phase A: Analysis

- EXISTING EXPLOITABLE WELLS
- EXISTING WATER STORAGE FACILITIES
- EXISTING DESALINIZATION FACILITIES
- ISLAND BOUNDARIES
- SETTLEMENTS CONNECTED TO THE WATER NETWORK
- SETTLEMENTS NOT CONNECTED TO THE WATER NETWORK
- SALTWATER INTRUSION BOUNDARY
- STORMWATER CULVERT

0 2500 M

helping to drive the abandonment of these settlements, but the unplanned expansion of these settlements is greatly changing the historical aspects of these settlements.

ISSUE 36: The lack of functional requirements in traditional settlement has led to residents moving to more suburban-type development on the fringe.

The form of these traditional settlements creates inconveniences such as limited or no vehicular access and smaller dwelling sizes. This limits the attractiveness of these areas for modern habitation. This is coupled with a lack of incentives or programs to assist the redevelopment of these traditional settlements resulting in further decline of these cultural assets.

ISSUE 37: The current development practices promote blight and sprawl conditions. Concordantly, this diminishes the sensitive landscape character and puts stress on the public infrastructure and services capacity (Photo 13).

Many people rush to start development in the face of new regulations even if there is no money to finish the structure. The result is a landscape dotted with numerous unfinished structures. These shells of buildings are an eyesore and spoil the visual landscape. Due to inflationary trends and inadequate lending programs, funding for many of these buildings may never materialize. This results in buildings sitting for years and many of them never being completed. Scattered development also creates inefficient service and infrastructure patterns, many occurring without a plan to accommodate new construction. The sprawling pattern of development is counter to the traditional clustered patterns of development on the island, drastically changing the landscape as well as inducing more automobile trips.



Photo 15 – Unfinished building shell.
(Meyer, 2004)

ISSUE 38: High valuation and tax liability of all island land creates development pressure which threatens farmland preservation and promotes the construction of new tourism venues.

High land values and property taxes create development pressures which threaten farmland on the island. Because of these high land values, land uses that are less profitable, like agriculture, are abandoned in favor of higher profit developments, mostly related to tourism. All land on the island is designated as developable as urban land, except for archaeological sites, and the land values reflect this. Furthermore, the method for determining the value of land, (antikimenikes axes), is based on zones and not actual sale price or market value. Within these zones, each property is

Chronological Comparison of Growth Patterns Around Emporio



Photo 16 – Emporio circa 1895. (Hiller von Gaertringen, 1895)



Photo 17 – Emporio present day showing modern growth and surrounding scattered development. (Russell, 2004)



EXISTING DEVELOPMENT PATTERN OF EMPORIO-PERISSA



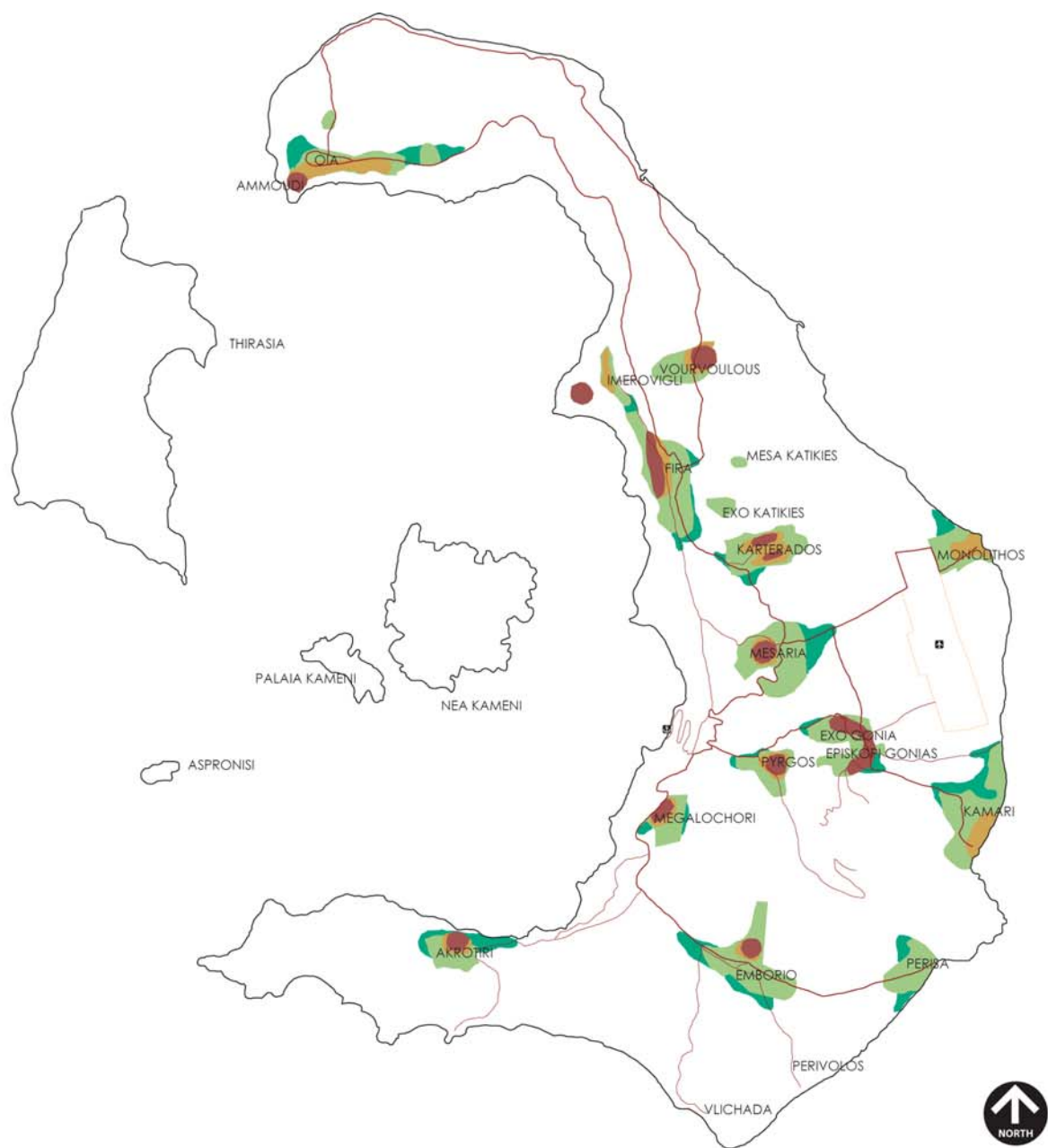
POSSIBLE FUTURE DEVELOPMENT EMPORIO-PERISSA



MAP 8
**GROWTH SCENARIO FOR
EMPORIO-PERISSA**

Regional Planning of the Islands
of Thira and Thirasia.
Phase A: Analysis

- EXISTING SETTLEMENT PATTERN
- POSSIBLE FUTURE DEVELOPMENT
- PARCEL SIZE:
- 2 STREMA ALONG ARTERIAL ROADS
- 4 STREMA ALONG SECONDARY ROADS
- 6 STREMA ALL OTHER AREAS
- 10% BUILDING LOT COVERAGE



MAP 9
**SETTLEMENT GROWTH
OVER THE ISLAND**

Regional Planning of the Islands
of Thira and Thirasia.
Phase A: Analysis

- PRIOR TO 1956 EARTHQUAKE
- AFTER 1956 EARTHQUAKE
- AFTER 1970- INTRODUCTION OF TOURISM
- DEVELOPMENT TODAY

0 2500 M



Figure 4 – Tourism impacts on Santorini.

assessed at the average value of land found in that zone. In tourist areas, assessed land values used for tax purposes are usually significantly higher than the actual value of the land. For this reason, landowners felt pressured to put their land to the most profitable use possible, contributing to scattered development across the landscape.

MESSAGE: Both infrastructure and management systems are being overloaded by tourism demands and tourism is not providing adequate financial resources to remedy this. Hence quality of life for the residents and quality of service for the visitors is compromised.

V. BOTTOM LINE:

1. Most aspects of the physical and institutional systems on Santorini are reaching or even exceeding capacity. Thus, current trends/patterns of utilization and growth cannot continue.
2. Most dimensions of the systems cannot be measured. Reliable data either does not exist or is not available. Most claims are based on speculation. This is not a reasonable way to make decisions about a complex system.
3. The current institutional system does not allow a logical progression of problem identification, studies, proposals, and implementation. There is a way to overcome this.
4. Sustainable Regional Development needs to understand and take into account the entire system and the repercussions of small actions and decisions. Piecemeal solutions will only add to the problems unless they are designed and implemented with respect to a framework of how the entire system works.

VI. POSSIBLE NEXT STEPS

Cultural/Heritage Corridor System

Alternative Tourism Development Scenarios

Coastal Area Planning and Management

Land Management Plan

Airport/Port/Industrial Area Plan for Monolithos

Growth Plan for Fira

Ground Transportation and Parking Plan



(Meyer, 2004)

REFERENCES

Reports & Laws

- Department of Studies and Investments, Greek Tourism Organization. 2003. *The evolution of tourism trends report –2002-2003; and International Trends of Greek Tourism Towards 2004.*
- Department of the South Aegean. 2004. *Official Hotel Accommodations.*
- Department of the South Aegean. 2004. *Secondary Rooms of Accommodation.*
- Ekthesi, Apologistiki. 2001. *Coordinated action for the environment of Thira and Thirassia: 2nd Annual Progress Report.* March 2001.
- EPN-SA. 2002. *Second Annual Progress Report: Coordinated Actions in the Environmental Field of the Islands of Thira and Thirassia.*
- EPN-SA. 2003. Chapter 4. *First Study for Environmental Impacts of the Sanitary Landfill in Islands of Thira and Thirassia.*
- Greek Tourism Organization. 2002. *The Study of Tourism Development for the Region of the South Aegean.*
- *Indicators for the Sustainable Management of Tourism: Report of the International Working Group on Indicators of Sustainable Tourism to the Environment Committee World Tourism Organization.* 1993. Winnipeg, Manitoba, Canada.
- Law 2508-1997-A124 Sustainable Development of Cities and Communities
- Law 2742-1999 Land Use Planning Study.
- *Local Development Program of Islands of Thira and Thirassia: Second Phase.* 2001.
- Municipality of Fira. 1991. *Regional Development Plan.* Santorini.
- NAMA Consulting Engineers and Planners S.A., VLAR, and SPEED. 1998. Volume 1: Summary Report. *Coordinated actions within the field of the environment on the islands of Santorini and Thirassia in Greece.* European Commission Cohesion Fund.
- NAMA Consulting Engineers and Planners S.A., VLAR, and SPEED. 1998. Volume 2: Baseline Data and Design Parameters. *Coordinated actions within the field of the environment on the islands of Santorini and Thirassia in Greece.* European Commission Cohesion Fund.
- NAMA Consulting Engineers and Planners S.A., VLAR, and SPEED. 1998. Volume 3: Solid Wastes. *Coordinated actions within the field of the environment on the islands of Santorini and Thirassia in Greece.* European Commission Cohesion Fund.
- NAMA Consulting Engineers and Planners S.A., VLAR, and SPEED. 1998. Volume 4: Water Resources. *Coordinated actions within the field of the environment on the islands of Santorini and Thirassia in Greece.* European Commission Cohesion Fund.
- NAMA Consulting Engineers and Planners S.A., VLAR, and SPEED. 1998. Volume 5: Liquid Wastes and Sludges. *Coordinated actions within the field of the environment on the islands of Santorini and Thirassia in Greece.* European Commission Cohesion Fund.
- NAMA Consulting Engineers and Planners S.A., VLAR, and SPEED. 1998. Volume : Legal Framework – Financing and Management of Projects. *Coordinated actions within the field of the environment on the islands of Santorini and Thirassia in Greece.* European Commission Cohesion Fund.
- *Preliminary Study of the Environmental Impacts of the Sanitary Landfill.* October 2003.
- *Presidential Decree for the Regional Development Study of Thira; Draft Interim Report.* June 2003.
- *Progress Report I, Coordinated Actions in the Sector of the Environment for Thira and Thirassia.* March 2002.
- Public Electricity Company (ΔΕΗ), Directorate of the Island Region. 2004. *Annual Report of Independent Production Plants.*
- *Region of the South Aegean Master Marketing Plan for the Tourist Promotion of the South Aegean Region 2003-2006.*
- *Second Annual Progress Report.* May 2002.
- Sperling, J.W. 1973. *Thira and Thirassia.* Athens: Center of Statistics.

Texts and Articles

- Adam, Ekdoseis, 2001. *Santorini Plan de L'île Thera ou Santorini.* Athena.
- Bosselman, Fred P., Craig A. Peterson, and Claire McCarthy. 1999. *Managing Tourism Growth: Issues and Applications.* Washington, D.C.: Island Press.
- Daliani, Nancy, 2004. *Santorini: the island of contrasts.* Athens: Institute for Language and Speech Processing and Libris-Tech.
- Danezis, Ioannis. 2001. *Santorini: Thira, Thirasia, Aspronisi, Ifestia.* Athens: Adam publications/Pergamos Ekdotikiabee.
- Dubin, Marc. 2003. *Eyewitness Travel Guides: The Greek Islands.* New York: Dorling Kindersley Publishing.
- Dubin, Marc, Mark Ellingham, John Fisher, and Natania Jansz. 2002. *The Rough Guide to Greece.* London: Rough Guides Ltd.

- European Commission. *Managing Natura 2000 Sites: The Provision of Article 6 of 'Habitats' Directive 92/43/EEC*. Belgium: European Communities.
- Hellenic Society for the Protection of Nature. 2004. *The Blue Flag*. Athens; Vidalis Aris.
- Kourakou-Dragona, Stravroula et. al. 1995. *The santorini of Santorini*. Athens: The Boutari Foundation.
- Monioudi-Gavala, Dora. 1997. *Santorini: Society and Shelter 15th-20th Century*. Athens: Lukas and Evangelos Bellonias' Foundation.
- Sini, Maria & Michalis Theodoropoulos. *Environment and Development in the Greek islands: The Complex of the Cyclades islands – Environment, Development Pressures, Sustainable Opportunities*. Mediterranean SOS Network.
- Theobald, William F., Ed. 1998. *Global Tourism*. 2nd Ed. Oxford, Butterworth Heinemann.
- Tsartas, Paris. 2003. Tourism Development in Greek Insular and Coastal Areas: Sociocultural Changes and Crucial Policy Issues. *Journal of Sustainable Tourism* 11: 2 & 3.
- Willet, David and et. al. 2004. *Lonely Planet: Greece*. 6th Ed. Malaysia: Lonely Planet Publishing.

Interviews

Municipality of Fira Officials, 17 & 25 June 2004

- Angelos Argyros, Urban Planner, Nomarchia Cycladon
- Stella Dagovanou, Architect, Municipality of Fira
- Kostas Davarinos, Engineer, Municipality of Fira
- Tasos Sahpatzidis, Municipality of Fira
- Chrysa Vrantza, Surveyor, Municipality of Fira

Union of Agricultural Cooperatives, (Santo), 21 June 2004

- Makarios Skopelitis, President, Agricultural Cooperative
- Mathaios Demopoulos, Director, Agricultural Cooperative
- Giorgos Skopelitis, Agriculturalist
- Markos Kafourous, Agriculturalist
- Christos Kanellakopoulos, Wine Specialist
- Nikolaos Varvarigos, Wine Specialist

Restaurant Owners' Association, 28 June 2004

- Giorgos Hatzigianakis, President
- Angelos Kourouklis, Treasurer
- Michalis Troulakis, President

Hotel Owners' Association, 29 June 2004

- Evangelos Fytros, President
- Christos Mendrinou
- Valia Papalexi
- Manolis Karamolegos

Merchants' Association, 1 July 2004

- Nikos Nomikos, President
- Lefteris Ikononou
- Akis Sigalas
- Stavros Roussos, Vice President of Municipal Council

Atlantis Tourist Accommodations Hotels and Rooms Association, 1 July 2004

- Costas Pagonis, President
- Stavros Kavallaris, Member
- Leftheris Anapliotis, Member

Koinotitas of Oia, 26 June 2004

- Georgios Chalaris, President
- Nectarios Chalaris, Secretary

Taxi Association, 6 July 2004

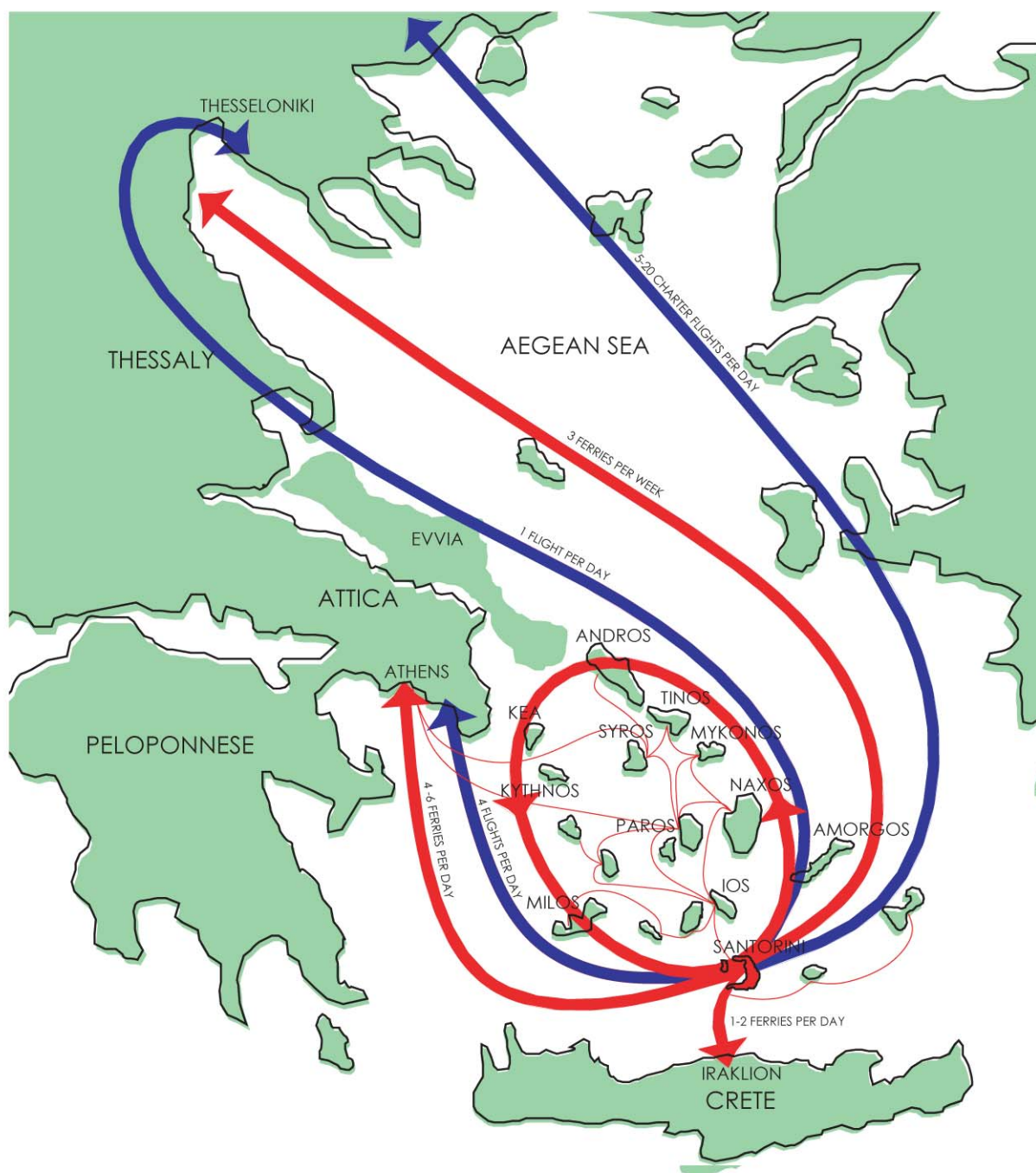
- Giorgos Pelecanos, President

KTEL Cooperative of Public Bus Owners, 6 July 2004

- Manolis Sigalas, President
- Efthymios Nomikos, Member
- Manolis Lignos, Member

Individual Interviews

- Antonios Argyros, President, Exo Gonies
- Panagiotis Bletsis, NTO, 24 June 2004
- Theodoros Chaidakis, Managing Director, ΔΕΥΑΚΘ, Municipal Company for Water Sewage-Waste Management of Thira, 22 July 2004
- Nikos Damigos, Owner, Damigos Tours, 29 June 2004
- Prof. Christos Doumas, Director, Excavations of Akrotiri, 15 June, 2004
- Petros Ekonomou, Farmer, 31 July 2004
- Nikos Findikakis, Architect, 14 June 2004
- Giannis Gavalas, Representative, Industry, Manufacturing, and Quarries/Mines, 21 July 2004
- Giannis G. Gratsias, President, Port Authority of Thira, 31 July, 2004
- Lefteris Gyzis, Economist, 28 June 2004
- Evelyn Hatzigianakis, Owner, Selene's Restaurant, 1 July 2004
- Michalis Karamoulegkos, President, ΔΕΥΑΚΘ & President, Kamari, 21 July 2004
- Fotini Meleti, Employment Section, Eparcheio Thiras, 23 July, 2004
- Pothitos Mitropias, Councilmember, Municipality of Thira
- Elias Nellas, Farmer, 31 July 2004
- Loukas Pelecanos, Owner, Pelican Hotel and Tourism Agency, 29 June 2004
- Manolis Pitsikalis, Representative, Desalination Plant, Oia, 26 June 2004
- Lambros Poulis, President, Akrotiri
- Angelos Roussos, Mayor, Municipality of Fira
- Chrisanthos Roussos, Eparchos of Thira
- Asteris F. Sardelis, M.Sc (ENG), Public Power Corporation, Thira Power Plant, 21 July 2004
- Andonis Sigalas, Vice Mayor, Demarchia
- Manolis Sigalas, Farmer, 31 July, 2004
- Nikos Skevofylax, Chief, Santorini Coast Guard, Limenico Port Police, 21 July 2004
- Prof. Thanos N. Stasinopoulos, Professor of Architecture, National Technical University of Athens, 14 June 2004
- Anastasia Venetsanou, President, Development Corporation of Oia, 22 July 2004
- Makis Vlachos, Realtor, 22 June 2004
- Nikos Zorzos, Councilmember, Municipality of Thira



MAP 1:
REGIONAL CONNECTIVITY

Regional Planning of the Islands
of Thira and Thirasia.
Phase A: Analysis

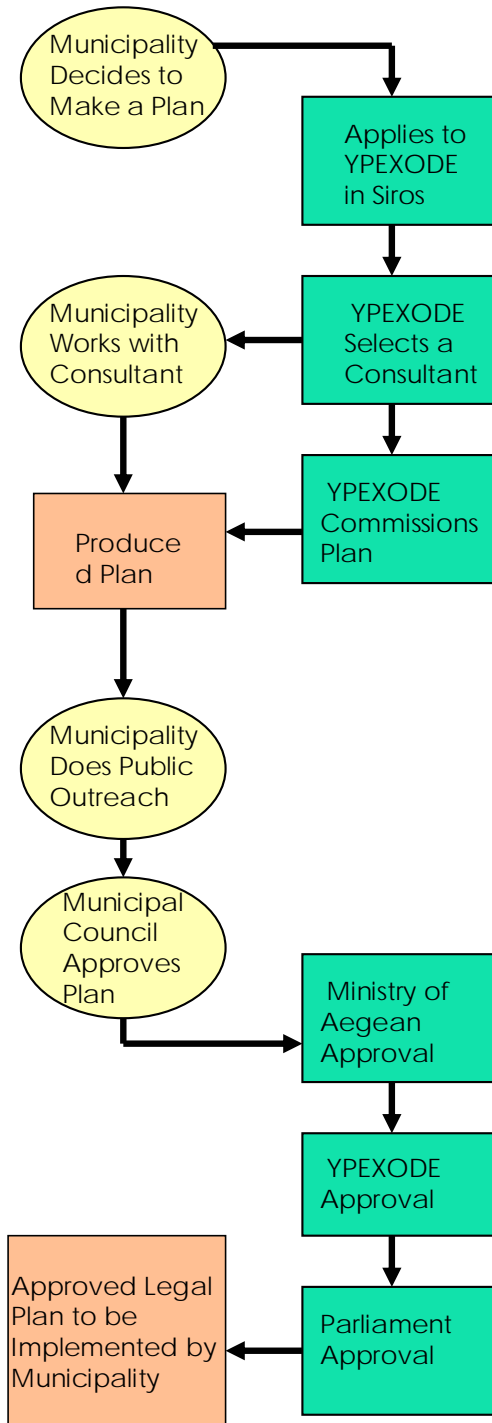
— FERRY ROUTES
CONNECTION SANTORINI
WITH THE CYCLADES.

→ PRIMARY CONNECTION
BY WATER.

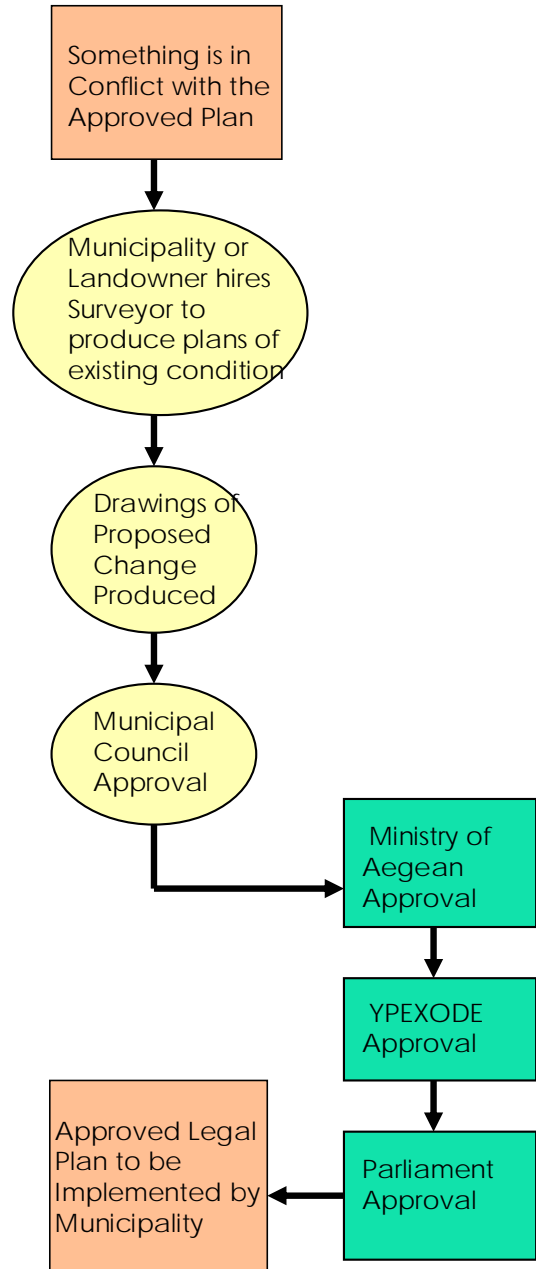
→ PRIMARY CONNECTION
BY AIR.

SCALE 1:25000 M 0 25000 M

To Create a Plan



To Alter a Plan



SANTORINI

sustainable development



MAP X:
**1972 SANTORINI
VINEYARDS**

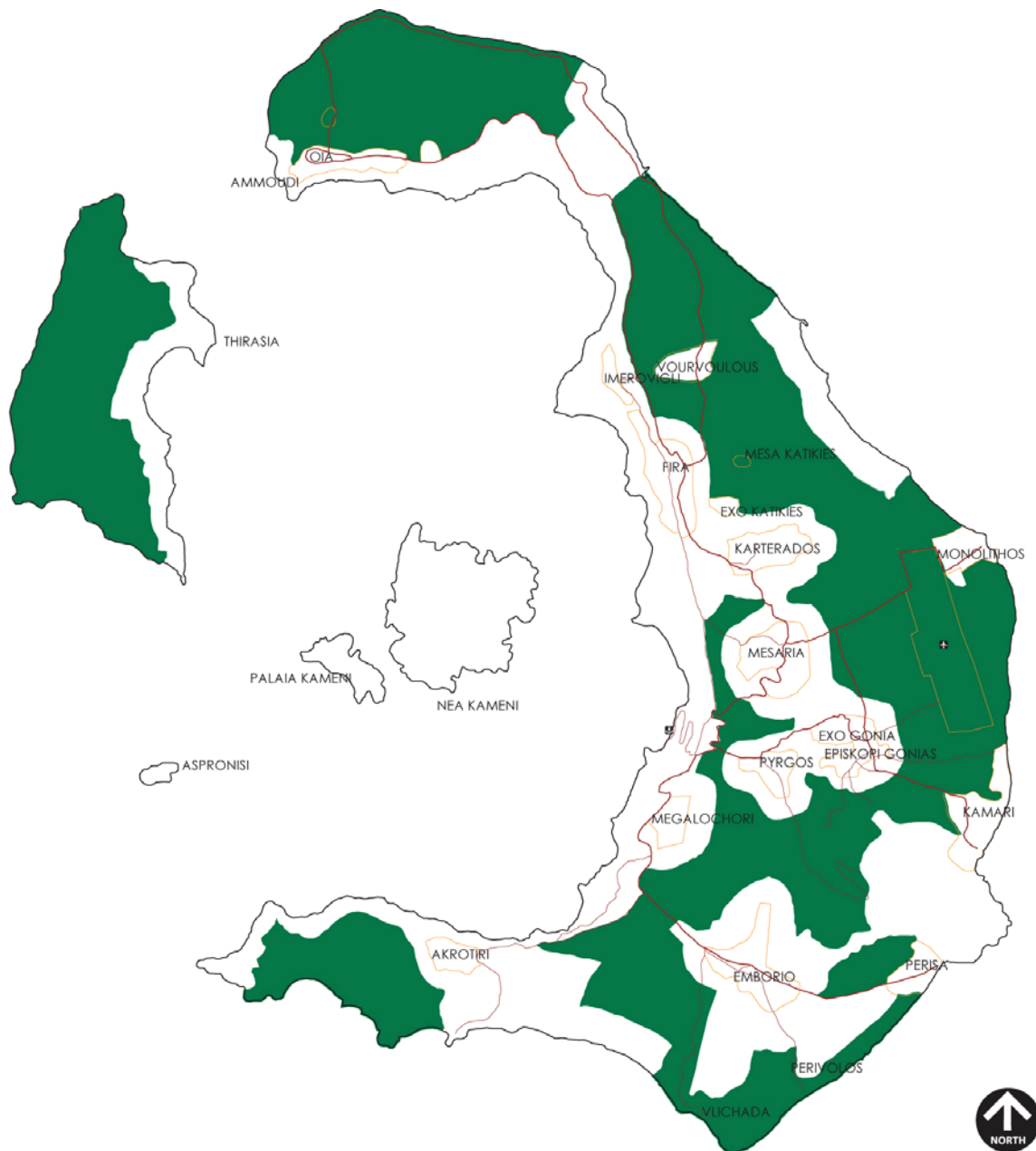
Regional Planning of the Islands
of Thira and Thirasia.
Phase A: Analysis

● APPROXIMATE VINEYARD LOCATION

SCALE 1:25000 M 0 25000 M

SANTORINI

sustainable development



MAP X:
**PRE-1900 SANTORINI
VINEYARDS**

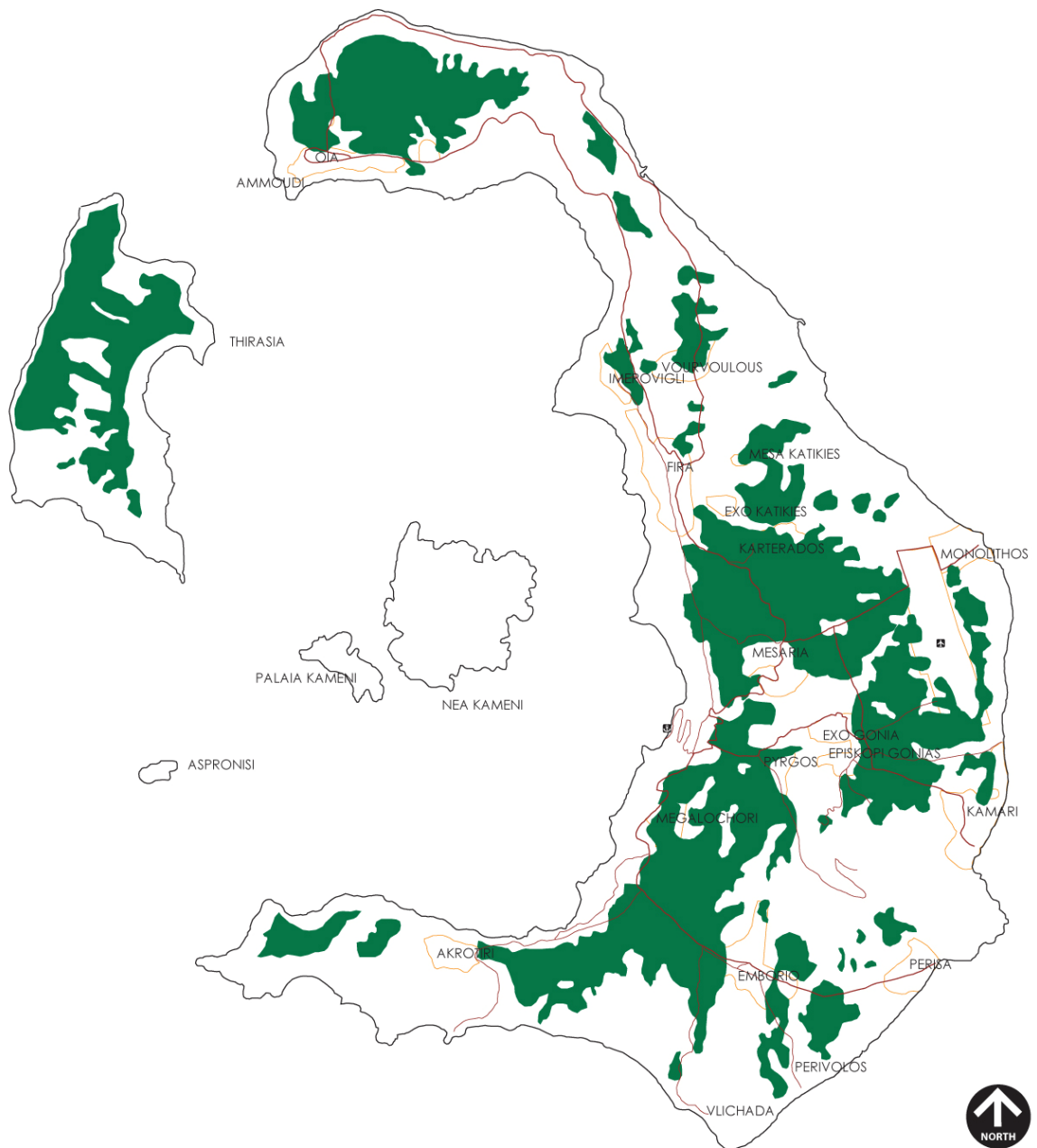
Regional Planning of the Islands
of Thira and Thirasia.
Phase A: Analysis

● APPROXIMATE VINEYARD LOCATION

SCALE 1:25000 M 0 25000 M

SANTORINI

sustainable development



MAP X:
**CURRENT SANTORINI
VINEYARDS**

Regional Planning of the Islands
of Thira and Thirasia.
Phase A: Analysis

 APPROXIMATE VINEYARD LOCATION

SCALE 1:25000 M  0 25000 M