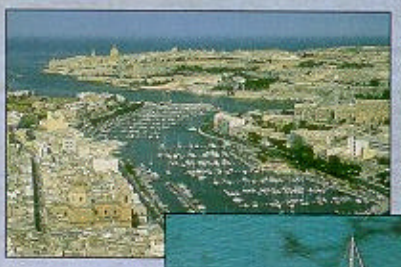
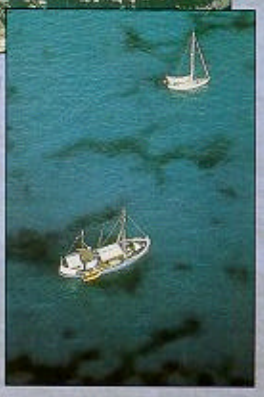
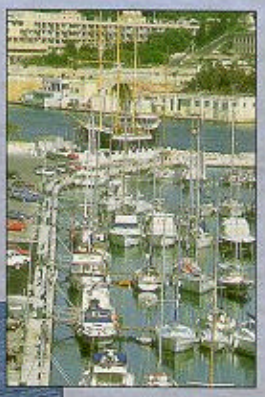
YACHTING DEVELOPMENT SUBJECT STUDY – PUBLIC CONSULTATION SUMMARY

MALTA MARITIME AUTHORITY

AWTORITÀ TA' L-IPPJANAR
PLANNING AUTHORITY

YACHTING DEVELOPMENT SUBJECT STUDY - PUBLIC CONSULTATION SUMMARY

Introduction

1. For a number of years there has been growing pressure for the development of additional marina facilities in the Maltese islands. In particular, concern has been expressed that Malta may be losing out on the associated benefits that such demand from international boat owners would bring to the Maltese economy.

2. Whilst the Malta Maritime Authority (MMA) and the Planning Authority are keen to respond to demand, they are concerned that such development should be carefully assessed in the light of international demand, the islands' environmental constraints and overall economic development.

3. The Maltese economy has grown rapidly during the past six years and this has fuelled a dramatic expansion in yacht-ownership (although such high rates of growth in yacht-ownership may not continue in the long-term). The importance of tourism to the national economy is also evident, and the development of new yacht marinas would assist to diversify Malta's tourism product. Against this it must be borne in mind that there are many competing uses for Malta's limited coastline and further yachting development could intensify this. However, appropriate yachting development could bring benefits which would filter through a range of economic sectors with direct and indirect expenditure.

4. Deloitte & Touche Consulting Group were commissioned to conduct a Study to address these needs and form the basis for a national strategy for the future development of various types of harbours, moorings and facilities for yachts and other boats. This Study was conducted by a multi-disciplinary team of overseas and local professionals experienced in international leisure considerations, environmental matters, economists and technical marina experts. The Study involved extensive unique research into marinas across the Mediterranean and consultation with international marina operators, yacht charter companies, existing visitors to Malta's present marinas and Maltese companies operating in this field. The consultants also worked extensively with various specialists within the Planning Authority to consider environmental, local planning and structure plan issues.

5. The Study commenced in September 1995 and was carried out in two stages. The first stage looked at the overall potential of yachting development in Malta whilst the second stage considered potential marina sites. The key findings of the Study are summarised below.

Mediterranean Demand for Marinas

6. In the Mediterranean there are an estimated 176,000 berths in over 350 marinas with the largest concentration at the western end in France and Spain. The eastern Mediterranean (such as Greece and Turkey) has fewer formal marina berths but is a popular cruising ground for summer visitors using informal moorings and anchorages as illustrated below.

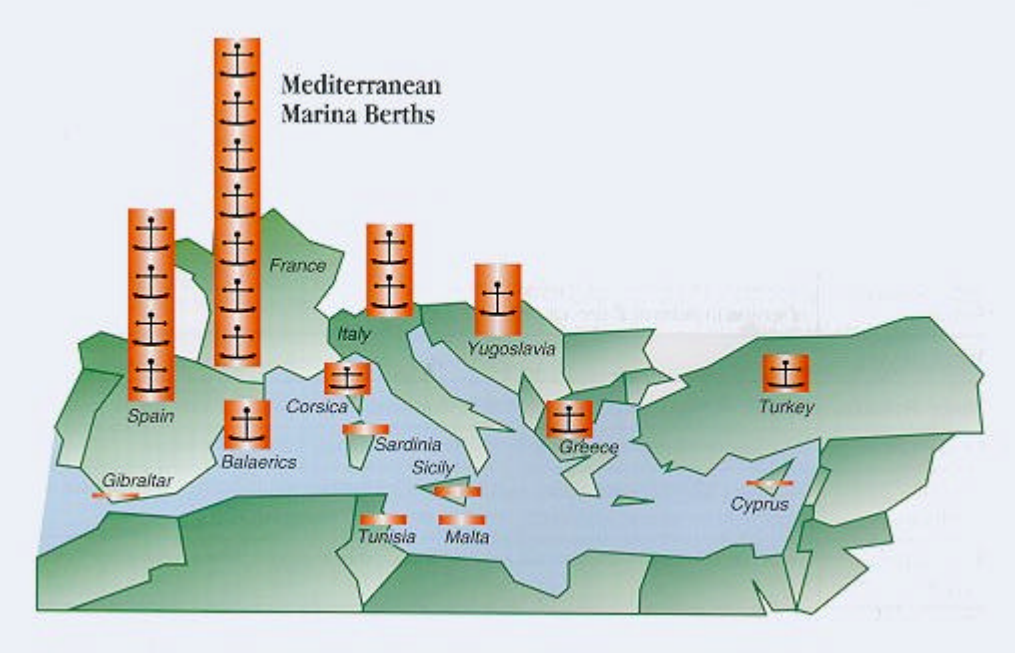
7. Marinas generally range between 300 and 1,300 berths and some 85 per cent of berth supply is concentrated in the western Mediterranean region, where the average gross domestic product (gdp) per capita is much higher. Typically, a marina accommodates

around 400 boats at any one time and the more competitive marinas offer visitor berths, refuelling points, facilities for temporary repairs, shopping and restaurant facilities, a clubhouse and various other amenities for both the visiting and the locally based yachtsman. Often, a marina is part of an overall residential or leisure development, as the costs of constructing a marina may not be justifiable against yachting income alone.

8. The concentration of yachts based at the western end of the Mediterranean and the popular cruising grounds in the eastern Mediterranean means that there is a significant movement of boats migrating from the west to the east Mediterranean for the summer months before returning to their home base. This presents Malta with the opportunity to attract stopover traffic en route.

9. As European economics strengthen, boat ownership is also predicted to increase, whilst demand for water-based holidays is growing at a significantly faster rate than for holidays in general. These trends suggest that the overall outlook for yachting in the Mediterranean is positive.

10. Other Mediterranean countries such as Tunisia, Greece, Turkey, Cyprus and Israel are also looking at the development of new yacht marinas. Whilst in part these would be in direct competition to Malta they will also encourage more movement around the Mediterranean thereby strengthening Malta's strategic position.



Malta's Competitive Position

11. Malta is already a reasonably popular destination for visiting yachtsmen, within an established tourist industry. From the perspective of international yachting visitors Malta has the following strengths, weaknesses, opportunities and threats which could influence potential yachting development.

Strengths

Security	Malta has an image, upon which it can build, of being a safe country with a low crime rate.
Language	Malta's fluency in English and Italian helps to make visiting yachtsmen from the main source markets feel at case and facilitates communication in respect of repairs and winter berthing requirements.
Location	Malta's location in the Mediterranean means that it is en-route to the main cruising grounds although it is not always a destination in itself.
Visual Appeal	Malta's main harbours and fortified cities provide a unique and strong visual appeal.
Tourism	As a result of a developed tourist industry, Malta has a good level of social and cultural infrastructure.
Social Environment	Malta is a politically stable country with a pleasant mix of European cultures and a lively social life.
Costs	Malta's present marina charges offer good value for money, although, as an overall destination Malta is becoming less price competitive internationally.
Chandlery	Malta is perceived as having amongst the best chandlery set vices in the Mediterranean, after Gibraltar, although there are some difficulties obtaining rigging.
Yard Services	The current yard services are regarded as some of the best in the Mediterranean with capability for a wide range of services to yachts of all sizes (at current pricing levels).

Weaknesses

Weather Protection	A significant proportion of berths, particularly those allocated to visitors, have a low level of weather protection.
Capacity Constraints	At present the marinas are known to be full. Hard standing space is also in short supply.
Coastline Constraints	Malta has a relatively short coastline, with limited natural harbours and anchorages which become busy at peak times. Malta has no near neighbouring islands to extend the cruising experience.
Administration Procedures	These can be beaurocratic and should be streamlined if possible with the development of new facilities.

Opportunities

Growing Market Overall	If Malta addresses the above weaknesses it is in a position to capture greater market share with important economic benefits.
Marina Management	Greater co-ordination between the appropriate authorities and the yachting industry offers scope for improvement,
Winter Berthers	This market is large and potentially one which Malta could attract more effectively with more marina/hardstanding space and good quality managed services.
Chartering	This is a relatively untapped market in Malta but one which will need to be investigated carefully to establish Malta with a competitive and differentiated image in the market.
Tourism	Additional yachting development increases Malta's opportunities for more creative packaging of combined holiday products and improving the image of Malta in tourism markets.

Threats

Inflation	Malta is no longer perceived as a low cost destination and must ensure therefore that quality does not further compromise the ability to offer value.
Domestic Recession	Given the strength and size of the domestic market, a change in economic performance could have a direct impact on overall demand levels.
Other Destinations	With new marina development throughout the Mediterranean and the possible return of the Dalmation Coast to the market, the Mediterranean will be more competitive. Cyprus is a main competitor. This is likely only to be a threat if Malta not able to offer a competitive quality of yachting service in the market.
Over Pricing	There is a danger that Malta could discourage both domestic and overseas demand through uncompetitive pricing.
Environmental	Insensitive development and bad environmental management can detract from Malta in yachting and overall terms.

Yachting in Malta - the Current Situation

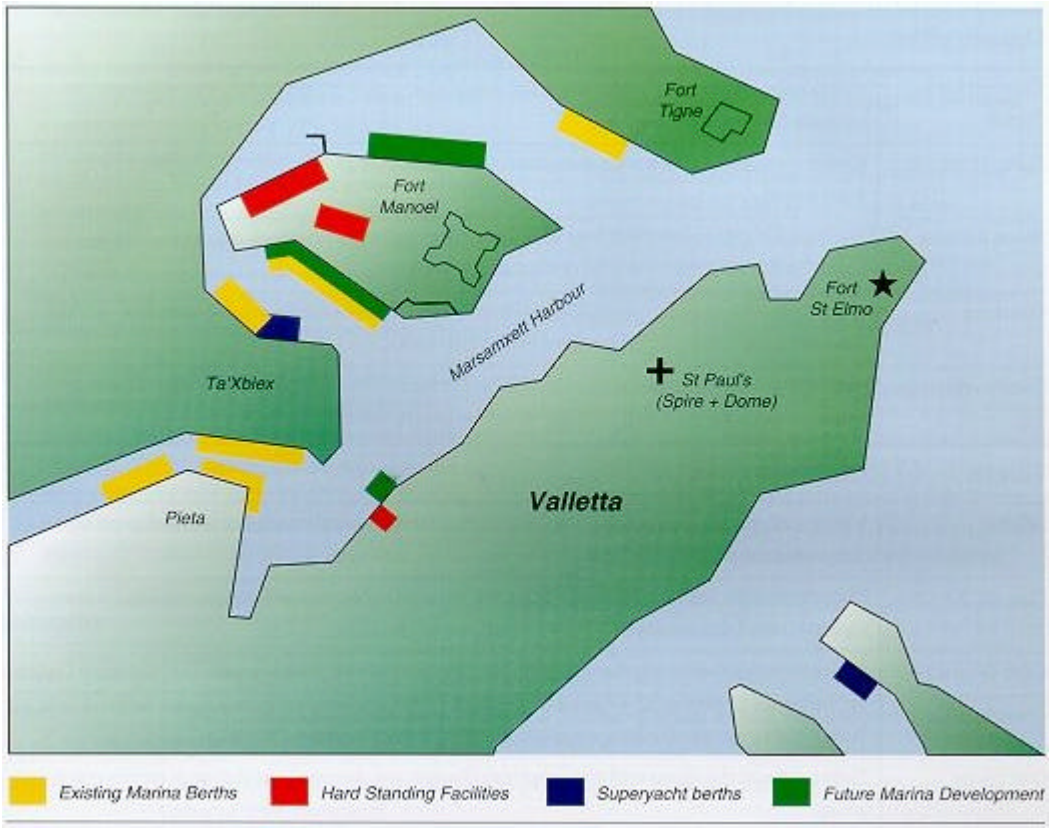
12. The supply of berths has increased threefold in the last six years and all available capacity has been taken up by domestic yacht owners within a few months of opening. To date, the increase in the number of berths has been brought about primarily by the introduction of pontoons replacing stern-to berthing so that existing marina facilities are used more densely. Existing marina berths may be summarised in Table 1 opposite.

Table 1 - Marina Berths in the Maltese Islands (1994)

Lazaretto Quay	57	
Ta' Xbiex	53	(4 superyacht berths)
Msida/Whitehall Marina	640	
Whitehall Quay	21	(10 used in summer only)
Pieta	60	
Slierna	60	(All used in summer only)
Vittoriosa	8	(Superyachts)
	899	
Mgarr Marina, Gozo	157	
Maximum berth capacity	1,056	

Source: MMA Annual Report 1994

13. Msida Marina was completed in 1989 with the final 250 berths being taken up within two months. By 1992 there was a waiting list so that the additional berths created by the installation of pontoons at Whitehall Marina were again all taken up within one season of the berths being commissioned. As at September 1995 the waiting list for marina berths stood at 240.



Quantifying Potential Demand

14. In the course of the Study Deloitte & Touche estimated mid-range targets for Malta in the following market segments in the next ten years:

- **summer visitors** - within 10 years Malta could double the number of summer visitors who come to Malta by yacht for a holiday. The current level of visitors is constrained by the unavailability of berths. Following rapid initial growth after the opening of new facilities, steady annual growth is likely with up to 2,900 summer visiting yachts by 2007, each staying for an average of six nights;

- **yacht charters** - Malta could register significant progress in this field which is growing strongly elsewhere in the Mediterranean. Malta might develop cruising holidays along a hub concept for more experienced yachtsmen who could sail to nearby countries from Malta or develop two-centre holidays for less experienced sailors with, say, a week sailing in Maltese waters and a week ashore. With targeted marketing, Malta might support a charter fleet of up to 120 yachts (maximum) within 10 years;

- **unattended wintering yachts** - Malta is well placed to attract yachts over-wintering as it already has the necessary repair skills, a good reputation and good air links. However, it currently lacks the necessary marina and hardstanding capacity to target this market internationally. The benefit of wintering yachts is that they could be accommodated either in a marina or on land and would give the new facilities a high level of year round occupancy. Malta should be able to achieve a target of about 450 unattended wintering yachts by 2007;

- **live aboards** - Malta provides the right social by 2007 the mid-range environment for those yachtsmen who permanently live aboard their yachts in a marina and travel to nearby countries for the summer. Malta should be relative rates of growth

for able to target around 90 such yachts by the winter new marina facilities of 2007/8;

- **superyachts** - Malta is in a good location to service the refuelling, repair and restocking demands of these yachts as they move between the west and east Mediterranean. Superyachts typically have just their crew onboard and stop over for a very short time but have a high expenditure on items such as fuel and food. The current level of demand could at least double in a 10 year period; and

- demand for **permanent berths** is expected to increase in line with the continuing-strength of the Maltese economy. Demand for permanent berths is estimated to increase by up to 720 berths by 2007, starting from a waiting list of around 240, with high growth initially as the new marina is opened.

15. The above analysis anticipates that by 2007 the mid-range estimated demand for yachting may increase, see Table 2 below.

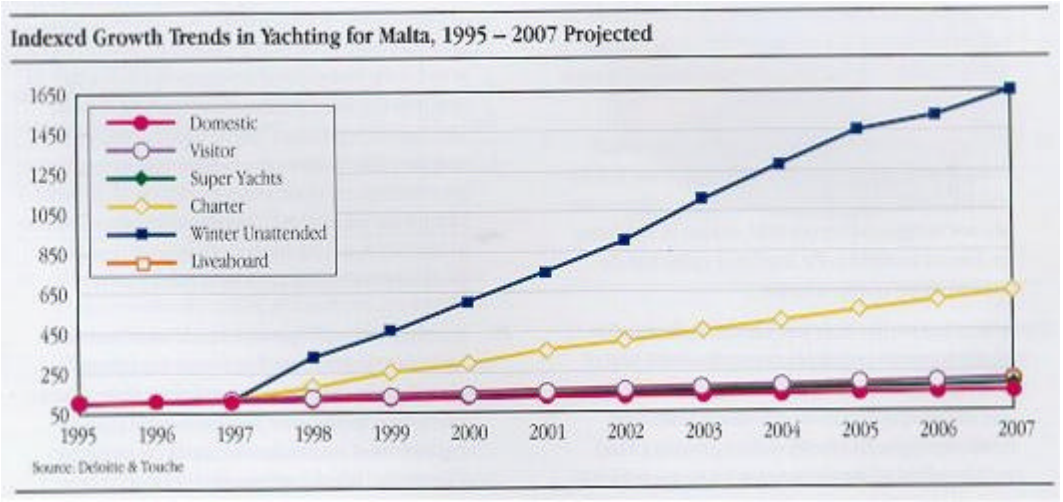
Table 2 - Estimated Increase in Yachting Demar

16. The graph below illustrates the relative rates of growth for each market segment assuming that new marina facilities are in place by summer 1998. Clearly certain market segments (such as yacht chartering) show much higher rates of growth but start from a relatively low position overall. Superyachts have the highest net spend per day, followed by visitor yachts and charter yachts. Unattended winter yachts have the lowest spend per day, but it must he borne in mind that they occupy visitor berths that would otherwise be unoccupied and therefore might generate an entirely additional income stream.

17. Price sensitivity of demand is a key issue. Different market segments have different price sensitivities and berthing charges are only a part of the overall yachting spend in a location. Visiting yachtsmen and winter berthers are likely to be most aware of Mediterranean price differentials and whilst low marina pricing is unlikely to attract the market per se, high pricing will be a deterrent.

	Domestic	**Visitor Yachts**	**Super Yachts**	**Charter Yachts**	**Winter**	
					Liveaboards	Unattended
No of yachts - 1995	1,097*	1,463	60	20	45	28
Projected growth	480	1,456	60	106	45	428
No. of yachts - 2007	1,577	2,919	120	126	90	456

Source: Deloitte & Touche ** includes existing waiting list*



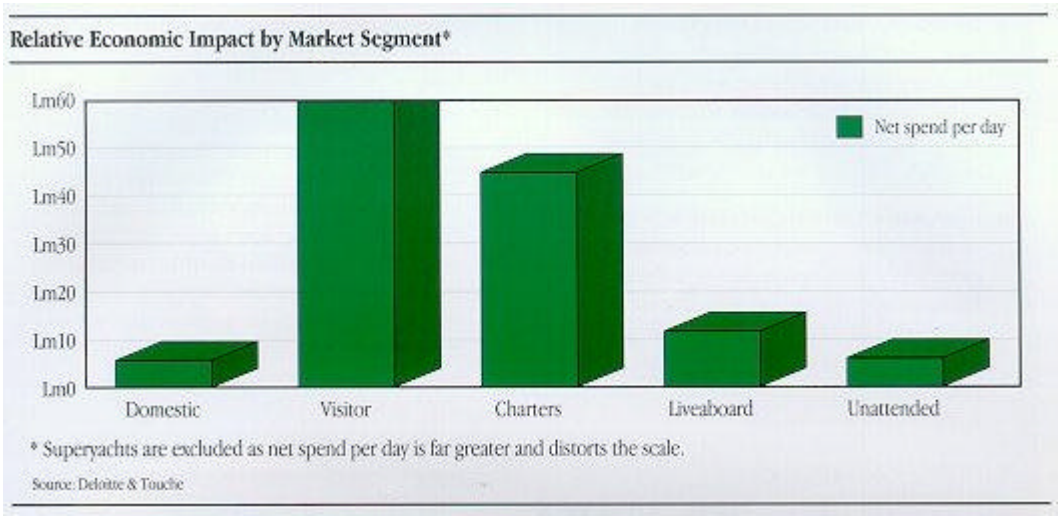


Table 3 - Marina Berthing Charges Comparison

Country	Peak Berthing Charges (Maltese Liri)			
	Annual	Monthly	Daily	Ratio of Annual Berthing Charge to GDP per Capita
France	2,088	213	20	26.90%
Italy	2,431	131	24	39.10%
Spain	1,293	320	15	28.80%
Gibraltar	1,244	152	5	n/a
Cyprus	940	105	4	27.70%
Tunisia	648	95	10	120.90%
Malta	620	90	8	23.30%

Source: Deloitte & Touche research

Note: Exchange rates as at 29 September 1995

18. For permanent bertholders a 20 per cent rise on current rates would place Malta at the higher end of affordability for local yachtsmen taking into consideration local earnings. Table 3 illustrates the regional variation in berthing charges across the Mediterranean.

19. The Study analysed the estimated growth in demand of each market segment, the estimated length of stay and the seasonal spread of arrivals, to determine the optimum size of a new marina to satisfy potential demand by translating the forecast increases in the number of yachts into the required supply of marina berths.

20. In overall terms, the Study concluded that a further 900 marina berths are required to meet a sustainable level of yachting demand based on a likely range of demand levels over a 10 year period. However, in view of announced marina developments (the Hilton Hotel, Excelsior Hotel and Manoel Island) the above generic requirement for 900 marina berths may be adjusted to 600 marina berths over and above these developments. This adjustment would principally relate to the planned marina in Lazaretto Creek as part of the Manoel, Island development which is likely to seek both international and domestic yachting demand. This demand requirement may be spread across one or more new marina developments depending on specific site constraints or opportunities. In addition, all displaced fishing boats will need to be accommodated when a marina is constructed, and the number of berths will depend on the location and the current level of boating activity.

21. To complement and support these additional marina berths these is also an estimated target requirement for approximately 450 hard standing spaces. Again, this may need to be revised to over 500 spaces subject to the displacement of existing facilities during the early stages of the Manoel island development.

Economic Contribution

22. An economic impact model was created to assess the contribution of different categories of yachtsmen taking into consideration their expenditure in Malta, the level of imports required and the multiplier effect. Different categories of yachtsmen would contribute in different proportions to the Maltese economy, with superyachts and summer visiting yachts having the higher impact for each day that they are in Malta. However whilst unattended yachts in winter undergoing repairs and liveaboard yachts spend less per day, they are in Malta for a much longer period of time and visit out of season thereby utilising spare capacity.

23. In 1995 the yachting industry was estimated to generate Lm43 million in the Maltese economy. Around 40 per cent of the total contribution is estimated to be from international yachtsmen such as summer visitors or winter berthers. The economic impact model assessed ongoing expenses such as berthing fees, fuel, insurance, maintenance, hard standing, food, entertainment, transport and agency commissions spent by different categories of yachtsmen as well as the one-off impact of boat purchases by Maltese yachtsmen. The economic impact is then adjusted downwards to reflect leakages in respect of the import content of certain items of expenditure (Such as fuel, spare parts, boat purchases). The element of expenditure retained within the Maltese economy is then adjusted for a final time to consider the multiplier effect of subsequent rounds of expenditure throughout the economy.

Table 4 - Total Economic Impact

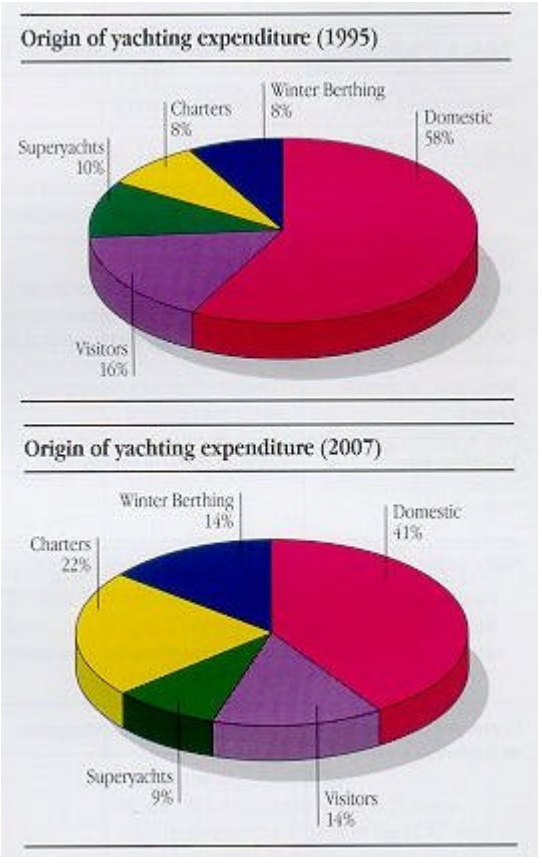
Lm Million	1995	1998	2002	2007
First round spending	4.4	6.5	7.9	9.7
of which is retained in Malta	2.8	4.7	5.5	6.7
Subsequent rounds of expenditure	1.5	2.4	2.9	3.5
TOTAL MARINA-INDUCED ECONOMIC BENEFIT	4.3	7.1	8.3	10.2

Source: Deloitte & Touche Research 1995

24. It is estimated that, provided appropriate marina facilities of an international standard are developed, the size of the industry might increase by over 100 per cent (ignoring inflation) within ten years. The projected economic benefit of the yachting industry within 10 years is Lm10.2 million annually. As Malta becomes better placed to attract a greater share of international demand, an increasing proportion of earnings generated by this industry will come from international yachtsmen. This will have a directly positive impact on Malta's foreign exchange earnings.

25. As the industry grows, the jobs supported by the industry will also increase, to over 1,000 equivalent full time jobs. This is an increase of almost 600 jobs on the current position. The economic contribution of the yachting industry will grow with an increase in marina berths but also through an upgrading of facilities and related services to attract a greater share of high value added international business such as yacht repairs and winter berthing.

26. The following charts illustrate the estimated change in contributions to the Maltese economy from the principal market sectors as the market matures.



27. The development of a new yacht marina(s) is in keeping with Malta's efforts to make Malta a more varied holiday destination product. We note that many Mediterranean competitors are also planning additional marina developments, so Malta may be left at a competitive disadvantage if it does not respond to market demands.

Environmental Considerations

27. In view of Malta's high population density and limited coastline, the development of a yacht marina must be sensitive to both the land and marine environment.

28. The main environmental impacts will include one-off impacts (direct and indirect loss of habitat, changes in water quality and sedimentation and construction disturbance) and on-going impacts (loss of amenity, noise/visual intrusion, water quality impairment, and increased local pressures, such as traffic). Environmental impacts will vary according to the chosen site and the design of the marina. Dredging must be restricted to the minimum possible, whilst the design and management of the marina should ensure that pollution is strictly controlled and that adequate facilities such as showers, toilets and skips are provided. A framework was established to evaluate the environmental cost of and development costs of each potential site. In a best development to be considered alongside the construction case scenario there would be no significant environmental costs other than increased traffic generation. In a worst case scenario significant land restoration costs would be incurred whilst adjacent property prices could fall due to the disamenity attached to marina noise.

Table 5 - Selecting a Site to Minimise Environmental Impacts

Environmental Impact	Site Selection Criteria	Cost Implications/Options
Loss of existing habitat	Select sites where boats are already a feature. Select sites where infrastructure is already developed and not close to nature reserves.	
Dredging - downstream sedimentation	Consider potential effects (seagrass meadows, marine life etc.).	Cost of mitigation techniques.
Construction vehicles	Select sites where infrastructure is developed.	
Removal of breakwater material	Consider effects of removing and transporting material.	Cost of mitigation techniques (e.g. use of barges and timing of construction).
Loss of amenity	Consider effects of amenity loss.	Obtain cost data from previous marina developments (experience suggests that there is an amenity benefit rather than cost).
Water quality	Select sites where water quality is currently poor and downstream effects are minimised.	Limited water quality data is currently available, quality in Marsamxett Harbour and Grand Harbour is poor.
	Consider type of marina - live aboard/over winter.	From feasibility study.
Competing uses: • fish farms • swimming • sewage outfall	Consider effects of competing uses.	Cost • cost of relocating for fish farms or overall effects of reduced water quality (fish farms are more likely to adversely affect the marina than vice versa) • loss of amenity for swimmers (simple willingness to pay model - which could be generic) • cost of diverting sewage outfall to treatment plant or cost of offshore outfall - not all this cost is attributable to the marina as there are plans for improved sewage infrastructure.

Table 6 - Elements of a Worst-Case Scenario

Marina Design Features	Environmental Impacts	Environmental Costs
600 berth marina	Incremental degradation in water quality.	Cost not possible to estimate - cost is approximately equal for both the best and worst case (not meaningful to put in a nominal figure).
Development near to site designated as area of ecological protection	Over a small area these could be contained to short term habitat loss which could be restored. This assumes no rare/threatened species are affected.	Land restoration costs (limited surrogate for damage costs) over 1 ha = 325,000 ECU (from DELOITTE & TOUCHE CBA) = Lm 455,000 (1994 prices) x 3.88% = Lm 472,654 in 95/6 prices. (Exchange rates 1 ECU = £0. 7, Lm 1 - £0. 5).
Marina developed in area where boats are a feature (or have been in the past)	Incremental visual impacts are minimised.	No incremental environmental costs.
Marina developed adjacent to residential areas	Limited noise costs incurred.	As a general case house agents value the premium for an environmentally pristine site at 20-25%. Assuming noise is a fraction of this premium, the disamenity attached to marina noise could he estimated at 5%. This could be investigated more accurately through aircraft studies but aircraft noise is not comparable with marina development. 5% premium: cost = 0.05 x Lm 35,000 (apartment price) x 70 (no. of adjacent units) = Lm 122,500 - over the life of the project.
Breakwater and land reclamation	Assume that downstream effects are mitigated by sensitive construction techniques and that no rare/threatened species are affected by habitat loss.	No significant environmental costs.
Infrastructure: some provision of utilities but no provision of yacht repair facilities	Assume significant long term effects as a result of provision of utilities beyond those that would be incurred anyway.	No incremental environmental costs.
Congestion	Increased traffic generation resulting in increased pollutants from traffic fumes and road side litter. Some additional heavy metal run off effects.	Some congestion costs - 10,000 cars pass a spot each day in each direction. Marina congestion will peak at weekends and evenings. In the worst case this will cause congestion for 5 peaks. Assume one peak affects 50% or 7,500 cars each for 15 mins. Cost = 5 x 5,000 x 0.25 x Lm 72.7/40 x 22 weeks = Lm 249,906/year
Total cost		Congestion: Lm 249,906/year
		House price: Lm 122,500 = Lm 12,250/year
		Land restoration: Lm 472,654 = Lm 47,265/year
		Significant environmental cost approximately Lm 310,000/year.
Sources:	*Land restoration costs - DELOITTE & TOUCHE research Netherlands Study.*	*House Prices - interview with Malta estate agents. Traffic Data - Malta traffic data supplied by Planning Authority.*

Table 7 - Elements of a Best Case Scenario

Marina Design	Environmental Impacts	Environmental Costs
600 berth marina	Incremental degradation in water quality.	Cost not possible to estimate - cost is approximately equal for both the best and worst case (not meaningful to put in a nominal figure).
Marina site in a sheltered area (no requirement for a breakwater)	Water circulation will be maintained to reduce effects of water quality degradation.	No significant environmental costs.
Marina developed in an area where water quality is already poor	Water quality will be reduced but incremental effects will be minimised.	No significant environmental costs.
Marina developed in deep water	Effects on sea bed life are minimised.	No significant environmental costs.
Marina developed in area where boats are already a feature (or have been in the past) and development does not affect a residential area	Incremental visual and noise impacts are minimised.	No significant environmental costs.
Marina developed in area where there is existing infrastructure (road access, utilities etc.). No provision of yacht repair facilities	Construction and development impacts are minimised.	No significant environmental costs.
Marina developed within a developed area (i.e. not in a area of coastal, ecological or archaeological protection)	Loss or damage of conservation areas is minimised.	No significant environmental costs.
Congestion	Increased traffic generation resulting in increased pollutants from traffic fumes and road side litter. Some additional heavy metal run off effects.	Some congestion costs - 7,000 cars pass a spot each day in each direction. Marina congestion will peak at weekends and evenings. In the worst case this will cause congestion for 5 peaks. Assume one peak affects 50% or 3,500 cars each for 15 mins. Cost = 5 x 3,500 x 0.25 x Lm 727/40 x 22 weeks = Lm 174,934/year.
Total cost		Significant environmental cost approximately: Lm 175,000/year.

Sources: Deloitte & Touche Research.

Traffic Data - Malta traffic data supplied by Planning Authority.

Technical Considerations

30. From a technical point of view, the primary purpose of a marina is to offer safe shelter and the chosen site will ideally already offer some natural shelter, particularly from the strong north easterly gregale storms. The most critical aspect of the construction of a marina is the extent of the breakwater and the type of breakwater required, which depends on the level of protection already there and the water depth. Marinas in other parts of the Mediterranean were analysed to evaluate the range of shoreside facilities on offer and expectations by international users. It was noted that car parking facilities, a yacht repair yard and hardstanding facilities are standard features at all but the very smallest marinas. The appropriate technical design criteria are summarised in Table 7 on the following page, whilst the following table presents generic broad capital costs incurred in the construction of yacht marinas.

31. The existing use of a site is the other main issue to be considered, as Malta has limited resources. It is the MMA's objective that the development of a marina should be a positive addition to existing facilities and not cause the removal of limited amenities.

Table 8 - Broad Capital Costs (non-site specific) for a low and a high case

Lm000s	**Low**	**High**
Preliminary investigation & design fees	100	300
Breakwater costs (floating/fixed)	100	1,400
Dredging	-	1,500
Reclaimed land	-	500
Pontoons (for 900 berths)	800	900
Ancillary buildings	100	100
Service connections	300	500
Shore works and quays	100	500
Contractors' mobilisation insurance	100	300
Contingency	200	600
Source: Posford Duvivier Estimates	**1,800**	**6,600**

Table 9 - Summary of Technical Design Criteria

Design Criteria	Key Issues	Allocation
Marina location	Most effective if can: • utilise some natural shelter • avoid direct exposure to NE winds • minimise dredging/reclamation • avoid inner waves > 0. 3m • avoid environmentally sensitive areas • avoid heavily polluted areas	
Marina Layout	• fit topography	
Pontoons	• depends on boat size	• access pontoons 2.5m wide; load of 2KN/M2max. length 200m • interconnecting 4-5m wide; 4KN/m2
Fairways	• space between berths	• twice length of longest boat • 1.5 times if boats > 8m
Approach Channels	• provide maximum width for safe navigation	• minimum 35-50m between fixed structures
Showers and Toilets	• will need more for visiting and liveaboard boats	• 1 toilet and basin per 25 berths • 1 shower per 50 berths
Offices & Social	• regime harbour master office • recommend club house/restaurant	
Fuelling Station	• needs access to fuel set-vice away from boat activity	
Car Parking	• will depend on market mix	• 1 car space per berth up to 250 berths • above 250 berths need car space @ 1.5 berths per car • above 500 berths need car space @ 2 berths per car • Allow 20m^2 per car space
Breakwater	• will differ for every site • key criteria for choice: degree of exposure, • water depth, seabed conditions	• vertical face best for deeper water • rubble mound best for shallower water • can tolerate even seabed • floating for non-tidal, sheltered waters only • least expensive
Repair Yard	• recommend for all but the smallest marinas	• min. size: 650 m^2 with slipway or boat hoist • full service size: 10,000,112 for 500 berth marina, • with workshops hoist and crane
Boat Hoist/Slipway	• slipway for boats <8m • hoist for larger boats	
Hardstanding	• flat, paved area • shoreside access	• allow 60 m^2 per boat

Source: Posford Duvivier

Viability of Marina Development

32. The projected level of operating profit for a marina has been calculated after allowing for a 10 year build up to a mature level of operations. Taking a net present value approach to the initial 30 years' annual operating income, suggests that 900 additional marina berths might be financially viable to a marina developer if capital costs fall within the range of Lm5.4 to Lin6A million. The estimates of the broad capital costs of a marina, which will be highly dependent on specific site characteristics, may range from LmI.8 to Lm6.6 million. These costs exclude consideration of the wider economic benefits or specific environmental costs related to a site. Taken together, the above figures suggest that, prima facie, marina development may be financially viable subject to site specific costs and this then encouraged a site sieving process to identify appropriate sites. The marina berths ultimately constructed may take place across more than one site whilst the generic requirement for 900 berths should be adjusted in line with other marina developments that occur.

33. Development funding will be required to finance the capital costs involved and this may take various forms such as a bank loan, venture capital, internal hinds or the advance sale of debentures. in order to be consistent in approach, the Study assumed that 100 per cent of the capital costs will be funded through a 12 year bank loan. This approach results in an annual shortfall between the cash generated by the marina's operating income and the level of bank repayments required. The extent of the shortfall will depend on the location of the marina and the capital costs involved, on ancillary income (if any) and on the ultimate form of financing agreed. Detailed financial projections fall within the scope of Stage Three of this Study, which has riot yet taken place.

Stage Two

34. Stage One of the Study was completed in November 1995 (and was finally approved in February 1996) following extensive meetings with the Planning Authority and Malta Maritime Authority to discuss, and where appropriate re-visit, the initial findings of Stage One. Once the Planning Authority and Malta Maritime Authority were satisfied that the economic potential and feasibility for yachting development in Malta could be broadly quantified and justified, and that the environmental impact could be contained to within acceptable limits, it was agreed that Stage Two of the Study should proceed.

    The purpose of Stage Two of the Study was to identify potential sites that could be considered for yachting development. An extensive site selection process commenced in December 1995 with the consultants working closely with local planners, environmentalists and strategic planners at the Planning Authority to determine the potential areas of search.

Coastal Mapping

35. The site selection process required rigorous and comprehensive analysis. The consultants initially considered the whole coastline of the Maltese islands for yachting development within the context of the Structure Plan and the physical constraints of the islands. The mapping process "ruled out" areas of Maltese coastline on a number of key criteria, based on technical, planning and environmental issues. The technical criteria include the degree of exposure, depth of water, major navigational hazards, existing road access and services, land availability and, for marinas only, the degree of industrialisation. Other environmental and planning criteria include rural and marine conservation areas, established competing uses, sensitive waterfronts (in terms of the ecology or built environment), high recreational or social amenity, value and other Structure or Local Plan issues.

36. The map on page 14 illustrates the coast of Malta and the areas which are ruled out by the main criteria in this mapping process.

Site Sieving Process

37. The list of 23 possible sites identified through the mapping process (18 for marinas and 5 for boatyard or hard standing) were then assessed in terms of specific strengths and weaknesses related to technical, environmental, social, market and economic considerations. This reflected the enormous range of possibilities and highlighted how one site could be strong in some aspects, but weak in others.

    A simple scoring system was therefore devised to assess each individual site against over 40 different criteria. These criteria were divided into three categories: technical issues; environmental and social; and market, financial and economic issues. Greater weight was given to environmental and technical criteria relative to market and economic issues at this stage of the process in that there were 17 technical criteria, 16 environmental criteria and 8 market criteria in all, as follows:

Technical Criteria	Environmental and Social Criteria	Market, Financial or Economic Criteria
1. Navigational aspects - offshore hazards, etc.	1. Direct loss of habitat	1. Lack of likely local employment benefits
2. Degree of site exposure	2. Indirect loss of habitat (downstream effects)	2. Land acquisition problem/costs
3. Capacity for a large marina (with flexibility)	3. Water quality (current levels of pollution)	3. Lack of attractiveness to user groups (relative)
4. Existing water depths - need for dredging	4. Existing levels of disturbance (water and landslide activity)	4. Existing traffic noise
5. Extent of breakwater - relative length/depth	5. Level of competing uses - recreational	5. Distance from local owners
6. Inner wave problem	6. Level of competing uses - sewage outfall/drainage problems	6. Relative lack of international USPs
7. Infrastructure space needs car parking	7. Level of competing uses - fish farm activity	7. Primarily domestic appeal?
8. Infrastructure space needs - boatyard	8. Competing uses - other issues	8. Demand risk
9. Infrastructure space needs - hard standing	9. Conservation status of area	
10. Supporting facility needs (chandlery, local expertise)	10. Likelihood of construction damage	
11. Distance from existing utilities	11. Visual impact of development	
12. Likelihood of natural water circulation problems	12. Noise impact of development	
13. Relative construction costs	13. Likely impact on traffic generation	
14. Relative construction period	14. Likelihood development would degrade the area	
15. Level of displaced boats to be accommodated	15. Need/costs of replacement of amenity	
16. Access to site	16. Conflict with existing local/structure plan	
17. Irreversible structure		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QALA QUARRY
MGARR HARBOUR
MARFA/RAMLA
CIRKEWWA HARBOUR
MELLIEHA BAY
ST PAULS BAY (XEMXIJA, MISTRA)
OUTER SALINA BAY
ST GEORGES BAY
MARSAMXETT HARBOUR (SLIEMA CREEK, LAZARETTO CREEK, PIETA CREEK)
GRAND HARBOUR (DOCKYARD CREEK, KALKARA CREEK, BIRKELLA CREEK)
MARSASCALA
ST THOMAS BAY
MALTA HYDROFOIL
ST GEORGES BAY
WIED IL PUNI
MALTA FREEPORT
GREGALE
NORTH EASTERLY WIND
PREVAILING NORTH WESTERLY SUMMER BREEZE
CODES
DEGREE OF EXPOSURE
DEPTH OF WATER
PROPOSED MARINE CONSERVATION
STEEP SLOPES/CLIFFS
SHOALS/REEFS
PRISTINE COAST/RURAL CONSERVATION
HIGH RECREATIONAL VALUE
WORLD HERITAGE SITE
COMPETING USE
TR TOURISM RESTRAINT

Table 10 - Summary of the Site Sieving Ranking - Marina Locations

	Ranking
Dockyard Creek, Grand Harbour	1
Lazaretto Creek, Marsamxett Harbour	2
Kalkara Creek, Grand Harbour	3
Xemxija, St. Paul's Bay	4
Outer Mgarr Harbour, Gozo	5 =
Marfa Bay, Malta	5 =
Sliema Creek, Marsamxett Harbour	5 =
Pieta Creek, Marsamxett Harbour	5 =
Cirkewwa Harbour	9
St. George's Bay, Marsaxlokk	10
Marsascala Bay	11
Ramla Bay, Malta	12
St. George's Bay, St. Julian's	13=
White Rocks	13=
Mistra Bay, St. Paul's Bay	15
Mellieha, Bay	16=
St. Thomas' Bay	16=
Outer Salina Bay	18

Source: Deloitte & Touche Analysis

Table 11 - Summary of the Site Sieving Ranking Yard/Hard Standing Locations

	Ranking
French Creek, Grand Harbour	1
Malta Hydrofoil Site, Marsaxlokk	2
Rinella Creek, Grand Harbour	3
Wied il-Puni, Freeport	4
Qala Quarry, Gozo	5
Source: Deloitte & Touche Analysis	

Key to Groupings of Sites:

Short-Listed Sites
Possible Sites
Unlikely Sites

38. The sites have been grouped into three classifications:
    - Short-listed Sites are considered in detail later in this report summary;
    - Possible Sites are sites which have the potential for a marina or boatyard/hard standing but fall short of the requirements for international yachting development. These sites may, however, be developed in future for smaller or secondary facilities if viable; and
    - Unlikely Sites include locations where the cost of development would probably be unacceptable due to the depth of water or degree of exposure, or where the environmental or social disbenefits would be too great.

39. A strengths and weaknesses analysis for each site was also prepared to amplify upon selected criteria utilised within the scoring system. in identifying a short-list of potential sites for both marina and boatyard/hard standing development, the strengths and

weaknesses analyses provide the necessary further rationale for determining a "cut off" point in the scoring system ranking and grouping. It is therefore important to emphasise that the ranking of any particular site in the scoring system has not determined the short-list selection in isolation, although in practice the combined analyses have resulted in the four top ranking sites being distinguished for detailed consideration.

40. This logical analysis led to the early ruling out of the following sites which were considered to be unlikely candidates as the cost of development would be unacceptable due to the depth of water, degree of exposure or because the environmental or social costs would be too great. The sites ruled out at this point included:

- Salina Bay
- St. Thomas' Bay
- Mellieha Bay
- Mistra Bay
- White Rocks
- St. George's Bay (St. Julians)
- Ramla Bay (Malta)
- Marsascala Bay
- Cirkewwa Harbour

41. Potential marina sites which individually do not fulfill the criteria for international yachting development, but might be considered further at a later stage. These sites include:

- St. George's Bay (Marsaxlokk)
- Pieta Creek
- Sliema Creek
- Marfa Bay (Malta)
- Outer Mgarr Harbour

42. The above sites all have some strong features in terms of marina development, but also some key weaknesses, which account for their disqualification from the selected short-list. These sites might still have value as marina developments in terms of spreading yachting activity. For example, Marfa Bay or St. George's Bay in Marsaxlokk, both have existing sea defenses which mean that they could be relatively easily developed as small marina facilities, but are unlikely to fulfill the objective of developing Malta as an international yachting destination. Mgarr, with a proposed extension to the existing facility, would probably be a less viable location because, being on Gozo, it will have more seasonal demand and is less convenient to the majority of users in terms of a permanent berth for a boat. Pieta Creek, likewise, while not an ideal site for an international marina, would offer a cost-effective way of extending the berthing capacity of Msida. Slierna Creek on the other hand, would form a good marina location if it were riot already so busy with boating activity and local traffic.

43. Therefore, in looking at the overall requirement for the development of yachting in Malta, the Study concluded that the following four sites offered the best prospects and merit further investigation for a major marina:

- Dockyard Creek, Grand Harbour
- Lazaretto Creek, Marsamxett Harbour
- Kalkara Creek, Grand Harbour
- Xemxija, St. Paul's Bay

Lazaretto Creek may be encompassed into the Manoel Island development scheme and has not therefore been investigated in detail in this Study.

Dockyard Creek, Grand Harbour

44. Dockyard Creek is regarded as the "jewel in the crown" of Grand Harbour and offers a world-class urban environment. Dockyard Creek could, if developed appropriately, become one of the most prestigious and impressive marina settings in the Mediterranean, with its unique historic surroundings. A marina for 600 berths could be comfortably accommodated, with space available for limited expansion if required, and hard standing provided for approximately 75 boats.

45. The formation of the creek is appropriate for a marina, with deep water, existing wide quays and surrounding infrastructure. The construction of a marina would require relatively little capital and the main structures could be "floating", with little or no lasting impact on the existing built environment. The creek is significantly affected by long-period waves travelling across its entry in Grand Harbour. These cause a surge and swell effect within the creek in addition to wave reflection from the vertical face of the south-west shoreline. It is envisaged that a floating breakwater with a depth of eight to ten metres and a width of approximately five metres would be sufficient to overcome any significant wave disturbance within the creek, although this assumption will require detailed wave pressure investigation should this site be considered within the proposed Stage Three of this Study. Other environmental impacts will be limited, because of the history of boating activity in the creek, with possible traffic congestion being the main issue.

Dockyard Creek

The principal advantages and disadvantages in relation to the possible development of a marina at Dockyard Creek are provided in the summary which follows.

ADVANTAGES DOCKYARD CREEK

Technical	Policy, Social and Environmental	Market and Economic
• Ample space for marina development in the water and landside.	• Infrastructure required could be "removable" (i.e. no lasting damage).	• There has been a heritage of boating activity here.
• Existing quayside buildings which can be used for housing ancillary marina and other facilities.	• Boats in the past have been a feature.	• Could create an internationally spectacular yachting environment, given the quality of surrounding buildings and dock infrastructure.
• A floating (and removable breakwater would be appropriate.	• Water quality is poor already.	• A marina would start to encourage wider tourism development, which could be of a higher quality.
• It would be a cost-effective manna development and a considerable number of berths could be provided.	• No current recreational use of bay.	• Would generate local employment opportunities, and contribute to urban regeneration (Structure Plan issue SET7).
• Good access to the sea although a clear bouyed channel might be needed.	• Circulation should not be a problem as water is deep and a limited breakwater is required.	• Superyachts are already located in the Creek, so this represents no significant change of use.
	• Would not affect residential area.	• A marina will strengthen the profile and status of the annual Boat Show in international terms.
	• Structure Plan (SET1) encourages development in built up areas and specifically for this area to be developed for recreational and tourism uses (TOU6 and UC03).	

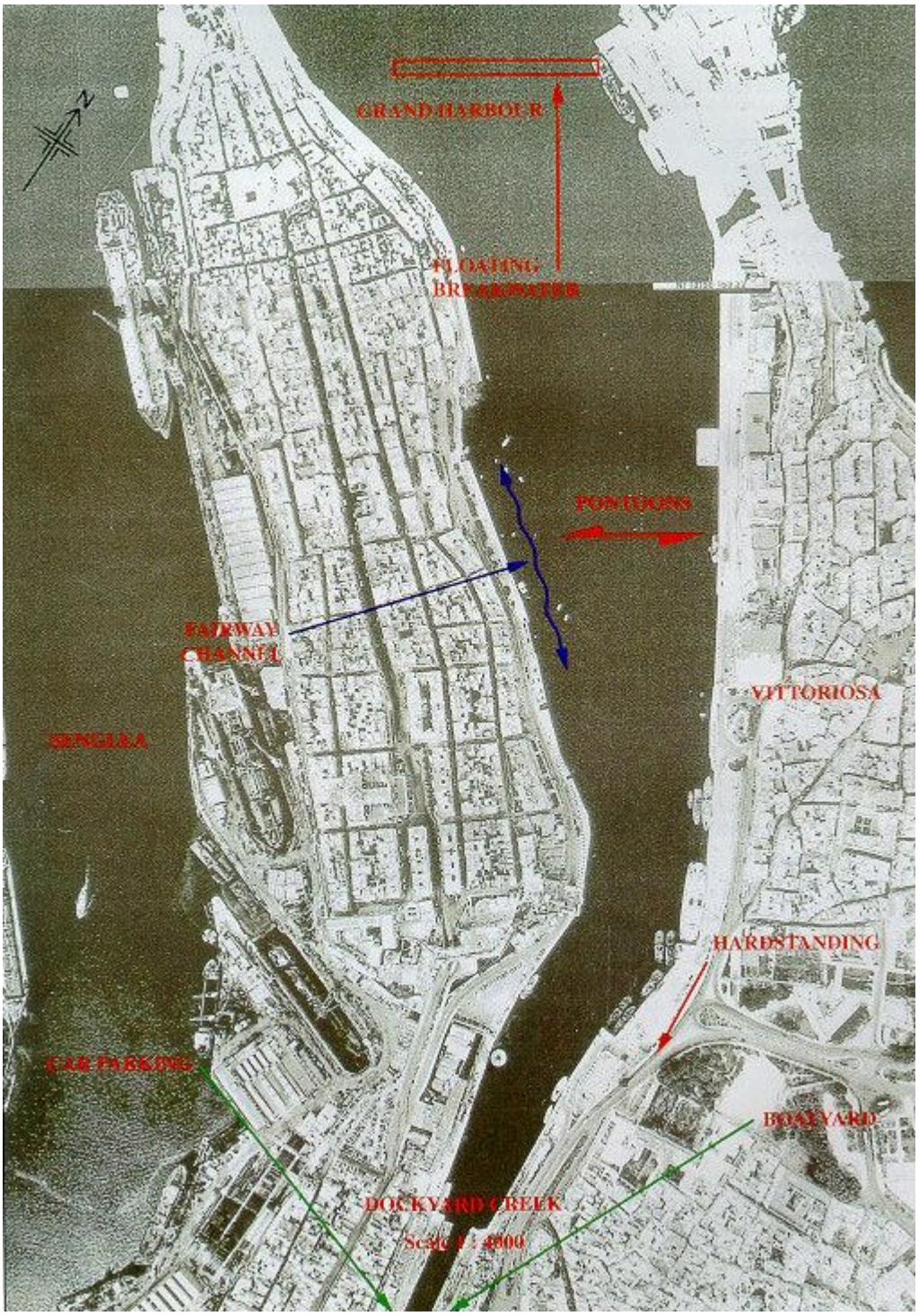
DISADVANTAGES DOCKYARD CREEK

Technical	Policy, Social and Environmental	Market and Economic
• A marina will have to be carefully planned to minimise visual impact on the quality of scenery around.	• Would need to wait until Dockyard 1 is decommissioned.	• There are some local perceptions which might mitigate against acceptance of a marina here.
• A boat yard facility might not be accommodated within Dockyard Creek, and would then have to be located elsewhere.	• Would need to relocate tugs.	
• Overlapping commercial and leisure marine traffic, which requires good navigational aids in the main fairway.	• Would need to consider comprehensive security measures.	• Local acceptance problems may mean a slower demand growth.
	• Access to the site may need attention, although there are plans to build a bypass round the Cottonera Lines (RDS4) and the Structure Plan recommends improved ferry links from the Grand Harbour to Gozo (IITI/2).	
	• There is an annual boat race which will need to be accommodated.	

Other Comments

- There is an opportunity to create a world-class yachting environment here which would generate international appeal in its own right and strengthen Malta's image in yachting and other tourism markets.

- Details of what could be achieved may be dependent on alternative uses for the dry dock area and the timing of any closure. However, a full marina development is not dependent on this dry dock.



46. The main consideration for the development of a marina in Dockyard Creek is that it should form part of an overall urban regeneration programme to provide the "social" infrastructure necessary to the success of a marina. This area has already been highlighted for tourism development in the Structure Plan and draft Grand Harbour Local Plan and a marina would contribute towards this objective. The location is away from most existing yachting activities and may therefore take longer than other potential sites to become popular with local yachtsmen and it is some distance away from the main summer cruising grounds. Dockyard Creek is likely to have primarily international appeal, this being the market likely to generate least road traffic and bring greater economic benefits to the area.

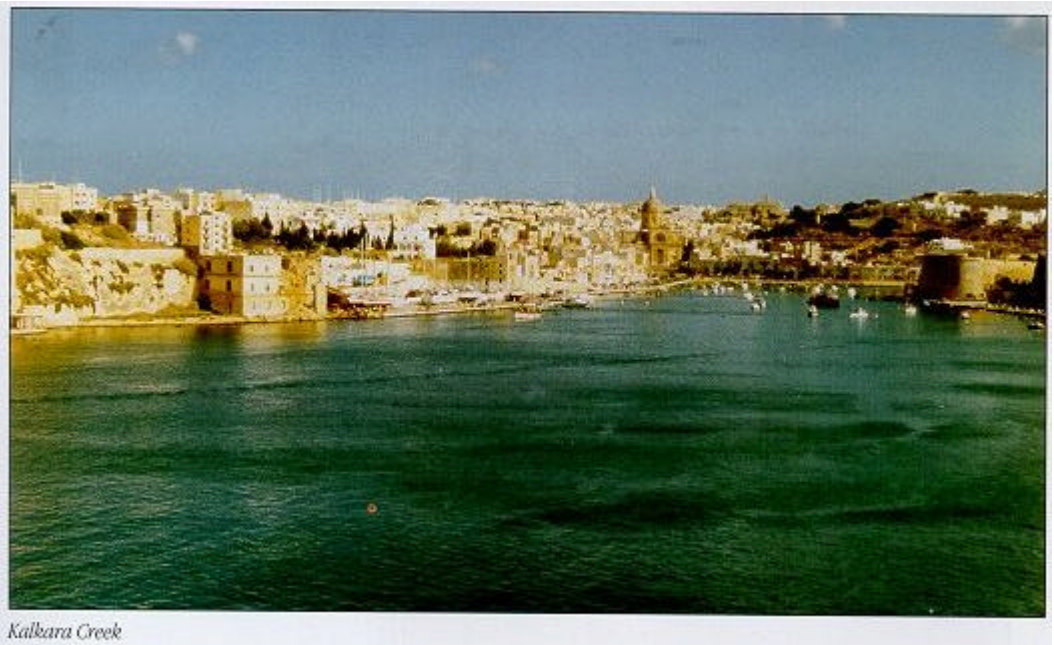
47. In overall terms, a 600 berth marina in Dockyard Creek (with hard standing space for 75 yachts) might cost in the region of Lm1.8 million to construct based on 1995 preliminary estimates. At a stabilised trading position, the marina development might make an annual operating profit of about Lm176,000 prior to financial charges, depreciation and taxation. Whilst public funding of Lm2.1 million is required over 10 years, an estimated Lm14.4 million might be generated in the economy indirectly as the direct revenues of a yacht marina represent only 15 per cent of the total economic impact. Environmental costs are estimated broadly at Lm1.8 million.

Lazaretto Creek, Marsamxett Harbour

48. Lazaretto Creek is clearly well-suited to marina development, but as there are well developed plans to create a private manna of 350 to 400 berths there as part of the Manoel Island scheme, it has been excluded from our short-list for further investigation. It has a number of natural advantages as it is close to existing facilities for yachtsmen and has been used for yachting for a number of years.

Kalkara Creek, Grand Harbour

49. Kalkara Creek shares many of the advantages of Dockyard Creek but at a higher cost as the area is closer to the open sea and therefore less protected, requiring greater sea defenses. Its position is similar to Dockyard Creek in that the creek is significantly affected by long-period waves travelling across its entry in Grand Harbour and a similarly substantial floating breakwater is likely to be necessary to avoid unacceptable wave disturbance. A detailed wave study would be required in respect of this site should it be considered at Stage Three of the overall Study.



Kalkara Creek

The principal advantages and disadvantages in relation to the possible development of a marina at Kalkara Creek are provided in the summary which follows.

ADVANTAGES KALKARA CREEK

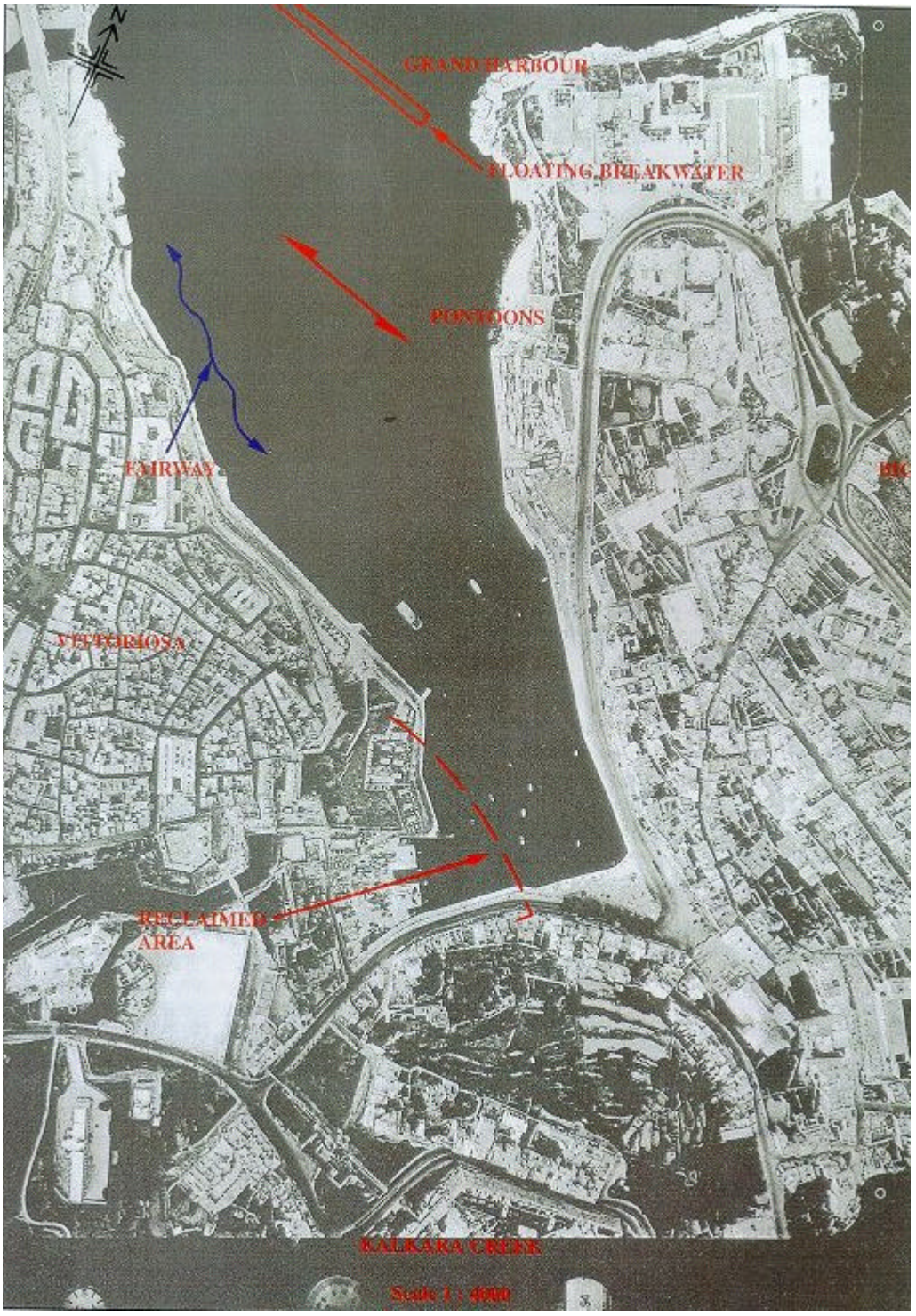
Technical	Policy, Social and Environmental	Market and Economic
• The site gains some protection from natural m land formations and existing breakwaters.	• Boats are already a feature.	• The creek has a maritime history and established yacht yard businesses, which are looking to expand. Other small businesses providing social infrastructure used by yachtsmen would also develop.
• Excellent access to the sea, although navigational aspects need consideration.	• Water is already polluted (and not used for other uses, e.g. swimming/fishing).	• It is part of a very grand and special heritage area of Malta rarely visited except by those who live nearby. Development of an international marina would raise the profile and understanding of the area.
• A floating breakwater would be appropriate to dampen reflective and period wave action.	• The breakwater and the pontoons could be removed at a later stage without damage to the environment.	• A marina would encourage employment and general upgrading (Structure Plan issue SET7).
• The marina could be developed at a reasonable cost, relative to the number of berths provided.	• There are unlikely to be water circulation or pollution problems. • Structure Plan (SET1) encourages development in built up areas and specifically for this area to be developed for recreational and tourism uses (TOU6 and UC03). • Limited coastal defences are needed, which meets Structure Plan policy to keep new defences to a minimum (RC023).	• The quality of the environment would attract international yachts and better most other Mediterranean locations.

DISADVANTAGES KALKARA CREEK

• Severe lack of landside space for development of ancillary services, particularly car parking.	• Loss of habitat clue to breakwater.	• There are sonic local perceptions which might mitigate against acceptance of a marina here.
• Need for sonic land reclamation in the upper creek, although this will need careful landscaping to minimise the impact on the bay.	• Damage to wrecks on sea bed.	• Parking may be a problem and it may be appropriate to look at ferry services to Valletta.
• Given constraints on land space, security of boats may be an issue.	• The area is designated for Urban Conservation a (UCOI) which will put constraints on landside development.	• There are unlikely to be facilities for superyachts, although these could remain/be extended in Dockyard Creek, as appropriate.
• Overlapping commercial and leisure marine traffic will need management and good planning in the main fairway.	• Marina may have to extend as far as protected areas to be economically viable.	• Would need to consider security measures if local crime rate is high.
• There will be some reflective wave action, so the floating breakwater will need to be quite deep.	• Would need to relocate existing boat yards.	
	• Would need to find room for displaced boats and boat storage (Structure Plan issue SET7).	
	• Marina noise would impact on residents.	
	• Access to the site may need attention, although there are plans to build a bypass round the Cottonera Lines (RDS4) and the Structure Plan recommends improved ferry links from Grand Harbour to Gozo (11T1/22).	
	• Additional road traffic impact in a residential area.	
	• Careful planning and screening would be required to protect the visual impact upon the waterscape in front of the church.	

Other Comments

- The shortage of available landside space is a significant problem. Land reclamation is an option, but the visual and other environmental impacts need careful consideration, as will the impact on the existing boat yard operations.



50. The development of a marina in Kalkara Creek would provide an opportunity for a powerful international maritime attraction as part of an urban regeneration programme, which could bring wide benefits to the local area. This area has also been highlighted for tourism development in the Structure Plan and draft Grand Harbour Local Plan. A marina could form the focus of waterfront development in the area, although the physical environment of Dockyard Creek will remain a stronger draw in overall tourism terms. It must also be stressed that the success of a marina in Kalkara would depend on the progression of an overall tourism development plan, to ensure provision of other social infrastructure and a lively atmosphere.

51. Demand for the facility is likely to start with international visitors, while domestic demand may take a little longer to accept it as a safe and prestigious location. The site is probably not appropriate for a marina of more than 500 berths - the constraints being the size of the creek and the lack of shore side space.

52. In this respect, some land at the head of the creek would need to be reclaimed and the inner boatyard facility would need to be relocated, to provide for car parking and hard standing for approximately 160 boats. A floating breakwater -and pontoon system would keep the costs of development down and enable flexibility if demand changes.

53. The environmental impact of a marina in Kalkara is not likely to be great, as the marina would be going into a creek where there is already boating activity and semi-industrial repair activities. Traffic should not be an issue if the proposed Cospicua bypass scheme goes ahead, although parking would remain tight. The main concerns would be over the visual impact and careful design would be needed to overcome this as far as is possible.

54. In overall terms, a 500 berth marina at Kalkara Creek (with hard standing space for 160 yachts) might cost in the region of Lm2.0 million to construct based on 1995 preliminary estimates. At a stabilised trading position, the marina development might make an annual operating profit of about Lm160,000 prior to financial charges, depreciation and taxation. V81st public funding of Lm25 million is required over 10 years, an estimated Lm13.6 million might be generated in the economy indirectly. Environmental costs are estimated broadly at Lm 1.4 million.

Xemxija, St Paul's Bay

55. Xemxija is located along the most popular part of the Maltese coast for yachting activity and domestic users might therefore consider it a popular location for a marina. However, while such a location might alleviate some pressure from the coast between the current marina at Msida and St Paul's Bay, it is likely to have an impact on road congestion around Xemxija at peak times and the outer part of the area, for example at Fekruna Point, has recreational use for swimming.

56. In terms of international yachting market sectors, Xemxija offers no specific relative strengths as a marina location and so demand from these sectors would be secondary.

57. Technically, it is feasible to accommodate a full 600 berth marina at the head of the bay, with hard standing for approximately 200 yachts, but it may be more appropriate to develop a smaller facility of around 300 berths primarily for domestic demand which would be located on one side of the bay only. Such a project could then be relatively easily and cost-effectively extended at a later date within the line of the existing breakwater if demand justifies it. This would serve to spread the yachting activity and enable the focus of international yachting activity to remain around Valletta and the main harbours of Malta.

58. A marina development at Xemxija (of either size) will not be financially viable on its own. Xemxija would be the most expensive of the short-listed sites to develop, with an

estimated capital investment of more than double that required for either Kalkara Creek or Dockyard Creek in Grand Harbour due to the costs of a permanent breakwater, dredging and land reclamation. Opportunities for developing additional income-generating infrastructure (such as residential or tourism facilities) are likely to be limited by space availability and will relate to Structure Plan policies (in particular SET 1 and SET 11) limiting additional accommodation or ancillary development in the area.

59. In overall terms, a 300 berth marina at Xemxija (with hard standing for 200 yachts) might cost in the region of Lm3.2 million to construct based on 1995 preliminary estimates. At a stabilised trading position, the marina development might make an annual operating profit of about Lm137,000 prior to financial charges, depreciation and taxation. Whilst public funding of Lm4.7 million is required over 10 years, an estimated Lm9,9 million would be generated in the economy indirectly. Environmental costs are estimated broadly at Lm 1.9 million. The comparable figures for a 600 berth marina at Xemxija (also with 200 hard standing spaces) are Lm4.42 million for construction costs and Lm230,000 as an annual operating profit. The total economic benefit of a 600 berth marina at Xemxija over 10 years might be Lm16.4 million against which there are environmental costs of Lm3.1 million.

The principal advantages and disadvantages in relation to the possible development of a marina at Xemxija are provided in the summary which follows.

ADVANTAGES XEMXIJA

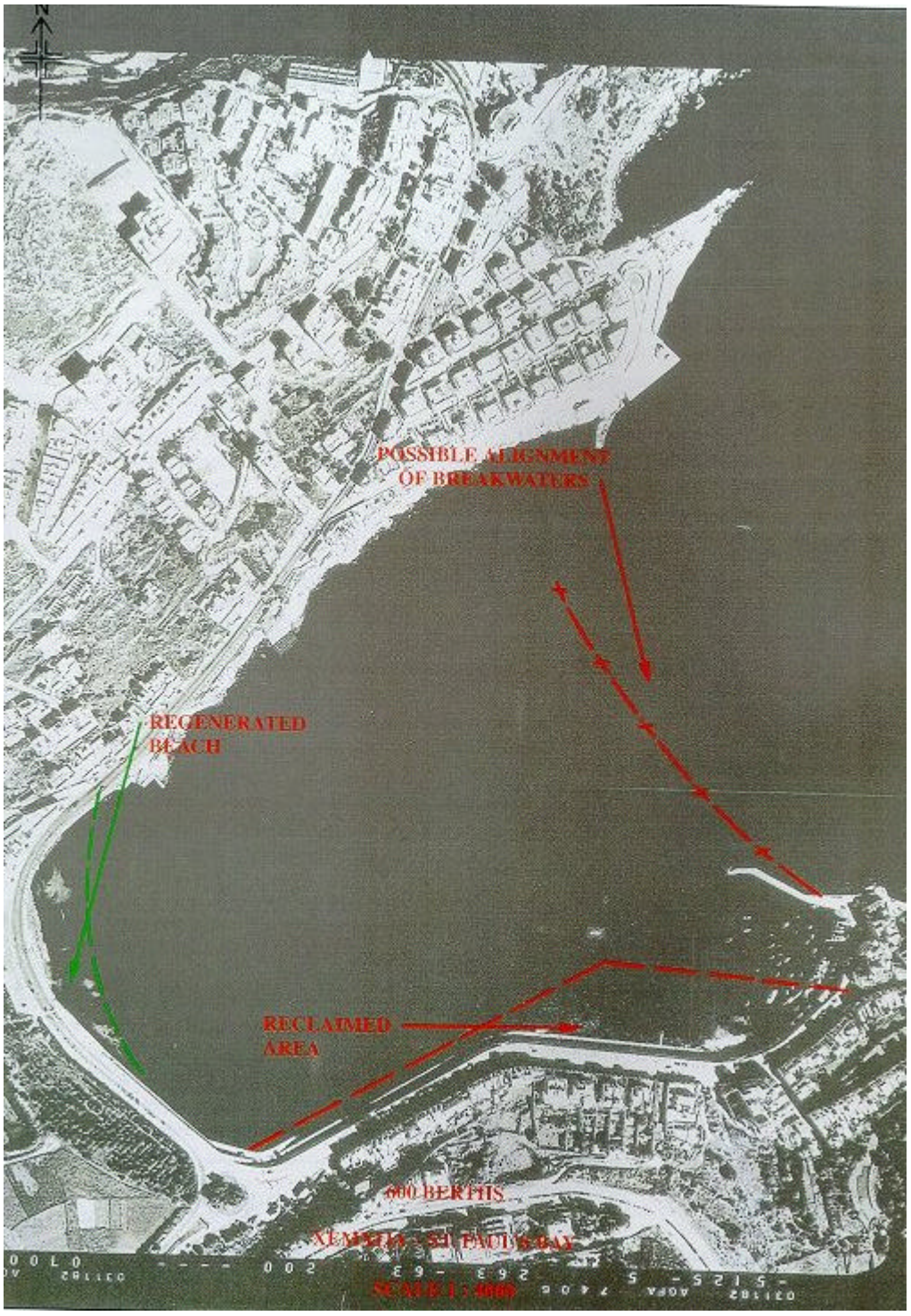
Technical	Policy, Social and Environmental	Market and Economic
• Well protected on three sides. • The inner end of the bay is relatively shallow with a seabed of silt and sand, so unit costs for a rubble mound breakwater would be reasonable. • No particular navigational problems. • Good road access. • Large area of water available. • Existing services and local infrastructure already present.	• Boats are already a feature. • Noise impact is likely to be small. • Would be space for a large marina development. • Water is already polluted. • Unlikely to be downstream effects (already have fish farms and other boats). • The sandy beach has already been destroyed by development, but a marina might be an opportunity to recreate one. • Encouragement will be given to continuing development in built up areas (Structure Plan SETI). • Fishing boat berthing facilities will be promoted in the north of Malta (Structure Plan AHF14).	• The bay is already extensively used for boats and fishing and in summer is a lively place, busy with both locals and tourists. • Relatively close to many Maltese residences and key anchorages and is likely to he a popular base with local boat owners. • Existing hotels, restaurants and bars, along with other tourism infrastructure, along both sides of the bay, will give yachtsmen places to go. • Tourism around the St Paul's Bay area through to Bugibba is geared to the lower end of the package holiday market and a marina in the Bay might help upgrade the tourism image. • This will provide a good second yachting base in Malta for tourists and a good base for charter boats, making the south side of the island more accessible.

DISADVANTAGES XEMXIJA

• Exposed to north easterly gales. • A large marina could monopolise all the inner end of the bay. • Inner sandy beach to be reclaimed. • Water circulation issues need investigation. • Hard standing and car parking areas need to be reclaimed. • A lot of small boats currently use swing moorings in the Bay and will need to be re-housed, either in the new marina or other bays.	• Traffic impact would be significant (already a busy main arterial road). • Bay is used for sewage drainage which would need to be diverted to prevent circulation problems. • Would need significant infrastructure. • Site development to rear needs to be constrained because of nature reserve. • The Structure Plan issue about traffic congestion on roads to Cirkewwa would not be significantly eased (11TIP2). • The development of ancillary facilities would be constrained by existing planning policies.	• Traffic and other noise may be a problem for sailors on their boats. • The bay has no significant international selling points, when compared to other Mediterranean marinas, so would have primarily domestic appeal. • No existing yachting infrastructure other than the marine fuelling station, so there will be a range of landside facilities required. • Charter and wintering boats may prefer to be closer to the historic/ social/touristic centre of Malta. • Customs at Gozo and Valetta will mitigate against Xemxija as a main port of call for visitors.

Other Comments

- It would be possible to create a beach at the inner shore of the bay, within the marina, to reduce wave action and create an attractive feature. It would also be possible to create a beach on the outside of a breakwater, but the sand would need to be topped up regularly to replace that washed away by the wave action.
- The loss of bathing space could be mitigated by creating a ledge and bathing access from the breakwater on the seaward side.
- It may be appropriate to consider a smaller marina for the domestic market at Xemxija, with limited ancillary facilities. This could be extended at a later date quite cost-effectively, if appropriate, through design and positioning of the breakwater.


N
POSSIBLE ALIGNMENT
OF BREAKWATERS
REGENERATED
BEACH
RECLAIMED
AREA
600 BERTHS

Summary - Marinas

60. The key advantages and disadvantages of the short listed sites may be summarised as follows:

Table 12 - Locational Advantages and Disadvantages - Marinas

	Kalkara & Dockyard Creek	**Xemxija**
For	Potentially strong international appeal linked to urban regeneration. Lower investment requirement.	Popular choice for the domestic market and therefore lower risk. Proximity to cruising grounds.
Against	Potential initial domestic market resistance. Competing uses (boatyard and No. 1 Dock). Road access.	No special international appeal. Competing uses (moorings and recreation/swimming). May cause road congestion. Higher investment requirement.

Source: Deloitte & Touche

Table 13 - Comparative Economic Value of Marina Developments

Ten Year Cumulative Costs & Benefits	**Kalkara Creek**	**Dockyard Creek**	**Xemxija**	**Xemxija**
(Lm million)	500 berths 160 hard standing	600 berths 75 hard standing	300 berths 200 hard standing	600 berths 200 hard standing
Annual Operating Profit (stabilised trading position)	0.16	0.176	0.137	0.23
Funding shortfall	(2.53)	(2.14)	(4.69)	(6.31)
Additional environmental costs	(1.43)	(1.75)	(1.91)	(3.1)
	(3.96)	(3.89)	(6.6)	(9.41)
Capital investment (Assuming it is spent locally)	1.96	1.8	3.15	4.42
Interest costs	1.54	1.43	2.38	3.36
Additional economic impact	13.59	14.36	9.89	16.44
Total economic benefit	**13.13**	**13.7**	**8.82**	**14.81**

Source: Deloitte & Touche

The above variations in operating income and additional economic impact relate to the number of berths and hard standing space available at each site. The capital investment and environmental costs have been specifically estimated for each site. Each site requires some element of additional funding to bridge the shortfall between the level of cash generated from the operation of a potential marina in the first 10 years and the level of loan repayments to be satisfied. This might be satisfied by public funding or, for example, by raising finance through selling berthing space in advance, developing ancillary facilities or real estate.

The estimated annual cash shortfall assumes the repayment of 100 per cent of development costs through a 12 year commercial bank loan (two years paying interest only during the build out stage followed by 10 years paying interest and capital repayments). In practice a substantial level of development funding is likely to be provided by a developer out of internal resources, debentures sold, the sale of concession pontoons or from other ancillary development opportunities, which will reduce the bank borrowing requirement.

Yard/Hard Standing Sites

61. In line with the development of a new yacht marina there will also be the need for additional yachting development in the form of boat yard and hardstanding facilities. A substantial proportion of the economic benefit of yachting could occur as a result of international yachtsmen leaving their yachts in Malta over winter for repairs. At the moment, the yard facilities in Malta have the capacity to service current and future yachting demands, but are seriously constrained by a lack of hardstanding capacity. Facilities need not necessarily be adjacent to a yacht marina although they would need to be by the water's edge to accommodate larger yachts which could not be transported by road. The facilities also need to be located along a part of the coast which is reasonably protected so that boats can be taken in and out of the water throughout the year.

62. Three sites were investigated for supplementary yard and hard standing space, all of which have some factors making them strong potential sites, but also with some significant constraints.

63. French Creek, the next creek to Dockyard, has a number of dry docks all of which are still in use, Therefore, available space is limited at the present time. A small potential site identified by the Planning Authority is towards the mouth of the creek and could offer space for about 130 yachts for hard storage. This would be an appropriate location, particularly if a marina were developed in Grand Harbour, and the environmental impact would be very low because of the existing boat-related activities and limited infrastructure changes needed.

64. Rinella Creek, also in Grand Harbour could provide space for yard and hard standing space but this would conflict with planning policy for the area.

65. The final site investigated is the Malta Hydrofoil site in Marsaxlokk, which has existing yachting activity along the shoreline, with slipways and areas for hard standing. This location, with the existing factory buildings (which are assumed to have an appropriate internal structure) could provide a comprehensive yacht servicing and storage centre for local and international demand. Some work would be required to increase the level hard standing areas and improve the waterfront access for boats but because of current activities the development is likely to have a minimal environmental impact. It is thought that a yacht hard standing area with 250 spaces at the Malta Hydrofoil site would cost approximately Lm180,000, excluding land costs.

66. The development of any of these sites is likely to be financially viable, because of the low level of capital investment required and one or more could be developed to cater for the Island's needs. Yard and hard standing services are important activities in terms of contributing to the wider Maltese economy and so the net benefit of developing such sites is likely to be significant.

67. However, all the potential sites identified have some limitations and their relative value is tied in, to a large extent, with the selection of a marina location. Other Opportunities for small boat storage areas could also be investigated in more detail, once the marina location is decided.

68. The principal advantages and disadvantages of the three short-listed hard standing sites are summarised in the following table:

Table 14 - Locational Advantages and Disadvantages - Hardstanding

	French Creek	**Rinella Creek**	**Malta Hydrofoil**
For	Harbour location.	Harbour location,	Partially developed.
Against	Competing use (dry docks). Proximity to residences.	Competing use (amenity). Planning policy.	Possible impact upon local village.

Source: Deloitte & Touche

Public Consultation and Stage Three

69. The development of a new yacht marina will require considerable investment but this will give Malta significant overall economic benefits through additional foreign exchange, employment opportunities and improved infrastructure for the use of Maltese residents and visitors alike.

70. The next step within this planning process is public consultation and this document is a summary of the Stage One and Stage Two Study reports to enable public consultation within an informed context. A limited number of copies of the extensive and detailed reports that form part of Stage One and Stage Two of this Study are available from the Planning Authority against payment.

71. Stage Three of this Study may be required to prepare detailed technical and financial viability studies for one or all of the short listed sites. These viability studies will broadly contain the following: design detail, technical and financial analysis studies, technical data for breakwater and other physical requirements, economic impact study and an environmental impact study. This work will be prepared at a suitable level of detail to enable Government or the private sector to prepare specific proposals for development.

Limitations of Scope

72. This document reflects the summarised findings of a detailed two stage Study prepared for the Malta Maritime Authority (working closely with the Planning Authority) by Deloitte & Touche Consulting Group in accordance with terms of reference dated 15 February 1995. The scope of our work has been specifically restricted to the matters set out in these terms of reference.

73. No duty of care whatsoever is accepted by Deloitte & Touche Consulting Group to third parties in respect of the information contained within this summary document or the full Stage One and Stage Two reports. These are being circulated within Malta for planning

consultation purposes only. In particular, prospective developers or lenders in connection with marina development are advised that detailed financial projections have yet to be commissioned.

74. For the avoidance of doubt, the findings of this document relate only to development of a marina within the Maltese islands.

75. The financial information contained in this document has been extracted from the detailed Stage One and Stage Two reports of this Study which carefully explain the assumptions made and the sources of data used. Insofar as the assumptions relate to the future and may be affected by unforeseen events, we can express no opinion as to how closely the forecast results will correspond to actual results.

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