SECTION IV

PROBLEMS, NEEDS, CONCERNS, AND OPPORTUNITIES

GENERAL

The following paragraphs present general and specific discussions of navigation problems, needs, concerns, and opportunities identified within the Port of Hampton Roads. The first part of this section discusses general concerns associated with most ports such as anchorages, channels, dredged material placement areas, environmental requirements, funding constraints, rules and regulations, and other common issues. The second part of this section discusses specific navigation concerns that have been identified by port users and other interests (including businesses; private organizations; academia; and Federal, state, regional, and local agencies) within the Hampton Roads area. These specific concerns were identified primarily through interviews, meetings, and correspondence with port users and are categorized under one of the general concerns. The last part of the section presents the relevant prioritization criteria and methodology used by Circle "A" stakeholders to numerically rank the identified problems, needs, concerns, and opportunities.

GENERAL CONCERNS

There are a number of general navigation problems, needs, concerns, and opportunities that have been identified within the Port of Hampton Roads that are common to most large port complexes. These concerns are listed below and discussed in the following paragraphs:

- Anchorages
- Channels
- Dredged Material Placement Areas
- Environmental Concerns
- Funding
- Landside Concerns
- Navigation Information
- Rules and Regulations
- Supplemental Facilities

ANCHORAGES

Natural water depths in most harbors are insufficient to accommodate large ships, which are required to anchor in port. Although large, deep-draft vessels must have a minimum in-port time due to the economics involved in operating costs, on many occasions, vessels are required to anchor while waiting for berths, crews, proper tidal conditions, better weather, or repairs. For these reasons, all ports must have some area where delayed vessels may be anchored safely without obstructing the channels or other water areas provided for the movement of vessels. The existing anchorage areas within Hampton Roads harbor are described in Section II.

CHANNELS

Channels are waterway routes used by ships. Their primary function is to facilitate the safe movement of vessels between two points. They normally connect bodies of deep water and shallow water and permit vessels to call at waterfront facilities. Increases in the number and/or size of vessels calling at ports create a demand for improvement of a harbor's major navigable channels. Also, the improvement of ingress and egress channels to waterfront military and commercial facilities must keep pace with the main channels. Normal concerns, with respect to channels, include their depth, width, length, and location. The existing channels, which comprise the Port of Hampton Roads, are described in Section II.

DREDGED MATERIAL PLACEMENT AREAS

The construction and maintenance of channels, anchorages, and other navigation features within the harbor result in the relocation of significant volumes of dredged material. The location of a convenient and environmentally acceptable dredged material placement area within economical distance of dredging operations is a crucial aspect of the operation and maintenance of all ports. The Craney Island Dredged Material Area serves this purpose. It is a 2,500-acre Federally-owned confined placement area located within the Hampton Roads harbor complex. Dredged material may also be placed in one of the two designated and approved off-shore sites, the Dam Neck Dredged Material Area and the Norfolk Dredged Material Area. These placement areas are described in Section II.

ENVIRONMENTAL CONCERNS

Environmental concerns are related to the identification and description of beneficial and adverse effects of actions within the port on significant natural resources and historical properties. Relevant evaluations are necessary to comply with the requirements of Federal, state, and local legislation. Representative Federal laws include the Rivers and Harbors Appropriation Act of 1899, as amended; the Fish and Wildlife Coordination Act of 1958; the National Historic Preservation Act of 1966; the NEPA of 1969; the Clean Water Act; the Coastal Zone Management Act of 1972; the Marine Protection, Research, and Sanctuaries Act of 1972; and the Endangered Species Act of 1973. These evaluations include the effects on the ecological, cultural, and aesthetic attributes of the natural, historical, and cultural resources of the port area. Ecological attributes are components of the environment that directly or indirectly sustain dynamic, diverse, and viable ecosystems such as wetlands; plant and animal species; habitat; and the chemical and physical properties of air, water, and soil and other natural resources. Cultural attributes are evidence of past and present habitation that can be used to reconstruct or preserve human life ways. These include structures, sites, artifacts, and environmental and other relevant information. Aesthetic attributes are perceptual stimuli that provide diverse and pleasant surroundings for human enjoyment and appreciation such as sight, sound, scents, and tastes. Concerns are reviewed and addressed through the

environmental permitting requirements of the Corps of Engineers and the appropriate state and local authorities.

FUNDING

The operation and development of all aspects of the port are dictated by budget constraints to various degrees. Rarely, if ever, are there sufficient funds to accomplish all that port users and interests desire. Thus, it is necessary to establish priorities so that available funds are used most efficiently and effectively. A primary purpose of the Plan is to prioritize the identified problems, needs, concerns, and opportunities associated with the operation, maintenance, and development of the port to better facilitate the allocation of limited funds.

LANDSIDE CONCERNS

Landside concerns are numerous and varied, and they include the facilities and resources necessary for port operations. These concerns include receiving, storage, and transfer facilities; intermodal systems and land access; land for future development; police and fire protection; a productive workforce; and impacts on host cities--all of which are important within the port complex. In order to maintain a competitive port and to provide for future growth, it is imperative that the most effective landside facilities, resources, and operations are in place to compliment the waterways and related improvements to ensure efficient, safe, and equitable operations within the Hampton Roads port complex.

NAVIGATION INFORMATION

Safe and efficient navigation requires accurate and timely information regarding water depths and levels, tides, currents, and other pertinent oceanographic and meteorological data. Much of this information is provided by the National Oceanic and Atmospheric Administration and is contained on nautical charts. Hydrographic surveys to determine the configuration of the bottom of water bodies, including the location and identification of derelict vessels and obstructions, are crucial to safe navigation, as is the precise location of landmarks and navigation aids. Harbor pilots and ship masters also

require accurate and real-time information in order to avoid groundings and collisions and permit the full utilization of tidal cycles. Real-time data regarding water levels, currents, and tidal conditions permit port authorities and maritime shippers to make sound decisions regarding the loading of tonnage based on available bottom clearance of the vessel. This will help to maximize loads and limit passage time without impacting safety.

RULES AND REGULATIONS

As discussed in Section I, there are numerous rules and regulations administered by a number of Federal, state, and local agencies within any major harbor. These rules and regulations are necessary to efficiently and safely operate the port while protecting the environment. Some concern was expressed by stakeholders regarding the continued availability of appropriate permits for commercial development within the port and the opportunity to reduce and/or streamline some of the existing requirements.

SUPPLEMENTAL FACILITIES

These facilities include turning basins, piers and wharves, and berthing and mooring areas required to accommodate vessels using the navigation channels and adjacent businesses. These necessary adjuncts to the harbor complex are critical to the operation of an efficient and competitive port. Vessels must have adequate turning areas for proper and safe maneuvering within the navigation channels. Adequate piers and wharves and berthing and mooring areas are necessary to permit ships to be loaded and unloaded in a timely manner without having to wait in anchorage areas at considerable costs to owners and operators. There is a need to ensure that these facilities are sufficient to accommodate the number and size of vessels calling at the port both now and in the foreseeable future. This need will be exacerbated by the expected increase in the number and size of ships calling at the port, particularly container vessels.

SPECIFIC CONCERNS

A survey of port users and interests was accomplished in the early stages of the development of the Plan to identify specific problems, needs, concerns, and opportunities associated with the use and development of the navigation features of the port and the opportunities available for improvements. As part of the survey, respondents provided their short-range (less than 5 years) and long-range navigation plans so that future impacts on port use and development could be estimated. They also provided a rationale for determining the importance of their concerns, which guided Circle "A" stakeholders in establishing the prioritization criteria subsequently listed and ultimately assisted Circle "A" in the ranking of identified concerns. Information obtained through personal contacts was supplemented and confirmed at the first two workshop meetings conducted in October 1997 and June 1998. The complete list of concerns was also coordinated with more than 400 stakeholders on the Plan mailing list to obtain their input. The views of individual port users and interests obtained through personal surveys and workshop meetings were crucial to providing a comprehensive assessment of current and future navigation concerns facing the port. The following table lists the specific problems, needs, concerns, and opportunities that have been identified. Specific items of concern are listed under the appropriate general concern categories previously discussed.

Table IV-1. IDENTIFIED PROBLEMS, NEEDS, CONCERNS, AND OPPORTUNITIES

I. Anchorages
- A. Sewells Point: Need to deepen the westernmost anchorage opposite Sewells Point (K-2) from 40 feet to the authorized depth of 45 feet (6)
- B. Sewells Point: Need to increase the swinging radius in the easternmost, 45-foot-deep anchorage opposite Sewells Point (K-1) from the authorized radius of 1,200 feet to the recommended radius of 1,500 feet (6)
- C. Sewells Point: Need to make broader use of the anchorages opposite Sewells Point (K-1 and K-2) (6)
- D. Lamberts Point: Need to make broader use of the anchorages opposite Lamberts Point (H-1) (6)

Table IV-1. IDENTIFIED PROBLEMS, NEEDS, CONCERNS, AND OPPORTUNITIES
(Cont'd)

E. Newport News: Need to deepen both anchorages opposite Newport News (I-1 and I-2) from 40 feet to the authorized depth of 45 feet (6)
F. Hampton Roads Bridge-Tunnel: Need to deepen the 1,500-foot swinging radius anchorage (F) just west of the Hampton Roads Bridge-Tunnel from 50 feet to the authorized depth of 55 feet (6)
G. Need additional anchorages

II. Channels
A. Depths
1. Norfolk Harbor Channel: Need to deepen the inbound lane from 45 feet to 50 feet to Lamberts Point (1)
2. Norfolk Harbor Channel: Need to deepen the inbound lane from 45 feet to the authorized depth of 55 feet to Lamberts Point (2)
3. Norfolk Harbor Channel: Need to deepen the outbound lane from 50 feet to the authorized depth of 55 feet to Lamberts Point (3)
4. Elizabeth River Channel: Need to deepen from 40 feet to the authorized depth of 45 feet from Lamberts Point to the junction of the Eastern and Southern Branch Channels
5. Southern Branch Channel: Need to deepen from 40 feet to the authorized depth of 45 feet to the Norfolk Southern Railroad bridge
6. Southern Branch Channel: Need to deepen from 35 feet to the authorized depth of 40 feet to the Gilmerton Bridge
7. Channel to Newport News: Need to deepen the inbound lane from 50 feet to the authorized depth of 55 feet (4)
8. Channel to Newport News: Need to deepen the outbound lane from 50 feet to the authorized depth of 55 feet (5)

B. Widths
1. Need to deepen the entire easternmost anchorage area opposite Sewells Point (K-1) and a small section of channel to 50 feet to provide easier transit between the Norfolk Harbor Channel and the Channel to Newport News; in addition, the K-1 anchorage would need to be relocated (6)
2. Need to deepen the entire easternmost anchorage area opposite Sewells Point (K-1) and a small section of channel to 55 feet to provide easier transit between the Norfolk Harbor Channel and the Channel to Newport News; in addition, the K-1 anchorage would need to be relocated (6)

C. Maintenance dredging: Continued and timely maintenance of port channels

Table IV-1. IDENTIFIED PROBLEMS, NEEDS, CONCERNS, AND OPPORTUNITIES
(Cont'd)

- D. Crossings
  - 1. Bridges
  - 2. Tunnels
  - 3. Utility crossings
- E. Multiple-use conflicts: Potential conflicts between recreational, commercial, and military uses
- F. Navigation aids
  - 1. Better channel markings
  - 2. More lighted buoys
- G. Obstructions
  - 1. Derelict vessels, sunken barges, etc.
  - 2. Debris and drift material
  - 3. Docked boats that obstruct view of navigation channel

III. Dredged Material Placement Areas
- A. Need to extend life of Craney Island Dredged Material Area and/or locate alternative future placement sites
- B. Use of Craney Island Dredged Material Area for port development

IV. Environmental Concerns
- A. Contaminated areas along rivers and on river bottoms
- B. Deep channel effects on currents and depths in the vicinity of the Norfolk Naval Base
- C. Water quality
- D. Wetlands

V. Funding

VI. Landside Concerns
- A. Receiving, storage, and transfer facilities
- B. Intermodal facilities that may impact navigation
- C. Land for future development
- D. Police and fire protection
- E. Productive workforce
- F. Impact of port growth on the host cities

VII. Navigation Information
- A. Depths
- B. Tides
- C. Currents
- D. Waves
- E. Weather

Table IV-1. IDENTIFIED PROBLEMS, NEEDS, CONCERNS, AND OPPORTUNITIES
(Cont'd)

F. Waves
G. Weather

VIII. Rules and Regulations
A. Dredging permits
B. Unnecessary and burdensome

IX. Supplemental Facilities
A. Turning basins
B. Piers and wharves
C. Berthing and mooring areas
D. Additional dolphins for commercial vessels at Great Bridge Lock
E. Recreational boating facilities

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(1) This segment of channel also requires the deepening of the inbound lane of the Thimble Shoal Channel from 45 feet to 50 feet.
(2) This segment of channel also requires the deepening of the inbound lane of the Thimble Shoal Channel from 45 feet to the authorized depth of 55 feet and the Atlantic Ocean Channel to the recommended depth of 60 feet.
(3) This segment of channel also requires the deepening of the outbound lane of the Thimble Shoal Channel from 50 feet to the authorized depth of 55 feet and the Atlantic Ocean Channel to the recommended depth of 60 feet.
(4) This segment of channel also requires the deepening of a portion of the inbound lane of the Norfolk Harbor Channel from 45 feet to the authorized depth of 55 feet, the inbound lane of the Thimble Shoal Channel from 45 feet to the authorized depth of 55 feet, and the Atlantic Ocean Channel to the recommended depth of 60 feet.
(5) This segment of channel also requires the deepening of a portion of the outbound lane of the Norfolk Harbor Channel from 50 feet to the authorized depth of 55 feet, the outbound lane of the Thimble Shoal Channel from 50 feet to the authorized depth of 55 feet, and the Atlantic Ocean Channel to the recommended depth of 60 feet.
(6) Please see anchorage designations for (F), (K-1), (K-2), etc., on National Ocean Service Nautical Charts (Appendix B, Table B-1).

The following paragraphs discuss the specific concerns in the order in which they are listed in the previous table. Each concern is described as defined by the stakeholders(s) who identified it. When possible, the concerns are incorporated into the plan verbatim from the port user surveys. All specific problems, needs, concerns, and

opportunities related to navigation within the port that have been identified are included, regardless of their relative importance. In some cases, related concerns are discussed together.

ANCHORAGES

The specific concerns related to anchorages are generally divided into four areas of the harbor: Sewells Point, Lamberts Point, Hampton Roads Bridge-Tunnel, and Newport News. For the most part, brief descriptions given in Table IV-1 adequately define the need as expressed by port users and interests. The basic concern, with respect to anchorage areas, is that they be sufficient in size, number, and location to safely and efficiently accommodate existing and prospective vessel traffic. Port interests expressed a need to construct the existing authorized anchorages to their fully authorized dimensions to be commensurate with increased channel dimensions. They also indicated opportunities for more commercial usage of the Navy anchorage areas opposite Sewells Point and a potential for the provision of additional deep-draft anchorages in the future to accommodate port growth and maintain its competitiveness.

CHANNELS

More channel-related problems, needs, concerns, and opportunities were indicated by port users and interests than any other aspect of the harbor. These concerns are divided into seven individual categories: depths, widths, maintenance dredging, crossings, multiple-use conflicts, navigation aids, and obstructions. Each of these categories is discussed as follows:

Depths

Norfolk Harbor Channel: Need to Deepen the Inbound Lane from 45 Feet to 50 Feet to Lamberts Point. This concern also requires the deepening of the inbound lane of the Thimble Shoal Channel from 45 feet to 50 feet since provision for both are required to achieve the desired results. Addressing this need would provide an inbound channel depth equal to the existing outbound channel depth, eliminating the current two-

level channel situation. It would primarily accommodate the existing and prospective increase in the size of container ships calling at the southside of the port.

Norfolk Harbor Channel: Need to Deepen the Inbound Lane from 45 Feet to the Authorized Depth of 55 Feet to Lamberts Point. This concern also requires the deepening of the inbound lane of the Thimble Shoal Channel from 45 feet to the authorized depth of 55 feet and the Atlantic Ocean Channel to the recommended depth of 60 feet to achieve prospective benefits. The need for the Atlantic Ocean Channel is a part of the Federally-authorized project to deepen the Hampton Roads harbor channels to a depth of 55 feet. The additional 5 feet in channel depth for the Atlantic Ocean Channel is required due to its open-ocean environment and the need for increased clearances beneath vessels' keels and the channel bottom. This project is described in detail in Section II. The entire deepening project, including the Atlantic Ocean Channel deepening, is required to safely and efficiently accommodate large bulk coal carriers departing the port with loaded drafts 50 feet and greater and to facilitate the inbound transit of the largest current and future container ships. An inbound channel that is 55 feet deep could be an independent increment of the overall Hampton Roads harbor authorized project providing safe and efficient access to the southside of the port for the largest container ships expected in the foreseeable future.

Norfolk Harbor Channel: Need to Deepen the Outbound Lane from 50 Feet to the Authorized Depth of 55 Feet to Lamberts Point. This concern also requires the deepening of the outbound lane of the Thimble Shoal Channel from 50 feet to the authorized depth of 55 feet and the Atlantic Ocean Channel to the recommended depth of 60 feet to provide a viable increment of the overall authorized Federal project. This would primarily serve the large bulk coal carriers departing the southside of the port with loaded drafts of 50 feet or greater. It would enable owners and operators of their ships to utilize the additional cargo carrying capacity of their vessels, thereby achieving savings in transportation costs and permitting larger vessels into the trade.

Elizabeth River Channel: Need to Deepen from 40 Feet to the Authorized Depth of 45 Feet from Lamberts Point to the Junction of the Eastern and Southern Branch Channels. This would benefit the terminals and ship repair yards located along this reach of the river and would provide safe and efficient access for larger ships to these areas.

Southern Branch Channel: Need to Deepen from 40 Feet to the Authorized Depth of 45 Feet to the Norfolk Southern Railroad Bridge. This would benefit the various industries, ship repair yards, and storage facilities located along this reach of the river and would provide safe and efficient access for larger ships to these locations.

Southern Branch Channel: Need to Deepen from 35 Feet to the Authorized Depth of 40 Feet to the Gilmerton Bridge. This concern expresses a need to deepen the existing 35-foot-deep channel to accommodate both existing and future vessel traffic engaged in the transport of grain, petroleum products, and miscellaneous dry and liquid bulk commodities. It would also provide an opportunity for further industrial development along the Southern Branch.

Channel to Newport News: Need to Deepen the Inbound Lane from 50 Feet to the Authorized Depth of 55 Feet. Addressing this need would also require the deepening of a portion of the inbound lane of the Norfolk Harbor Channel from 45 feet to the authorized depth of 55 feet, the inbound lane of the Thimble Shoal Channel from 45 feet to the authorized depth of 55 feet, and the Atlantic Ocean Channel to the recommended depth of 60 feet. An inbound channel that is 55 feet deep would provide safe and efficient access to the northside of the port for the largest container ships expected in the foreseeable future.

Channel to Newport News: Need to Deepen the Outbound Lane from 50 Feet to the Authorized Depth of 55 Feet. Addressing this need would also require the deepening of a portion of the outbound lane of the Norfolk Harbor Channel from

50 feet to the authorized depth of 55 feet, the outbound lane of the Thimble Shoal Channel from 50 feet to the authorized depth of 55 feet, and the Atlantic Ocean Channel to the recommended depth of 60 feet. This would primarily serve the large bulk coal carriers departing the northside of the port with loaded drafts of 50 feet or greater. It would enable owners and operators of these ships to utilize additional cargo carrying capacity of their vessels, thereby achieving savings in transportation costs and permitting larger vessels into the trade.

Widths

Need to Deepen the Entire Easternmost Anchorage Area Opposite Sewells Point (K-1) and a Small Section of Channel to 50 Feet to Provide Easier Transit between the Norfolk Harbor Channel and the Channel to Newport News; in Addition, the K-1 Anchorage Would Need to Be Relocated. The need is to provide a safer and more efficient turn to facilitate the maneuvering of large vessels from one channel to the other. On some occasions, it is necessary to use tugs for making the turn.

Need to Deepen the Entire Easternmost Anchorage Area Opposite Sewells Point (K-1) and a Small Section of Channel to 55 Feet to Provide Easier Transit between the Norfolk Harbor Channel and the Channel to Newport News; in Addition, the K-1 Anchorage Would Need to Be Relocated. A depth of 55 feet would provide safe and efficient maneuvering between channels for the largest bulk coal carriers and container ships, and it would be commensurate with the deepening of the Hampton Roads harbor channels to the authorized depth of 55 feet.

Maintenance Dredging

Another need is to ensure that the Corps of Engineers continues its program to provide maintenance dredging of the main Federal channels of the port at appropriate intervals to make sure that proper dimensions are available for efficient, effective, and safe navigation.

Crossings

Bridges. A general concern for the port is the increasing waterway traffic that requires frequent bridge openings that delay cars and trucks and/or added bridge opening restrictions, which severely hamper boat traffic. Increasing highway traffic significantly adds to congestion and delays. This particularly becomes a problem during the recreation boating season, which adds substantially to bridge opening requirements. More effective coordination, especially during peak traffic times, is needed to help alleviate the current situation. Additional vertical clearance may be required under new highway bridges and additional tunnels may be required in the future to adequately address this problem. Specific concerns were expressed regarding the dual highway and railroad bridges at Gilmerton that restrict the size of vessels that may transit upstream from this point on the Southern Branch and, consequently, hamper future industrial development in this reach of the river. Also, specific concerns were expressed with the efficiency of openings for the Jordan Bridge on the Southern Branch and the Norfolk Southern railway bridge on the Eastern Branch.

Tunnels. The need for utilizing tunnels in lieu of bridges for channel crossings was expressed as a concern since some believe that tunnel crossings are less restrictive for both water and highway traffic. Tunnels can, however, reduce the depth to which navigation channels can be constructed.

Utility Crossings. Overhead utilities can restrict the height of vessels transiting channel, and underground utilities can limit the depth of navigation channels--both impacting the size of vessels.

Multiple-Use Conflicts

The various uses of the waterways in the Hampton Roads area can, at times, be incompatible with each other. Since waterways are limited in space and, as more users and uses are introduced in the water, demand and competition for space increases and conflicts may occur. Use conflicts may result in boating accidents, user complaints,

disturbances of wildlife and wildlife habitat, water quality degradation, or boat wake erosion of wetlands and/or private waterfront property. The need exists for improved waterway use management in the Hampton Roads area and for increased awareness of existing concerns by localities, resource management agencies, and the state legislature.

Navigation Aids

Better Channel Markings. There is a need for a directional sign at the confluence of the Eastern and Southern Branches to prevent transient boats from going up the Eastern Branch looking for the Intracoastal Waterway. Also, more prominent no-wake zone signs are needed between Norfolk and Portsmouth; the existing signs are helpful but are difficult to see. Tugs, commercial boats, and pleasure craft create too much wake in this area of the river. Southbound vessels in the Elizabeth River pass too close to Portside in Portsmouth. This problem is exacerbated by the location of Harbor Towers and trees that block the line-of-sight for boat operators coming out of Portside. A red buoy on the curve of the channel near Harbor Towers would cause boat operators going southbound to make a wider turn when passing Portside.

More Lighted Buoys. There is a need for more lighted buoys in the Port Norfolk Reach of the channel to assist transient pleasure boat operators who are unfamiliar with the harbor.

Obstructions

Derelict Vessels, Sunken Barges, Etc. Abandoned and/or derelict vessels, barges, and similar objects sunken in the harbor area are a concern. In addition to being aesthetically undesirable, they can adversely impact navigation safety and the aquatic environment. As an abandoned vessel ages, it breaks apart providing sources of floating debris that can cause damages to boats. Also, derelict vessels can destroy submerged aquatic vegetation and may leach toxic chemicals to the water from paint, fuel, and oil.

Debris and Drift Material. There is a continuous need for the collection and removal of floating debris and drift material from the waters of the harbor that may damage vessels or threaten public health, recreation, and/or the environment. Derelict objects, such as waterfront structures and sunken vessels, are a concern since they provide substantial sources for floating debris.

Docked Boats That Obstruct View of Navigation Channel. One concern was expressed regarding the large dolphin in the river near the confluence of the Eastern and Southern Branches of the Elizabeth River. When a large ship is docked there for repairs, it blocks the view of east-bound traffic, causing a potential hazard.

DREDGED MATERIAL PLACEMENT AREAS

Need to Extend the Life of Craney Island Dredged Material Area and/or Locate Alternative Future Placement Sites

It is imperative that the Hampton Roads maritime interests implement a practical and feasible long-range solution for placement of dredged material. It is important to plan for and implement suitable, well-placed, environmentally acceptable, and economically viable dredged material placement areas to ensure the effective and efficient maintenance of the port. The channels and other navigation features in Hampton Roads must be appropriately maintained if the area's nationally vital commercial and military functions are to continue. To meet the future dredged material placement needs, consideration would have to be given to the expansion of the Craney Island Dredged Material Area and/or finding, acquiring, and developing alternative sites. The provision of adequate future areas will require addressing concerns such as environmental issues, wetlands, and competing land uses.

Use of Craney Island Dredged Material Area for Port Development

Port interests have long recognized the outstanding potential available to make use of part of the Craney Island Dredged Material Area for future development. Its location, adjacent to deepwater channels, presents exceptional advantages for port use.

The Virginia General Assembly has authorized the Craney Island Study Commission, which is comprised of representatives from the VPA, the City of Portsmouth, the Hampton Roads Maritime Association, and the Army Corps of Engineers, to examine current use and future expansion of Craney Island and recommend appropriate future use of the area. The potential expansion of the facility could provide areas for development of an additional container facility to accommodate future growth while providing for the future efficient and cost-effective placement of dredged material from adjacent channels.

ENVIRONMENTAL CONCERNS

Contaminated Areas along Rivers and on River Bottoms

Many years of industrial and commercial use have resulted in contaminants located along the shores of the harbor and in bottom sediments. The worst of these areas are located within the Elizabeth River Basin, specifically its Southern Branch. As discussed in Section III, the Elizabeth River Basin feasibility study initiated in June 1998 will address five contaminant sites within the Elizabeth River. However, there may be other problem areas within the port, that are outside the scope of the Elizabeth River Basin study.

Deep Channel Effects on Currents and Depths in the Vicinity of the Norfolk Naval Base

Concern was expressed with the impacts, if any, of adjacent deep-draft channels on the currents and depths in the vicinity of the Naval Base.

Water Quality

Several concerns were expressed regarding the improvement of water quality within the port. These concerns are as follows:

- Facilities should be provided for proper disposal of on-board waste, especially with respect to recreational boats and marinas;

- The direct pumping of bilge water into the harbor should be eliminated;

- Container facilities should be designed to include elements that reduce or eliminate untreated stormwater runoff, provide adequate containment areas for liquid and gas containers, and provide elements to eliminate possible contamination during transfer;

- Bulk cargo storage facilities should be designed to reduce emissions of dust and debris into air, water, and soil;

- Eliminate and/or control what is commonly referred to as "prop" dredging; and

- Provide for the proper handling of contaminated dredged material.

Wetlands

Concerns have been expressed regarding the filling and draining of wetlands of the waterways of Hampton Roads over many years. This type of wetland alteration and destruction has likely reduced the diversity of fish and wildlife in the area and served to reduce water quality. Restoration of these wetlands would benefit fish and wildlife resources, improve water quality, and generally make the area more aesthetically pleasing.

FUNDING

Funding is a general concern that applies to all aspects of port operation and development. As previously stated in the section describing general concerns, a primary purpose of the Plan is to prioritize the identified problems, needs, concerns, and opportunities to better facilitate the allocation of limited funds.

LANDSIDE CONCERNS

Receiving, Storage, and Transfer Facilities

In order to maintain a competitive port and to provide for future growth, it is imperative that the most efficient and effective facilities are in place to accommodate the transfer of cargo with the least amount of port time for ships. There is a need to ensure that sufficient storage areas are available and that transfer facilities, such as container cranes, are upgraded to accommodate larger vessels.

Intermodal Facilities That May Impact Navigation

Potential issues that have been identified as significant concerns include access to port facilities, safety, costs, bridge clearances and weight limits, travel time, and transfer and connection between modes. There is a need for the port area to significantly improve the land-based transportation network that is projected to carry even greater volumes of marine freight in the future. Accelerated development throughout the region is resulting in congestion on the area's transportation infrastructure. Roads, tunnels, bridges, and rail systems that serve the port terminals have reached and, in some cases, surpassed capacity. Also, channel dredging projects have been identified as one of the specific infrastructure needs that substantially impacts intermodal transportation in the Hampton Roads area. Concerns specific to bridges and tunnels and to navigation channel needs were discussed previously in this section.

Land for Future Development

Land suitable for maritime facilities is at a premium within the port area. It is necessary that every effort be made to maximize existing land use. Although some undeveloped land remains adjacent to deep-water channels within the port, the major opportunity for the future may be the redevelopment of existing properties and more efficient use of existing land areas. A survey of the harbor area indicates a significant amount of under-developed properties located adjacent to deep water channels. The potential use of the Craney Island Dredged Material Area for port development, as

discussed previously, would provide a substantial amount of prime waterfront property located adjacent to deep navigation channels for future commercial maritime use.

Police and Fire Protection

With respect to this specific category, only one concern was expressed during the survey of port users. A potential problem may exist with the capability to deal with spills of hazardous material and petroleum products during emergency situations, such as hurricanes. Although a coordinated emergency response system is currently in place, the severity of the problem and the extent of the risk during emergencies may be beyond the capability of the system and is a concern that warrants consideration.

Productive Workforce

Economic activity directly and indirectly associated with the port creates a need for a substantial number of workers. As indicated previously in Section I, over 128,000 people in Virginia are employed in port-related jobs. It is important that skilled workers are available within the area surrounding the port to satisfy future employment needs. Also of comparable importance is the continued cooperative attitude between labor and management, which is essential to maintaining an efficient and competitive port.

Impact of Port Growth on Host Cities

A concern was expressed with the impact of port development in Newport News, Norfolk, and Portsmouth. Although the positive economic impacts of the VPA marine terminals are dispersed throughout the Hampton Roads area and the Commonwealth, the significant operational impacts of their presence such as land acquisition, rail and truck traffic congestion, and tax exempt status are localized in the three host cities. Some have indicated a need for a partnership with the host cities to accommodate and foster continued port growth while allowing the port to achieve its potential and the Commonwealth and host cities to enjoy the associated benefits.

NAVIGATION INFORMATION

The first five items listed in Table IV-1 under "Navigation Information" are depths, tides, currents, waves, and weather. These are required basic navigation data, which are inter-related, and, therefore, their discussion is combined. The need as expressed by port users is the ability to get vessels in and out of the port as fast as possible, with maximum loads and under safe conditions. To accomplish this requires accurate and timely information, permitting vessel operators to make greater and more efficient use of existing navigation conditions. Currently, operators rely essentially on charts that are based on average conditions and not on actual data for the specific time of sailing. The National Oceanic and Atmosphere Administration has developed a Physical Oceanographic Real Time System (PORTS) to support maritime commerce and navigation safety that is presently in use at several areas, including the lower Chesapeake Bay, Houston/Galveston, New York/New Jersey Harbor, San Francisco Bay, and Tampa Bay. The system provides accurate real-time oceanographic and meteorological information tailored to the specific needs of individual ports. State-of-the-art instruments measure water level, water temperature, conductivity, wind speed, wind direction, wind gusts, air temperature, and barometric pressure at various locations in a harbor. These data are collected and processed by remote data collection platforms, then transmitted to a centralized data acquisition system. The information is then formatted into text, voice, or graphic outputs. The data are updated every six minutes and can be accessed immediately via the Internet, modem dial-in, or telephone. You can access PORTS on its Internet address (www.opsd.nos.noaa.gov).

Planning and Management Tools

Concern was expressed regarding the need for certain planning and management tools for effective port development. These may include:

- Environmental database development, including information on previous port development efforts, studies done in connection with them, and monitoring results and other pertinent data made readily available through today's new media and data dissemination formats;

- Hydrodynamic model development, which is a new capability using computer simulation in place of the physical models that were once used to evaluate the response of an estuary to physical changes; numerical models, once calibrated and verified at appropriate scales for Hampton Roads waterways, can be used to answer many “what if” questions very early in the planning process; and

- Observational systems development, which is another new capability to monitor more easily the "vital statistics" of estuarine behavior through state-of-the-art oceanographic instrumentation; new instruments such as acoustic Doppler current profiling systems offer innovative means of observing waves, currents, water temperature, and suspended sediment concentration.

Twenty-Four Hour Side Scan Sonar Capability

Concern was indicated for access to 24-hour side scan sonar capability within the port. This would permit a more rapid determination of the extent of a channel blockage due to sunken objects such as ships, barges, buoys, etc., and it would assist in keeping the harbor channels open to vessel traffic.

RULES AND REGULATIONS

Dredging Permits

A concern was expressed regarding the continued availability of appropriate permits for commercial facilities located within the port.

Unnecessary and Burdensome

Concern was indicated for the increasing number of rules and regulations required to do business within the port. Some believe that many of the rules and regulations are unnecessary, and they make it difficult for small companies to do business within the port.

SUPPLEMENTAL FACILITIES

Turning Basins

A general concern, with respect to turning basins, is that they be sufficient in size, number, and location to safely and efficiently accommodate existing and prospective vessel traffic; in addition, that they be commensurate with any future increased channel dimensions.

Piers and Wharves

The maintenance of a competitive port that provides for future growth requires that adequate piers and wharves are available to accommodate the size and type of vessels calling at the port now and in the foreseeable future. Piers and wharves must be sufficient to permit ships to load and unload as efficiently as possible, reducing in-port time to a minimum.

Berthing and Mooring Areas

Adequate berthing and mooring areas are necessary to permit ships to be loaded and unloaded in a timely manner without having to wait in anchorage areas at considerable costs. There is a need to ensure that there are sufficient berths for the number and size of vessels calling this port now and in the foreseeable future. This need will be exacerbated by the expected increase in the number and size of ships calling at the port, particularly container vessels.

Additional Dolphins for Commercial Vessels at the Great Bridge Lock

A concern was indicated for more dolphins at the Great Bridge Lock for larger vessels. Currently, there is space for only two commercial vessels, and the area can become very congested. This situation is exacerbated during the spring and fall seasons when many pleasure boats are passing through the area on the Atlantic Intracoastal Waterway.

Recreational Boating Facilities

Concerns were indicated for specific additional recreational boating facilities within the Hampton Roads harbor area. Some additional facilities that were suggested include launching ramps, pump-out stations, reasonably accessible and affordable pier spaces especially for large sailing vessels, and harbor of refuge spaces for transient pleasure craft.

PRIORITIZATION CRITERIA AND RANKING

Time and resources must be efficiently allocated to properly address the most important identified problems, needs, concerns, and opportunities facing the port. In order to effectively evaluate the many and various concerns within the port, it is necessary to develop a prioritized list. This portion of the section presents the relevant criteria used in developing the priority ranking of previously identified concerns. These criteria provide a checklist when weighing the individual concerns to ensure that all pertinent aspects are considered in the decision process. The following is an alphabetical list of items that are considered important in establishing a priority of action:

- Benefits
- Business: Attraction and location of new domestic and foreign business
- Commerce
- Competitiveness of the port
- Congestion, delays, and losses
- Costs
- Dredging cost efficiency
- Economic impacts
- Efficiency/productivity
- Environmental quality
- Fiscal impact on host cities
- Growth of port
- Landside development

- Mega ship operation
- Military importance
- Safety
- Seasonal pleasure boat operation
- Vessel traffic

The relative importance of each criterion varied with respect to the problem, need, concern, or opportunity to which it was being applied and to the individual making the judgement. A committee of port users and interests, referred to as Circle "A" stakeholders and identified in Section I, was responsible for assigning priority rankings to each of the identified concerns. The Circle "A" stakeholders considered the importance of each prioritization criterion as it applied to each concern in making their evaluations. The individual numeric rankings were then combined to develop a composite list based on the total assigned values. The following table lists the problems, needs, concerns, and opportunities as just described.

Table IV-2. PRIORITIZATION OF IDENTIFIED PROBLEMS, NEEDS, CONCERNS, AND OPPORTUNITIES

Concern	Assigned numeric ranking
I. Anchorages	
A. Sewells Point: Need to deepen the westernmost anchorage opposite Sewells Point (K-2) from 40 feet to the authorized depth of 45 feet (1)	18
B. Sewells Point: Need to increase the swinging radius in the easternmost, 45-foot-deep anchorage opposite Sewells Point (K-1) from the authorized radius of 1,200 feet to the recommended radius of 1,500 feet (1)	22
C. Sewells Point: Need to make broader use of the anchorages opposite Sewells Point	19

Table IV-2. PRIORITIZATION OF IDENTIFIED PROBLEMS, NEEDS, CONCERNS, AND OPPORTUNITIES
(Cont'd)

Concern	Assigned numeric ranking
D. Lamberts Point: Need to make broader use of the anchorages opposite Lamberts Point	40
E. Newport News: Need to deepen both anchorages opposite Newport News from 40 feet to the authorized depth of 45 feet	29
F. Hampton Roads Bridge-Tunnel: Need to deepen the 1,500-foot swinging radius anchorage (F) just west of the Hampton Roads Bridge-Tunnel from 50 feet to the authorized depth of 55 feet (1)	16
G. Need additional anchorages	49
II. Channels	
A. Depths	
1. Norfolk Harbor Channel: Need to deepen the inbound lane from 45 feet to 50 feet to Lamberts Point	5
2. Norfolk Harbor Channel: Need to deepen the inbound lane from 45 feet to the authorized depth of 55 feet to Lamberts Point	7 (tie)
3. Norfolk Harbor Channel: Need to deepen the outbound lane from 50 feet to the authorized depth of 55 feet to Lamberts Point	2
4. Elizabeth River Channel: Need to deepen from 40 feet to the authorized depth of 45 feet from Lamberts Point to the junction of the Eastern and Southern Branch Channels	6
5. Southern Branch Channel: Need to deepen from 40 feet to the authorized depth of 45 feet to the Norfolk Southern Railroad Bridge	10 (tie)
6. Southern Branch Channel: Need to deepen from 35 feet to the authorized depth of 40 feet to the Gilmerton Bridge	12

Table IV-2. PRIORITIZATION OF IDENTIFIED PROBLEMS, NEEDS, CONCERNS, AND OPPORTUNITIES
(Cont'd)

Concern	Assigned numeric ranking
7. Channel to Newport News: Need to deepen the inbound lane from 50 feet to the authorized depth of 55 feet	14
8. Channel to Newport News: Need to deepen the outbound lane from 50 feet to the authorized depth of 55 feet	9
B. Widths	
1. Need to deepen the entire easternmost anchorage area opposite Sewells Point (K-1) and a small section of channel to 50 feet to provide easier transit between the Norfolk Harbor Channel and the Channel to Newport News; in addition, the K-1 anchorage would need to be relocated (1)	10 (tie)
2. Need to deepen the entire easternmost anchorage area opposite Sewells Point (K-1) and a small section of channel to 55 feet to provide easier transit between the Norfolk Harbor Channel and the Channel to Newport News; in addition, the K-1 anchorage would need to be relocated (1)	15
C. Maintenance dredging: Continued and timely maintenance of port channels	1
D. Crossings	
1. Bridges	23
2. Tunnels	17
3. Utility crossings	42
E. Multiple-use conflicts: Potential conflicts between recreational, commercial, and military uses	33
F. Navigation aids	
1. Better channel markings	26 (tie)
2. More lighted buoys	37
G. Obstructions	
1. Derelict vessels, sunken barges, etc	30 (tie)
2. Debris and drift material	48
3. Docked boats that obstruct view of navigation channel	51

Table IV-2. PRIORITIZATION OF IDENTIFIED PROBLEMS, NEEDS, CONCERNS, AND OPPORTUNITIES
(Cont'd)

Concern	Assigned numeric ranking
III. Dredged Material Placement Areas	
A. Need to extend life of Craney Island Dredged Material Area and/or locate alternative future placement sites	3
B. Use of Craney Island Dredged Material Area for port development	4
IV. Environmental Concerns	
A. Contaminated areas along rivers and on river bottoms	20
B. Deep channel effects on currents and depths in the vicinity of the Norfolk Naval Base	43
C. Water quality	13
D. Wetlands	28
V. Funding	7 (tie)
VI. Landside Concerns	
A. Receiving, storage, and transfer facilities	38
B. Intermodal facilities that may impact navigation	21
C. Land for future development	45
D. Police and fire protection	47
E. Productive workforce	50
F. Impact of port growth on the host cities	46
VII. Navigation Information	
A. Depths	32
B. Tides	25
C. Currents	24
D. Waves	41
E. Weather	34 (tie)
F. Planning and management tools	39
G. Twenty-four hour side scan sonar capability	34 (tie)
VIII. Rules and Regulations	
A. Dredging permits	44
B. Unnecessary and burdensome	52

Table IV-2. PRIORITIZATION OF IDENTIFIED PROBLEMS, NEEDS, CONCERNS, AND OPPORTUNITIES
(Cont'd)

Concern	Assigned numeric ranking
IX. Supplemental Facilities	
A. Turning basins	30 (tie)
B. Piers and wharves	26 (tie)
C. Berthing and mooring areas	36
D. Additional dolphins for commercial vessels at Great Bridge Lock	54
E. Recreational boating facilities	53

(1) Please see anchorage designations for (F), (K-1), (K-2), etc., on National Ocean Service Nautical Charts (Appendix B, Table B-1).

It is not practical to evaluate all of the identified problems, needs, concerns, and opportunities that were identified by port users and interests, due to constraints of time and resources. Therefore, only those concerns ranked number 1 to 15 are evaluated in the Resolution Section that follows.