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Martha's Vineyard Port Areas
Infrastructure Capacity Study

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Woods Hole, Martha's Vineyard and Nantucket Steamship Authority

Summary

Responding to continued demands to permit additional passenger ferry service to Martha's Vineyard, the Woods Hole, Martha's Vineyard and Nantucket Steamship Authority (SSA) commissioned the Martha's Vineyard Commission (MVC) to conduct this study of the capacity of the existing infrastructure to support existing and expanded passenger ferry service in the immediate vicinity of the Island's port communities.

On a typical sunny day in August 1999, seven ferry carriers ran approximately 50 ferry trips to the Island with the vessel capacity to bring 28,000 people each way. Nearly 12,000 people, 43 percent of capacity, are estimated to have been typically ferried. Passengers not ferried with motor vehicles numbered about 9,400 people per day. The last figure was roughly split between Vineyard Haven and Oak Bluffs. Edgartown received less than two percent of the Island's ferry passengers.

The assessment of the infrastructure capacity is not strictly an objective task. The physical constraints of the old village layouts and street rights-of-way severely limit the ability to redevelop sidewalks or other infrastructure elements to modern design guidelines. Consequently, observations of how the existing infrastructure performed in accommodating ferry passengers was the principal basis of evaluation.

High levels of congestion—cars immobilized in parking lots, brief and not so brief street backups, pedestrians weaving among stopped vehicles—were repeatedly observed with the arrival of most of the ferries. Each of the terminals and subareas had some elements that appeared not to function in an effective way. Typical shortcomings involved the inadequate management of pedestrian movement: narrow or non-existent pedestrian ways, a scarcity of direction signs, and problems with crosswalk design, location or use. Most terminals had insufficient room for cars picking up or dropping off passengers.

Significantly, the congestion accompanying the dispersal of arriving passengers was of relatively short duration—usually less than 30 minutes for the larger SSA vessels, and less than 15 minutes for the private carriers. After these periods, activity returned to, or was slightly elevated from, background activity levels that existed prior to the ferries' arrival. Some terminals often experienced very little activity between ferry arrivals. That groups of a few hundred ferry passengers can disperse into or beyond the background so quickly suggests that capacity may exist to accommodate larger groups, or increase the frequency that the groups are received. The question soon becomes "what level or frequency of congestion is acceptable to the community and to the passenger?" Town plans, bylaws and policies provide no indication of the magnitude the communities' desire ferry service to assume in the future.

Suggestions for improving the infrastructure focus on completing pedestrian ways and upgrading their width or condition; obtaining better control of pedestrians crossing streets through a combination of improved or additional crosswalk locations, physical barriers, and education and enforcement efforts; a way-finding system of signs or symbols at the terminals and the village centers; and reevaluation of vehicular circulation patterns as they affect the three terminals in Oak Bluffs. Also suggested is the need for current information regarding the characteristics of ferry passengers that may lead to a better understanding of their movements and characteristics. These suggestions, along with the rest of the study's findings, should be used to help advance discussion of these issues among the communities and Island-wide.

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Introduction

The popularity of Martha's Vineyard as a tourist destination and the increasing year-round island population bring thousands of people to the island daily. The ferry terminals serving the Vineyard are the primary welcoming "gateways" to the island where visitors get their first and last impressions of the island. The image conveyed is not always positive. The summer congestion and confusion around some of the terminals is well known and unanimously cursed by resident and visitor alike. Port communities—on Island and off—are increasingly concerned about the negative impacts wrought by the swelling ferry traffic, with some contending that they cannot handle additional ferry traffic. The ability of the port towns to accommodate growing volumes of passengers is increasing called into question.

Yet forecasts predict that demand for passenger, vehicle and freight traffic to Martha's Vineyard will only continue to increase. Private ferry carriers seek to capitalize on the demand and request licensing from the Wood Hole, Martha's Vineyard and Nantucket Steamship Authority (SSA) to provide additional passenger service to the island. In response to these requests for increased service and in keeping with its charge to provide ferry service for the convenience and necessity of the islands, on September 17, 1998, the SSA Governors placed a moratorium on the licensing of additional passengers ". . . until the island . . . has formulated its plan to ensure that the infrastructure around its port areas can handle the (passenger) increases without harming the fragility of the island . . . ." The SSA subsequently contracted with the Martha's Vineyard Commission to conduct this study evaluating the infrastructure supporting passenger ferry service at the Martha's Vineyard port communities.

This study evaluates the existing infrastructure—sidewalks, signs and other facilities—that contribute to support the thousands of people that arrive to and depart from Martha's Vineyard via ferry each day. The study inventories the existing infrastructure at the seven Vineyard ferry terminals and their surroundings. It describes the operations and ridership of the six ferry carriers serving the Island and examines the circulation patterns of ferry passengers both on and off terminal sites. The study also summarizes the adopted plans of the three port towns as they pertain to passenger ferry activity. Concluding the study are suggestions for improving the infrastructure and where additional studies would be useful.

The study is presented in four sections. The first section discusses assumptions and methods, and provides an Island-wide perspective of the findings and suggested actions. The three succeeding sections are devoted to each of the port towns—Vineyard Haven, Oak Bluffs and Edgartown—providing detailed discussions for each terminal and subarea, as well as, specific infrastructure inventories and noted shortcomings for each area. Concluding each town section are suggestions to remedy or alleviate some of the shortcomings.

Scope

This study examines the adequacy of the land based infrastructure to accommodate passenger ferry service at the Island's three port towns—Vineyard Haven, Oak Bluffs and Edgartown. Study areas include the seven ferry terminal sites on the island that received regularly scheduled service in the summer of 1999 using vessels holding 60 or more people—the threshold for SSA licensing authority over private carriers serving the island. The terminal sites are the SSA's terminal, Pier 44 and Tisbury Wharf in Vineyard Haven, the SSA's Oak Bluffs terminal and two ferry berths in Oak Bluffs Harbor, and the Edgartown Memorial Wharf. Also examined is the supporting infrastructure extending up to four blocks from the terminals, or to the core commercial centers of the towns.

By looking just at vessels with a capacity of at least 60 people and carriers which provided regularly scheduled service, the study excludes the 36- to 40-passenger Patriot Party Boats that made six round-trips daily from Falmouth to Oak Bluffs harbor. The Patriot ran mostly at off-peak times, catering to commuters and handling specialty freight delivery. Also not included are the periodic visits from cruise ships. These ships anchor off shore and can each bring more than 1,000 day-visitors to the Island, often aboard tenders carrying up to 400 passengers. Oak Bluffs is the primary Island port of call for visiting cruise ships.

While the study focuses on land based infrastructure, facilities to accommodate ferry vessels and issues pertaining to the capabilities of the harbors are identified and briefly discussed. This information, however, is provided as context to the port area descriptions rather than intended as an analysis of the water based infrastructure.

In assessing the infrastructure supporting passenger ferry service, this study looks principally at the pedestrian environment. Vehicular traffic and street congestion within the study area are considered as they relate to the circulation of passenger queuing and dispersal, whether by foot or vehicle. No traffic counts were performed as part of the study. Many of the roads serving the ferry terminals are known to operate at deficient levels of service and, particularly in the case of the Five Corners intersection, have been the subject of specific traffic studies over the years without community consensus as to how to remedy problem areas. Few suggestions to improve street traffic are made in this study other than what improvements may be gained by better control of pedestrians along side or crossing streets.

A limitation of this study is that it relies upon the observed activity of ferry passengers in the study areas. Areas also used by people not associated with ferry traffic increase the difficulty in evaluating the adequacy of the infrastructure for use by ferry passengers. The high concentrations of pedestrian activity in the core commercial centers—principally Main Street in both Vineyard Haven and in Edgartown and Circuit Avenue in Oak Bluffs—are comprised of a mixture of year-round and seasonal residents and visitors. Passengers from individual ferry arrivals became absorbed into the background activity of these centers. The infrastructure of the commercial centers, therefore, is not evaluated, as it serves a broader population. Similarly, how areas of the island beyond the study areas are affected by the volume of ferry passengers as they disperse from the port towns raises broader issues of the Island's carrying capacity that are beyond the scope of this study.

Approach and Assumptions

The premise of this study is that a correlation exists between the amount, condition and location of the infrastructure of an area and the volume of passenger ferry activity the area can adequately accommodate. Evaluation of the existing infrastructure for the port areas relied more upon the observed effectiveness of the infrastructure to accommodate ferry passengers than upon empirical design standards or guidelines that may exist for each infrastructure element. The narrow rights-of-way and dense development in the study areas make it difficult, if not impossible, to adhere to contemporary standards. Design standards are intended to be applied with flexibility to existing development. The study's suggested infrastructure improvements are made with the understanding that the port communities and stakeholders will have to balance the many competing interests and values when determining the extent, if any, to which they wish to address these shortcomings.

Representations of passenger ferry capacity and activity, and of existing infrastructure are based on how they existed in the summer of 1999. Most observations of the study areas were made between mid-July and mid-August during daily peak ferry arrivals, when demand upon the infrastructure was expected to be heavy. The study did not attempt to evaluate use of the existing infrastructure during holidays or extreme peak times. Observations of off-peak arrivals and departures were also made. The small number of observations for each ferry terminal prevent any statistical confidence be given to the derived numbers, but they are assumed to be representative of passenger ferry traffic on a typical, sunny summer day (termed "typical peak" in this study).

Focus is placed on the pedestrian environment and linkages to transportation options. Sidewalks or other pedestrian ways are considered to be the most essential element of the pedestrian-supporting infrastructure and, because of competition with motor vehicles for use of the street rights-of-way, the most difficult to expand or introduce. The frequency, content, and placement of other infrastructure elements such as seating, signs, and trash receptacles are much more easy to manipulate, and given less attention in this study.

This study made use of existing surveys and plans and upon interviews with representatives of the ferry carriers, harbor masters, police departments and other port area stakeholders. The surveys of ferry passengers proved quite dated. Town planning documents, while relatively current, are presently undergoing reexamination as a flurry of activity affecting the harbors is being considered or undertaken by each of the towns. Input from assorted town officials was solicited for the preparation of this study, however, neither the study's contents or conclusions were presented to the towns for review, comment or endorsement prior to completion of the study. Distribution of the study to the towns and the general public for broad comment should be the first step in validating and building upon this study.

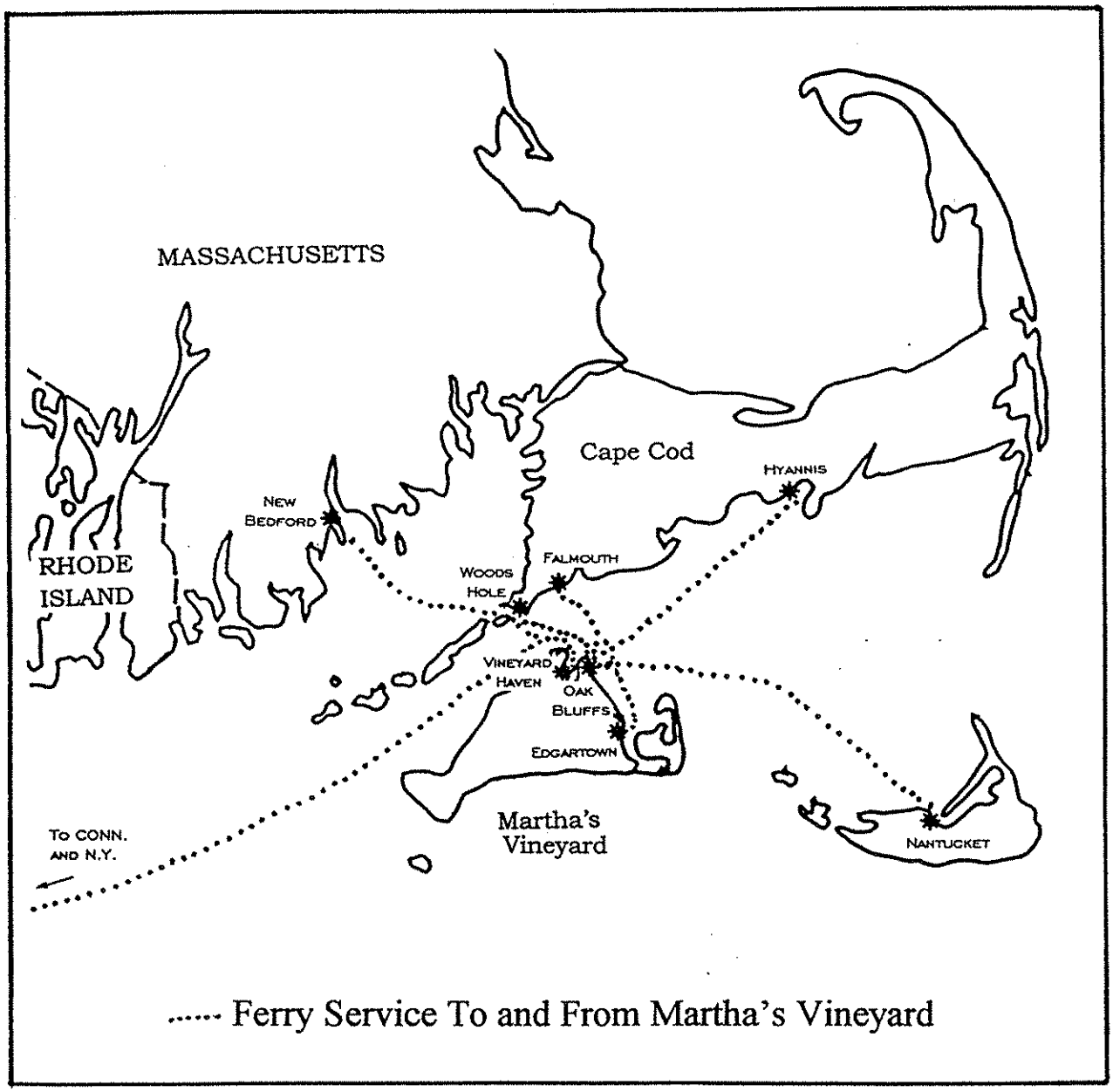


Figure 1.1

Findings and Discussion

Harbor Capacities

While an analysis of the capability of the Vineyard harbors to accommodate more or larger ferry vessels is not within the scope of the study, in the course of examining the land based infrastructure and activities, the following observations were made. Dockage availability and usage by existing ferries were derived from examination of carrier sailing schedules, observations and from speaking with the harbor masters. Generally, the private ferry vessels were docked from 5 to 15 minutes. SSA vessels were docked for 30 minutes. All vessels were assumed to need 5 minutes to approach or depart the terminal docks. Congestion from high vessel activity and confined space is the greatest harbor limitation to expanded ferry service in all three port towns.

Looking just at existing dockage, each of the three harbors had unused capacity. Some of the wharves and piers used by ferries were idle for up to a few hours at a time. These docking facilities, however, may have been used by other watercraft on an unscheduled basis either daily (the Edgartown Memorial Wharf, for example) or occasionally (cruise ship tenders to Oak Bluffs). Even if there is available docking space, another factor to be considered is that most of the existing ferry vessels serving the Island are already fully pressed into service. Additional or higher speed vessels might alleviate that issue. Also not examined is the availability of dockage at the mainland ports, and whether the times of the increased service would be desirable to potential passengers.

An alternative way to expand passenger ferry service is to use larger capacity vessels, which many of the docking facilities could physically accommodate. Increased ship capacities would likely lengthen the duration of staging and dispersal times and have a greater impact upon supporting infrastructure per ferry run.

Regardless of the availability or capacity of the existing dockage, however, the possibility of stepping up the frequency of ferry vessels or increasing the size of the ferries is seriously constrained by the tight confines of each harbor, as well as by the congestion produced from the large volume of other, mostly recreational, watercraft. The SSA terminal in Oak Bluffs, located on the open waters of Nantucket Sound, is the sole terminal not so limited. The congestion has already caused the Town of Tisbury to limit the simultaneous movement of the large SSA vessels within the Inner Harbor and to consider expanding the duration and coverage of the restriction to other large vessels. Clearly, the harbor-side aspects of expanded ferry service will require thorough investigation.

Present Ferry Operations

In the summer of 1999, six ferry carriers provided regularly scheduled service between Martha's Vineyard and six mainland ports and Nantucket Island (Figure 1.1). Four of these carriers provided connections with three Cape ports, one with New Bedford, one with Nantucket, and one carrier with both Connecticut and New Jersey. The carriers were distributed among three Vineyard ports. Vineyard Haven Harbor is the principal port on Martha's Vineyard, hosting year-round ferry service by the SSA and two seasonal ferries. In the peak summer months, however, the Oak Bluffs SSA terminal and the two carriers at the Oak Bluffs Harbor represented fully half of the potential ferry capacity serving the Island and is estimated to have received close to half of the Island's ferry passengers. The third Vineyard port, Edgartown Harbor, was served by one small carrier and accounted for less than two percent of people ferried to the Island.

Combined, the carriers ran from 47 to 54 daily trips to the Martha's Vineyard. One carrier, Fox Navigation, operated only on an extended weekend schedule. All of the remaining carriers, but for Hy-Line, added a late evening run on one or more weekend days. The carriers used vessels ranging in capacity from 60 people to nearly 1,400 people. The vessel capacities and frequencies made possible the transport of roughly 26,000 to 29,000 passengers to or from the Island (or round-trips) per day.

Table 1-A
Carrier Capacity and Estimated Peak Daily Ridership
Passenger Ferry Service to Martha's Vineyard -- August 1999*

Port	Carrier	Daily Capacity**	Est. Peak Ridership	Ridership % of Capacity	Ridership % of Port	Ridership % of Island
Vineyard Haven Harbor		14,407	6,661	46%	100%	55%
	Steamship Authority***	11,659	5,200	45%	78%	43%
	Cape Island Express	1,920	915	48%	14%	8%
	Fox Navigation	828	546	66%	8%	5%
Oak Bluffs Ports		13,272	5,191	39%	100%	43%
	Steamship Authority***	5,974	2,250	38%	43%	19%
	Island Queen	4,158	1,430	34%	28%	12%
	Hy-Line Cruises	3,140	1,511	48%	29%	13%
Edgartown Harbor		360	231	64%	100%	2%
	Falmouth Ferry Service	360	231	64%	100%	2%
Total Martha's Vineyard		28,039	12,083	43%	n/a	100%

* Travel each way; arrivals OR departures
** A mix of weekday and weekend capacity figures; totals may not reflect any one day of the week
*** Includes passengers on ferried motor vehicles

In order to get a better sense of the typical daily volume of peak summer ferry passengers arriving or departing the Vineyard, daily ridership numbers for each carrier were estimated from monthly figures or from approximations from the carriers (see Methodology in appendices). About 12,000 people are estimated to have been brought to the Island on a typical peak-season day. The SSA accounted for 63 percent of this daily volume (Table 1-A).

Table 1-B
Estimated Peak Daily Ridership by Port and Carrier
Less SSA Passengers in Motor Vehicles
Passenger Ferry Service to Martha's Vineyard -- August 1999*

Port	Carrier	Est. Peak Ridership	% of Port Ridership	% of Island Ridership
Vineyard Haven Harbor		4,685	100%	50%
	Steamship Authority	3,224	69%	34%
	Cape Island Express	915	20%	10%
	Fox Navigation	546	12%	6%
Oak Bluffs		4,491	100%	48%
	Steamship Authority	1,550	35%	16%
	Island Queen	1,430	32%	15%
	Hy-Line Cruises	1,511	34%	16%
Edgartown Harbor		231	100%	2%
	Falmouth Ferry Service	231	100%	2%
Total Martha's Vineyard		9,407	n/a	100%

* One way travel; arrivals OR departures

When factoring out the SSA passengers in automobiles, 52 percent of the daily passenger volume was still attributable to the SSA. Without the auto-associated passengers, distribution of passengers between Vineyard Haven and Oak Bluffs ports differed by only three percentage points. Additionally, in Oak Bluffs, the distribution of passengers was roughly equal among the SSA and each of the two private carriers (Table 1-B).

Comparing the ridership estimates to the capacity of the ferries, there was unused capacity on the 1999 schedules for all carriers. Ridership as a percent of capacity served as a check for unusual variations in the estimates among carriers. While the ridership figures may appear low given that many of the carriers report ridership of their peak daily sailings at 90 to 100 percent of capacity, the figures reflect high variability in ridership throughout the day and that a peak-time run is usually highly imbalanced between the number of passengers arriving and the number of people departing. This is particularly true of the private carriers, which cater mostly to day trippers. Thus, the "excess" capacities may be difficult to utilize because the time periods and directions for which they are available may not correspond to passenger travel preferences.

Passenger Characteristics

The duration of passenger trips and the characteristics of people riding the ferries bear upon the type of facilities and infrastructure needed to accommodate them. Private carriers estimated that between two-thirds to more than 90 percent of their passengers visited Martha's Vineyard for just one day. The few surveys of ferry passengers in the 1990s showed about four of five summer passengers to be visitors to the Island. The surveys also support the contention that the private carriers have sharply higher rates of visitors traveling for just one day then does the SSA. The 1990 survey of Hy-Line passengers showed 85 percent were day-visitors. The 1994 survey of SSA passengers showed less than 40 percent were day trippers. A smaller survey over one extended August weekend in 1997 showed less than 28 percent of responding SSA passengers to be day trippers.

The large percentage of day trippers also has implications for trying to expand ferry service. The Vineyard has witnessed a lot of schedule adjustments by people who could not be accommodated during peak times or who tried to avoid oppressive summer or weekend crowds. Continually expanding shoulder seasons, mid-week visitations and tours, and weekends that begin on Thursdays illustrate the adjustments people make in order to spend time on Martha's Vineyard. Mid-week is already the peak ridership days of the private carriers. But day trippers have little alternative but to arrive on the Vineyard during the first half of the day and depart the latter half. Perhaps they can start arriving earlier in the mornings.

The surveys also revealed other passenger characteristics of relevance to supporting infrastructure for the area. A high proportion of ferry passengers were visiting Martha's Vineyard for the first time. In separate surveys in different years, first-time visitors accounted for 73 percent of the Hy-Line passengers as opposed to 32 percent of the SSA passengers in the 1994 survey. Twenty-one percent of Hy-Line passengers were 60 years old or older, while the percentage among SSA passengers was 12 (1994) and 30 percent. The volume of passengers who are either first-time visitors or elderly—or both—suggest the importance of the availability of transportation options from the ferry terminals, good directional signs, clear pedestrian ways and crossings, and adequate lighting and rest areas.

Circulation At Terminal Sites and Surroundings

There are three phases of activity at the ferry terminals and the surrounding areas: the dispersal of passengers from an arriving ferry, the assembly or queuing of passengers for a departing ferry, and the background activity between the first two phases. Observations of the arrival and departure of ferries at both peak and non-peak periods, combined with information collected from stakeholders, revealed a broad range of activity and circulation patterns among the subareas of each port. How each subarea accommodates and channels this mixture of activity is a function of the volume of ferry passengers and the extent and configuration of the areas' facilities and supporting infrastructure.

The dispersal period was frenzied and brief. One-quarter of the passengers from some of the private ferries directly board tour buses, others look around trying to get their bearings. The small volume of the passengers at Edgartown was barely noticeable among the background of other pedestrians along the waterfront, and imperceptible to the larger crowds at the commercial core along Main and North Water streets. The remaining terminals, however, can have passenger levels at five to ten times, or more, of that of Edgartown. Congestion at these terminals routinely backed up vehicular traffic on adjacent roads. Even with traffic control officers, each of the SSA terminals had back ups due to the volume of passengers and ferried motor vehicles. Also contributing to these back ups is that they are adjacent intersections of major roads. Pedestrians crossing the roadways, whether or not at marked crosswalks or at street intersections, was a significant contributor to vehicle congestion throughout the study areas.

Ferry passengers use a variety of transportation modes to exit and enter the terminal sites, making for a complex interaction of people and vehicles. While probably 50 to 75 percent, or more, of passengers walk from the terminal to the surrounding village, some may walk less than a hundred feet to a waiting vehicle, proceed several blocks to shop and sightsee, or continue on foot to a more distant destination. Cars drop-off and pick-up passengers. At times, the rush of passengers being dropped off via cars, buses and taxis, combines with the cars, buses and taxis queuing to pick up arriving passengers. Transit and tour buses compete with taxis to shuttle passengers long distances. Cars, moped and bicycle rental businesses cluster near the terminals, providing passengers additional options. People walking bicycles in congested quarters, and others with strollers or wheeled luggage are further complicators to the dispersal and assembly of ferry passengers.

The assembly phase is generally longer than the dispersal phase. Passengers can begin to queue at terminals more than an hour prior to sailing. The spreading out of the passengers returning to the terminal reduces the intensity of pedestrians and of automobile traffic dropping off passengers, accumulating gradually at the terminals. All the terminals experience a spike in activity within five to fifteen minutes in advance of a boat docking. The Dockside Pier is the only terminal that does not accommodate its passenger queues. The lines for the Hy-Line ferries are entirely housed on half the width of an eight-foot-wide public sidewalk alongside an active commercial area. The very large passenger queue lines at the Vineyard Haven SSA terminal, while contained on site, can imped circulation of others on site.

Despite the intensity of congestion at some of the terminals during ferry arrivals, the streets and walkways within a block of the terminals cleared of ferry-related congestion to lower, background activity levels within 10 to 30 minutes of the first passengers disembarking the ferries. Background activity varied greatly among the terminals and subareas as well as throughout the course of the day. Due to its size and frequency of sailings, the Vineyard Haven SSA terminal always seemed to have some level of ferry-related activity. Across the harbor at Tisbury Wharf, however, there is virtually no activity between ferry events.

Existing Infrastructure

The premise of this study is that there is a direct correlation to the amount, condition and location of the infrastructure of an area and the volume of ferry passenger activity that can adequately be accommodated. People transported by ferry to and from Martha's Vineyard are supported by a variety of land-side infrastructure elements—sidewalks, pick-up and drop off areas, seating, shelter, rest rooms, signage, transit connections, and others. This supporting infrastructure is found at the ferry terminal sites and, away from the terminals, primarily within the public street rights-of-way. Occasionally, private land abutting the public rights-of-way also contains elements of supporting infrastructure.

Inventories of infrastructure elements were compiled for each of the seven ferry terminals and the six surrounding subareas. Detailed tables for each terminal and subarea are included in the respective port sections of this study. The role and importance of each infrastructure element are discussed below, as are characterizations of what exists among the three Vineyard port towns.

Pedestrian Ways

The ability of ferry passengers to get around on foot is important to the economic vitality of the port areas. The intermixing of vehicles and pedestrians on the terminal sites and crossing streets is a major source of congestion. The routes people use to get around are termed pedestrian ways. This may be by hard surfaced sidewalks, or unimproved footpaths, alleys or parking lots. But when adjacent or shared with motor vehicles, pedestrian ways should have some marking or indication of the space within which pedestrians have the right-of-way and cautioning motorists of potential pedestrians. Raised sidewalks are the typical pedestrian way.

Each of the ferry terminals are within walking distance of the respective village centers, but the sidewalk system is found wanting. Utility poles and traffic signs obstruct many already too narrow sidewalks, forcing pedestrians to step into the streets. Each of the three port towns have sections of streets where no sidewalks exist and no pedestrian markings to guide walkers or warn motorists. Dock Street, with no crosswalks and fragmented sidewalks, becomes so populated with pedestrians that the street periodically becomes a very wide pedestrian way. The private terminals generally provide insufficient space for pedestrian movement. Pier 44 and Tisbury Wharf provide no dedicated pedestrian space between the Beach Road and their respective passenger staging areas. North Bluff and Memorial Wharf have pedestrian ways in place which are routinely overlooked or forsaken as not being convenient.

As noted in the Massachusetts Pedestrian Transportation Plan, "[e]xcept where identified as requirements, the guidelines are flexible and should be adapted to project circumstances, such as right-of-way and environmental constraints." The design guidelines for sidewalk width in commercial areas is eight feet or greater of unobstructed walking space on both sides of the street. Four unobstructed feet is the minimum width in residential areas. The repeated, large volumes of ferry passengers on most of the study area's streets is justification to classify them as commercial. Guidelines encourage sidewalks be separated from the street with an additional two feet for plantings and street furnishings—less if there is curbside parking to buffer traffic from the sidewalk.

The Seaview Avenue sidewalk south of the SSA terminal, and the walkway along the perimeter of the Oak Bluffs Harbor may be the only sidewalks in the study areas that meet all of these guidelines. Only portions of Oak Bluffs Avenue and Main Street in both Vineyard Haven and Edgartown meet this width standard, and then only on one side of the street. Yet, despite their "substandard" design, these sidewalks and other areas with no sidewalks are used by thousands of people on a daily basis. That is not to say that the existing sidewalks are satisfactory or should not be improved.

The observation of people routinely having to step off of the sidewalk or marked pedestrian way was considered to be evidence that the sidewalk was not sufficiently wide for the demand being placed upon it. People with wheelchairs, baby strollers and wheeled luggage are common components of the ferry passengers. Wheelchair accessability was not specifically assessed in the examination of pedestrian ways. However, the narrow widths and deteriorated condition of many of the walks, or the absence of continuous walkways, make such areas inadequate for wheelchair use. The infrastructure inventory tables found in each of the port town sections of this study stipulate sidewalks as being "blocked" or "obstructed" when there is less than three feet of clearance. The tables also identify the presence and type of curbside parking that provide a buffer from traffic but can reduce the effective width of a sidewalk from extending bumpers of diagonally parked cars. Because most of the sidewalks are so narrow, the width of the abutting six-inch curb is included in the reported sidewalk widths.

Crosswalks

Crosswalks are extensions of the pedestrian way directing people to delineated locations to cross vehicular traffic. In addition to marking of the pavement surface or use of contrasting materials to identify the crosswalk, signs alert people on foot and behind the wheel of nearby crosswalks. The location of crosswalks balances pedestrian-desired access routes with safety issues. Street intersections are the typical locations for

crosswalks—where vehicle traffic is controlled in some manner and motorists are already alert for other vehicles. Continuing the sidewalk across the intersecting road also maintains continuity of the pedestrian way. Crosswalks of unsignalized intersections, however, can conflict with the stopping areas for vehicles, from which cross traffic is visible to the motorist. They can also complicate vehicle turning movements. The Five Corners intersection is illustrative of limitations.

Crosswalks are recommended to be at least 100 feet apart. They are usually eight to twelve feet in width, but the appropriate width is a function of the volume of people to be accommodated, and should also relate to the width of the connecting pedestrian way. The length of crosswalks is a particularly important issue on the Vineyard where there are no traffic signals. State law obliges motorists to yield the right-of-way to pedestrians who step off the curb onto the street. Drivers looking for a break in the procession of pedestrians are more likely to find it when crosswalks are short in length. Conversely, pedestrian exposure to vehicles is increased with longer crosswalks. Standing vehicles in streets with multiple travel lanes, such as exists at Beach Street and at Oak Bluffs and Seaview avenues, can obscure motorists' visibility not only of the curbsides, but of pedestrians already in the crosswalks. Where there is sufficient street right-of-way, crosswalk lengths can be reduced by bulb-outs—extending the sidewalk into the street in the curbside parking area. Mid-street islands can also provide a safe pausing place for pedestrians.

Crosswalks may need to be part of the pedestrian ways at the terminal sites to separate vehicles and pedestrians. Pier 44 and Tisbury Wharf require pedestrians to navigate through vehicle staging and parking areas, dodging circulating traffic. The volume of pedestrians that pass through the A&P parking lot between Vineyard Haven's Main Street and SSA terminal is a good candidate for a pedestrian way/crosswalk set apart from moving cars.

Where long distances exist between intersections or where there is a generator of significant amounts of pedestrian activity, mid-block crosswalks may be warranted. Even where crosswalks are present, it can be difficult to confine pedestrians, particularly if street traffic is the nearest crosswalk is too far out of the way. Road segments that routinely experience "uncontrolled" crossings by ferry passengers—Vineyard Haven's Water Street and bend of Beach Road, and Oak Bluff's Seaview and Lake avenues—usually also had a crosswalk nearby. Cordon lines physically barring people from stepping off the pedestrian way is one remedy

Bicycle Infrastructure

Bicycling is a popular recreational activity on the Vineyard and many visitors elect to bring their bikes with them. Infrastructure to support bicycling includes staging areas at the ferry terminals, bicycle racks, lockers and designated bicycle routes. Separate staging areas for bicycles are informal; terminal personnel may direct bicyclists to one side of the vehicle ramps (SSA) or passenger loading area. Bicyclists were intermingled with the rest of waiting passengers at North Bluff. Bicycle racks are located only at the Vineyard Haven SSA and Memorial Wharf terminals. Racks are found at several locations in each town and most appeared well used. None of the study areas connects directly to the Island's network of bike paths (the short segment of bike path at the far east end of Vineyard Haven's Beach Road does not yet connect to its counterpart Oak Bluffs.

Although it is farthest from the bike path network, the Vineyard Haven study area has some of the most bike-friendly infrastructure of the three port towns. The commercial cores of Edgartown and Oak Bluffs are closed to bicyclists. The Vineyard Haven SSA terminal contains lockers and a map outside displays the designated bike route starts across from the terminal at Union Street (although this is a one-way street, bicycles are instructed to use it in both directions). Traveling in the other direction, once past Five Corners, Beach Road is the only street in the study areas with lines near the pavement edge marking the travel lanes, sometimes called "fog lines." Generally, three to five feet of pavement edge is available and used by cyclists. A drawback is that sand and debris accumulates along these edges, as does stormwater. Drainage grates are also located in this space.

Vehicular Infrastructure

While the scope of this study does not include examination of the substantial vehicle traffic ferried to Martha's Vineyard, or the adequacy of the streets to accommodate traffic, vehicle access to the terminal areas is an important factor in dispersing or returning ferry passengers from or to the terminals. Thus, provisions in the study areas for buses, taxis and cars are noted, as are the circulation patterns of the streets.

Providing for the mixture of these vehicles through the terminal sites can ease confusion and congestion. Control of direction and flow. Terminals for private carriers he private the narrow streets in the villages usually necessitate their being used in one direction only.

Although expanding the capacity of the study areas by transporting as many as a hundred passengers--in some instances accounting for 25 percent of some ferries' individual arrivals.

significant numbers of passengers are picked up by motorists and driven away, or dropped off for departure. Even some of the private ferries, whose passengers are predominantly day-trippers, can be met by nearly 40 vehicles. This activity calls for sufficient space for cars to stand or park without otherwise impeding circulation in the areas. Street parking and parking lots can also serve this purpose. The SSA terminals both have lanes for passenger pick up and drop off but substantial amounts of the activity occurs off site on adjacent public parking areas and on the streets themselves. Of the terminals serving the private carriers, Tisbury Wharf seemed to best accommodate (but still short) the demand for cars space. The remaining terminals either had inadequate area for parking or it was not dedicated for ferry use, such as at North Bluff and Memorial Wharf.

Automobiles dropping off and picking up passengers were a principal cause of congestion at most of the terminals. All the terminals experienced cars double parking, momentarily stopping in travel lanes, or using off site parking facilities. indicate there is insufficient parking areas to meet demand. The SSA terminals, where there are also officers directing traffic, seem to accommodate this function best, but there may be that a lower percentage of motorist who attempt to pick up or drop off SSA passengers at the terminals due to the vehicular tie ups at these locations and the availability of nearby, off site parking areas. Cars standing in travel lanes are common at the smaller terminals. Cars also park on adjacent businesses' parking areas, as do the new trolleys. In the case of Pier 44, which has extremely limited parking, the "off site" parking increases the number of pedestrians crossing streets, further increasing congestion.

Bus service on the Vineyard in the summer of 1999 was provided by both private and public operators. Fixed-route transit service is provided throughout the Island by the Martha's Vineyard Transportation Authority (VTA) using short white buses holding 24 passengers.

The private bus companies have a long, close association with the ferry carriers in Vineyard Haven and Oak Bluffs. Tickets for tour buses can be purchased on some of the private ferries or dockside on the mainland. The bus companies report often filling their buses, attracting up to 25 percent of passengers on some of the private carriers' peak arrivals. Pre-sale of tickets accounted for 50 and 75 percent of the two companies' fares from the private ferries. The SSA discontinued a similar arrangement with the two tour bus companies a couple of years ago when the companies established different fares. At its Vineyard Haven terminal, the SSA gives the tour buses prominent loading space at the main exit-way along the south side of the terminal building. This is in addition to the primary, off site, bus stop on the opposite side of the building at the foot of Union Street. Passenger queuing for buses along the exit-way reduce the width of sidewalk available to other arriving passengers and the buses obstruct the view of the pick-up and Vineyard Transit Authority staging areas. The Vineyard Transit Authority public bus system served the SSA terminals and ran periodically to some of the other terminals. Part of a major network of summer routes, VTA had schedules independent of and not necessarily coordinated with the arrival and sailing times of even the SSA ferries.

While the SSA terminals have specific locations for the public, private and tour buses, there are no signs for passengers. They must rely on the bus's markings (the coloring is not always uniform among lines), the hawking of the bus operator, or asking someone. Memorial Wharf has a VTA bus stop within two blocks and is not served by the private lines. Other than Memorial Wharf, Pier 44 had the poorest accommodations for tour buses, having to maneuver in the travel lane of Beach Road and observed to block pedestrian movement into Beach Road traffic.

Signage and Information

Beyond aiding visitors in finding their way around, signs and information can reduce the number of people wandering around and asking people for directions, and thereby increase the rate of dispersal from the terminal areas. Signs should be placed at decision making points along the pedestrian way—places a person has a choice in which direction to proceed. To minimize sign clutter, signs directing people to a place of information may be appropriate. The information center should not be out of the way, however. Efforts to inform passengers of where on the terminal site to find various modes of transportation, luggage, phones and information before arriving to the Island can also increase efficiency of passenger movement among the terminals and the surrounding areas. In addition to visitor information that is sent to people at their request, efforts to inform visitors should continue aboard the ferry vessels.

Signage at most of the ferry terminals is non-existent. No maps or signs provide orientation to passengers at any of the terminals serving the private carriers. A few terminals do not even identify the fact that ferry service exists from the site. While there are several signs at the SSA Vineyard Haven terminal, the volume and complexity of the site's activity require more direction be provided. Visitor information center in Vineyard Haven, although adjacent the SSA terminal, is not in the general path of most passengers. The information booth in Oak Bluffs, on the other hand, is at the very heart of activity. However, passengers may needlessly be directed to this already congested location for information they could otherwise have obtained at the respective ferry terminals, if the information had been available.

Rest rooms

The few public rest rooms that exist in the port towns are well used. Vineyard Haven has one, centrally located facility. The multiple stalls and urinals at the SSA Vineyard Haven terminal are very heavily used by the general public as well as ferry passengers. The SSA Oak Bluffs terminal has one set of rest rooms but is adjacent a seriously antiquated multiple stalled facility. A small public facility is found closer to the activity along the mid-length of Circuit Avenue. A bathhouse at the southwest corner of Oak Bluffs Harbor is beyond the primary activity area of ferry passengers. Edgartown has a multi-stalled facility as part of the visitor center, several blocks from Memorial Wharf. Of the terminals serving the private carriers, Tisbury Wharf is the only one with a rest room on site but Pier 44 is constructing one. Downtown Edgartown is served by a community sewer system with substantial unused capacity. The service areas of the new community sewers soon to be operating at Oak Bluffs and Vineyard Haven will include all of their respective ferry terminals. Both systems have been designed with excess capacity based on small increases in sewage volumes.

Conveniences

A number of infrastructure elements contribute to the comfort of passengers that, while perhaps not essential, greatly improve people's experience with the crowding and waiting that accompany ferry service. Passenger queues for ferries can begin an hour or more before sailing. Even a queue for a bus was observed to extend for more than 30 minutes. The combination of adequate seating and shelter from the sun for all passengers is provided only at Memorial Wharf, which receives the smallest ferry vessel. The large shelters with seating at the SSA Vineyard Haven terminal are not used by queued passengers since they do not want to lose their place in line. Tisbury Wharf has the least amount of seating and has no shelter.

Drinking fountains are also a rarity at the ferry terminals, found only inside both SSA terminal buildings. One additional, outdoor drinking fountain is centrally located in Oak Bluffs. Edgartown has fountains at two locations a few minutes walk from the terminal.

Trash receptacles were sparsely distributed in the villages, usually near street corners, but little litter was apparent. No receptacles were found at North Bluff, just a Dumpster at the southernmost end next to the pedestrian way. Dumpsters between the Oak Bluffs Harbor and Lake Avenue are conspicuous, particularly at the southeastern corner of the harbor.

Lighting of the study areas is not a concern for most ferry passengers. But, several terminals operate an evening sailing, even if just on weekends or holidays. As carriers seek to accommodate demand for service, extending the operating day, or the seasons, when daylight shortens, may make lighting important to a growing number of ferry passengers. Lighting is a sensitive topic on the Island in general, and at the harbors in particular. Light pollution and interference with vessel navigation are strong concerns of the community. Directed and pedestrian-scaled lighting can minimize the amount of light-spill. Adequate lighting is important for the safety of passengers walking to or from the vessels. Most passenger are unfamiliar with the layout of the villages and terminals. The lighting found in the study areas is usually from standard streetlights, augmented with street lamps along many village streets. Still, some areas were very dimly lit. Light-spill from adjacent uses contributed significantly to the illumination of some streets. Tisbury Wharf's lone streetlight was insufficient to light the way for pedestrians at the southern end of the terminal. The SSA Vineyard Haven terminal has directed lighting augmented by more pedestrian-scaled lighting along the terminal building. Oddly, the main exit from the terminal at Water Street seemed more dimly lit than elsewhere along the pedestrian way.

Amenities

Although not necessary to ushering ferry passengers to and from the vessels and about the villages and Island, pleasant views, memorials, plantings, and other elements of the port surroundings are valuable in accentuating the uniqueness of each port village. Often, it is the little details and accents that create lasting impressions (possibly overriding any negative impressions). A good example of this is adjacent the Edgartown Memorial Wharf. The whale tail sculpture of the Whalers' Memorial quietly honors the town's heritage. Twenty feet away on the other side of the street, in an otherwise vacant gap in the street face, a series of three rusted anchors serving as a sculptural guardrail of sorts is a subtle and lighthearted connection with the water. These items add interest and reinforce the identity of Edgartown's waterfront.

Miscellaneous

The miscellaneous items identified in the infrastructure tables cite characteristics, usually surrounding uses of land, that are not infrastructure in the sense applied by this study but that influence the way a subarea is used.

Town Plans

Town planning documents for the three Island ports reveal strong community pride in the waterfronts, which are considered icons for each towns' identity. Each town has a harbor management plan in which the harbor and the bordering lands are portrayed as being vital to the heritage, ecology, culture, and economy of the community. Despite this awareness of the important multiple roles played by the harbor areas, town plans contain surprisingly little specific reference, let alone direct guidance, regarding the impact, management and growth of ferry operations. Instead, the focus of the harbor management plans address retention of commercial fishing vessels, protection of harbor views and, in Vineyard Haven and Edgartown, encouragement of water-dependent uses at the waterfront.

Other town plans that will affect the potential for expanded ferry passenger service are the community sewer systems to be installed in the harborfront areas of Oak Bluffs and Vineyard Haven within the next few years. For decades these areas have been physically limited from additional development by sanitary waste limitations. The sewer systems will alleviate overburdened and antiquated individual disposal systems rather than promote additional development around the harbors, but growth factors are incorporated into the capacities of both systems. Oak Bluffs has allowed for 3 percent growth in the downtown area—a continuation of what it determined to be the historical trend. The town will have to reevaluate its present zoning of the area to prevent growth from exceeding the system's design capacity. Vineyard Haven's system allows for 5 to 13 percent increases over a 20-year period in discharges from service area properties—including rest room facilities at the Pier 44 site. It, too, will be developing regulations to prevent its system from being overrun.

All three port towns had their harbors designated Districts of Critical Planning Concern (DCPC) by the Martha's Vineyard Commission and developed specific regulations or development guidelines to direct activities in or around the harbors. As with the towns' harbor plans, the DCPC regulations of Oak Bluffs and Edgartown do not address ferry service head on. This may reflect the general attitude of these two towns to the role played by existing ferry service. Oak Bluffs has steadfastly welcomed ferry passengers to the town, and the DCPD does not include the SSA terminal or surroundings. The minor role of ferry service in Edgartown, on the other hand, may not have seemed to warrant addressing specifically. Vineyard Haven Harbor adopted DCPC regulations in 2000 requiring licensing of expanded ferry service. Tisbury has a tumultuous history with ferry service in the harbor, considering such service to be among the most significant issues confronting the future of the harbor and downtown.

However oblique the guidance provided by their official plans, the towns policies and actions will bear greatly on whether expansion of ferry service is allowed. All three port town are presently confronting ferry service issues. Responding to ever increasing demand by all types of vessels to use the Vineyard Haven Harbor, Tisbury, in addition to its new DCPC regulations, has extended the applicability of its restriction on the simultaneous movement of large ships. To what extent increased ferry passenger service will be embraced by Oak Bluffs is presently before the town in the form of a proposed renovation of the SSA terminal which might berth non-SSA vessels as well as high speed vessels. A private carrier has also expressed an interest in serving Oak Bluffs. Even the small ferry carrier to Edgartown has requested to expand by two-thirds the number of passengers it may bring to the Island, to which the Town has expressed support.

Conclusions and Suggestions

Observation of activity at the ferry terminals on Martha's Vineyard and their surrounding, supporting areas reveal two main conditions. The first condition is the regular swelling of pedestrian and vehicular activity around a ferry's arrival and departure. The volume of this activity frequently overwhelms the surrounding infrastructure, interrupting the background circulation patterns of the port areas. These interruptions can be due to pedestrians walking in the road edges due to the condition or absence of sidewalks, pedestrians crossing streets at multiple locations with abandon, or the mixture of motor vehicles dropping-off and picking-up passengers. The second condition is that the predictable congestion in and around the terminals normally clears up within 10 to 30 minutes of a ferry's arrival and returns to background, or slightly elevated, levels of activity.

Edgartown Memorial Wharf and downtown Edgartown do not experience this ebb and flow of congestion associated with ferries. This is attributable to the very low volume of ferry traffic rather than to the configuration or capacity of the supporting infrastructure. Despite the low number of ferry passengers, Edgartown may be the most vulnerable of the three port towns to disruption from significant additional ferry traffic. The narrow street network, absence of sidewalks to keep pedestrians off the roadways and distance to bus service make the waterfront village of downtown Edgartown a difficult area from which disperse or access. Such a conclusion, however, assumes the people ferried to Edgartown will have characteristics similar to those of the passengers to Vineyard Haven and Oak Bluffs. Primary among these are the volume of passengers that use vehicles, primarily cars and buses, to leave from and return to the terminals. There all some indications that this may not be so.

Shortcomings in the infrastructure to support passenger ferry service were found at all seven terminals and in the surrounding areas. Important segments of the pedestrian ways are missing. Many sidewalks, already less than five feet in width, are further obstructed by utility poles or fire hydrants to less than two feet wide in places. Most of the sidewalks have no lateral buffer from the streets, which is most serious along Beach Road and Beach Street in Vineyard Haven. Pedestrians intersperse among vehicle staging and circulation areas of the terminals but is most successfully controlled at the Vineyard Haven SSA terminal. Crosswalks at the edge of terminals are often not at locations desired by pedestrians, resulting in unsafe and illegal street crossings at multiple locations. Significant amounts of passenger pick up/drop off occurs off site of the two SSA and the Pier 44 terminals, increasing pedestrian crossing of roadways. Good bus and transit linkages at most of the terminals are weakened by poor differentiation among providers and, in the vicinity of the SSA terminals, inadequate directions to the multiple stops.

Additional infrastructure shortcomings include an overall dearth of signs orienting or directing passengers to terminal staging areas, primary pedestrian ways, bike routes, transit stops, rest rooms or, even, information. Passenger queuing and disembarking at the Dockside Pier in Oak Bluffs conflict with pedestrian traffic along the public walkway. Terminal seating and shelter for passenger queues is generally scant. Rest rooms are not available at some of the terminals. Vineyard Haven has the poorest links to the Island's bike path network and bike racks throughout the study areas are sometimes overflowing. Finally, lighting is generally not at a pedestrian scale and is dim at several locations.

Many of these limitations of the supporting infrastructure have been identified by others in previous studies, including some not repeated here. The towns, ferry providers and landowners have identified several steps to improve the waterfront environments, among the most significant being the creation of community sewer systems in Oak Bluffs and Vineyard Haven, and the renovation of the SSA Oak Bluffs terminal. The following suggestions are not presented in any particular priority, but could facilitate more efficient movement of passengers and vehicles, thereby reducing congestion and enhancing the capability of the infrastructure to accommodate passenger ferry service.

Suggestions for Improving Port Area Infrastructure to Accommodate Passenger Ferry Service on Martha's Vineyard

All Ports

a. Circulation of this infrastructure capacity study to the towns and stakeholders for comment.

b. Each town should identify principal pedestrian routes in their village centers, to which the ferry terminals would be linked, prioritizing the filling of any missing links.

c. Sample surveys from all ferry lines should be conducted to update passenger profiles.

d. The towns, business communities and ferry carriers should consider a unified way-finding system to aid visitor circulation. Consistent symbols, colors and terminology would be presented to ferry users beginning onboard the vessels and with any mailed promotional information.

e. Each ferry vessel should provide orientation diagrams of the terminal and village center of its Vineyard port, showing major destinations.

f. Explore the feasibility of a program complementary to that for drivers yielding to pedestrians at crosswalks: educate pedestrians of laws requiring use of crosswalks, post signs and conduct appropriate enforcement. This should be integrated with any relocations of or additions to the crosswalks in the villages (and, perhaps, the entire Island).

Vineyard Haven Suggestions

a. Add a crosswalk at Water Street immediately north of the SSA terminal's main exit. Evaluate the possibility of another Water Street crosswalk north or south of the primary terminal entrance.

b. Increase pedestrian-scale lighting at the SSA terminal's main exit.

c. Provide a large sidewalk bulb-out at the decision making point east of the SSA terminal building beside the taxi stand, providing more room for direction signs and promoting pedestrian movement along the north side of the terminal to Union Street.

d. Tisbury Wharf and Pier 44 should display signs indicating which ferry(ies) is accommodated, posted scheduals, and basis orientation information at the passenger staging areas.

e. Coordinate, if not consolidate, the multiple bus stop locations at the SSA terminal and at Union Street.

f. Evaluate the feasibility of burying utilities along Beach Road to improve use of the street right-of-way for sidewalks, which would also improve the area's visual quality.

g. Explore use of sidewalk extensions bending around obstructions that cannot be removed.

h. Pedestrians at Tisbury Wharf can be separated from exiting vehicles by a fence or portable cordon line parallel to the existing fence between the South Wharf area and the North Wharf parking.

i. Relocate the crosswalk at the south exit of Tisbury Wharf to the southwest side of the exit.

j. Auxiliary pedestrian-scaled lighting is needed at Tisbury Wharf.

k. Work with landowner(s) along the harbor side of Beach Road to establish a pedestrian way between the Tisbury Wharf and Pier 44 parcels.

l. Direct pedestrians exiting Pier 44 along west and east perimeters of site to appropriate crossing locations of Beach Road: the existing crosswalk to the west and, to the east, a new crosswalk across from the bicycle and vehicle rentals.

m. Extend the Beach Road sidewalk to the bike path.

Oak Bluffs Suggestions

a. Conduct a traffic circulation study of downtown as it affects land transportation modes supporting the three Oak Bluffs terminals.

b. Incorporate orientation signs identifying locations for information, major destinations, rest rooms and transportation connections at or adjacent each of the three terminals.

c. Provide an orientation map and standing area off the sidewalk at the southwest corner of Seaview and Oak Bluffs avenues.

d. Evaluate the building and land of the vacated Town Hall as an opportunity site in which a visitor information center might be incorporated as part of new development.

e. Reconfigure SSA use of Seaview Avenue frontage: widen the sidewalk and provide a more direct link from passenger ramp to primary crosswalk; provide better control of vehicular and pedestrian circulation by use of a curbed island that would also be a protected, midway stopping point for pedestrians crossing Seaview.

f. Enlarge the SSA terminal building in coordination with any supporting infrastructure that may be placed across Seaview Avenue from the terminal (see "c" and "d" above).

g. Replace the old rest room facilities at the northeast corner of Seaview and Oak Bluffs avenues to a different location.

h. Designate a pedestrian way leading from Oak Bluffs Avenue to rest rooms on Kennebec Avenue, using hours-restricted loading zones if necessary.

i. Hard-surface the staging area for bus passengers at the eastern end of Lake Avenue and provide additional seating.

j. Coordinate, if not consolidate, the multiple bus stop locations in the vicinity of the SSA terminal.

k. Widen the Seaview Avenue Extension sidewalk to eight feet or provide periodic "turn outs," either of which might also incorporate seating.

l. Improve North Bluff gateway with seating, shelter and planters along harbor and pedestrian-scaled lighting throughout. Create a pedestrian way from the harborside to Seaview Avenue Extension sidewalk, and relocate or screen the Dumpster at the pedestrian connection to Circuit Avenue Extension.

m. Extend the pedestrian way along Circuit Avenue Extension north to the North Bluff upper parking lot by continuing pavement markings along the east side of the street. At the south and north ends of this new segment, place crosswalks linking to existing pedestrian ways.

n. Create a continuous pedestrian way along the north side of Lake and Oak Bluffs avenues between Circuit Avenue Extension and the harbor by reducing the width of the roadway.

o. Improve pedestrian circulation at the southeast corner of the harbor by reducing congestion of furnishings and utilities, and reconfiguring or removing private parking to create a wider, more direct pedestrian way connecting to the north sidewalk of Lake Avenue.

p. Reduce roadway width along the south side of Lake Avenue to expand the sidewalk width between Circuit and Central avenues.

q. Increase the amount of bicycle parking at the south side of harbor, possibly in conjunction with town plans for improvements along Lake Avenue.

r. Straighten the doglegged crosswalk of Lake Avenue at the harbor's southeast corner, either diagonal or perpendicular to the street. Create a pedestrian landing at south end. If curbside parking is shifted to the south side along this road segment, create a neck-down to slow traffic entering downtown (a neck-down

for the same purpose may also be desirable at the Lake Avenue crosswalk immediately east of Dukes County Road).

Edgartown Suggestions

a. Identify a continuous pedestrian way along Dock Street and Mayhew Lane, or use signs or pavement markings that pedestrians and vehicles share Dock Street north of Mayhew Lane.

b. Some sort of sign, post or pavement marking should alert motorists and cyclists to people exiting buildings directly onto the pavement.

c. Construct a rest room facility along the waterfront.

d. Provide orientation map and information at Memorial Wharf.

e. Promote pedestrian use of Memorial Wharf walkway rather than the parking lot by pushing parking away from the planked walk and southern corner of the shelter to allow a wider pedestrian way.

f. Determine if bike racks at Memorial Wharf are being used for long-term parking and who are the users. Assess whetheradditional racks are needed.

Close

Despite the lengthy list of infrastructure shortcomings and improvements suggested in this study, the fact that the flurry of ferry passenger activity is quickly assimilated by the immediate surroundings of the terminals suggests that capacity exists to accommodate higher levels or more frequent occurrences of ferry passenger activity. Such a conclusion, however, does not consider the infrastructure capacities of the adjacent village centers, which have a high level of vehicular and pedestrian activity beyond that contributed by a particular ferry arrival. Nor does the capability to increase ferry passenger service necessarily correlate to the Island community's capacity to tolerate an increase in either the intensity, duration, or frequency of congestion resulting from ferry activity. Such quality of life issues are beyond the scope of this study but should ultimately be part of any assessment of expanded ferry service. Regardless of whether to expand passenger capacity to Martha's Vineyard, the existing infrastructure in the port areas have a variety of shortcomings that, if remedied, could improve the existing flows of pedestrians and vehicles, and enhance the villages' environs for all users.

Vineyard Haven Harbor

Synopsis

Vineyard Haven Harbor is the only port with year-round ferry service on Martha's Vineyard and it has the greatest variety of watercraft and harborside land uses. The surrounding land serving the ferries has two distinct areas. The compact urban village rising from the harbor's west side is pedestrian oriented and a primary destination. Few tourist related land uses exist along the narrow strip of land forming the southern and eastern edges of the harbor, where development is automobile oriented. The sole road serving the strip is also a main artery with much through-traffic.

The three ferry carriers serving the port transported more than half the Island's summer ferry passengers in 1999, bringing some 6,650 people to Vineyard Haven on typical peak season days. Even when discounting for passengers in ferried motor vehicles, the Woods Hole, Martha's Vineyard and Nantucket Steamship Authority (SSA) accounted for nearly 70 percent of the harbor's passenger volume and more than a third of all ferry passengers to the Island. The two private carriers are the Island's only ferries to ports beyond the Cape. They have longer sailing times and run fewer trips than any of the Island's other carriers.

None of the three ferry terminals provides enough vehicle space to meet existing demand for buses, taxis and cars dropping off or picking up passengers, although Tisbury Wharf seems to do the best job. The on site shortage of space results in additional pedestrians filtering across streets to waiting vehicles. Only the SSA terminal provides a dedicated pedestrian way distinct from vehicle staging and circulation areas. Sidewalks are present throughout the areas surrounding the terminals, but for a couple of important segments. The direct link from the private ferries to the village center is a narrow and deteriorated sidewalk also obstructed by utility poles. Information and signs for pedestrians are sparse throughout the study area, particularly along Beach Road and at the private terminals. Despite high congestion levels that periodically result from ferry activity, the terminals and surrounding areas typically stabilized and returned to a background level of activity after 15 to 30 minutes.

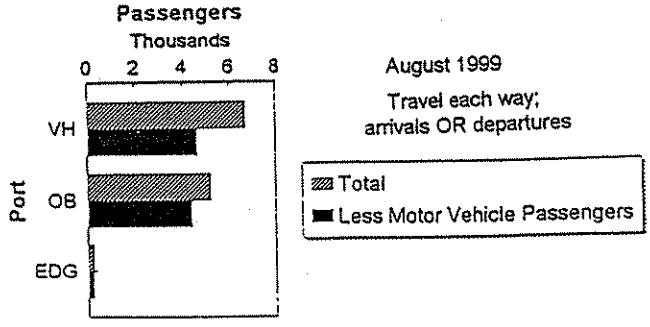
The Town of Tisbury has long worked to prevent the harbor and its surroundings from being used in a manner or at a magnitude beyond their capabilities. Newly approved regulations governing activities in and around the harbor require licensing of new or expanded ferry operations. The imminent installation of public sewers to the harborfront and village is designed for only a very small increase in current wastewater generation rather than stimulate development, and change, of the harborfront.

Overview of Harbor Area

The main port on Martha's Vineyard is Vineyard Haven Harbor. It operates year-round and supports a wide range of watercraft--from 300-foot-long ferries to barges to Jet-skis. The land surrounding the harbor hosts a variety of uses, including watercraft related enterprises and tourist oriented services. Three of the Island's seven ferry terminals are in Vineyard Haven: Union Wharf, Pier 44, and Tisbury Wharf. Ferry carriers to these terminals handled about 55 percent of the passengers and 75 percent of the vehicles ferried to or from the Island on estimated "typical peak" days in August of 1999 (Table 2-A).

Table 2-A

Estimated Peak Daily Ridership by Port



The waters between East Chop and West Chop form the Vineyard Haven Harbor (Figure 2.1). This study concerns itself with activity at the southern end of the harbor, which is divided into two sections. The Outer Harbor begins along a line extending approxi-

mately between Owen Little Way and the Eastville Beach Jetty. The inlet to Lagoon Pond and its water traffic intersects the east side of the Outer Harbor. A 1,215-foot-long breakwater divides the Outer Harbor from the Inner Harbor. The Inner Harbor shelters most of the harbor's dockage. Ferries, excursion ships and other large vessels operate in the southeastern half of the Inner Harbor. The SSA terminal defines the westernmost extent of this domain and receives the heaviest volume of use. Smaller pleasure craft moor or dock primarily in the northwestern half of the Inner Harbor but routinely navigate among the larger vessels. The large number of watercraft combined with their wide ranges of size, speed and maneuverability create a high complexity of harbor activity, particularly within the confines of the Inner Harbor.

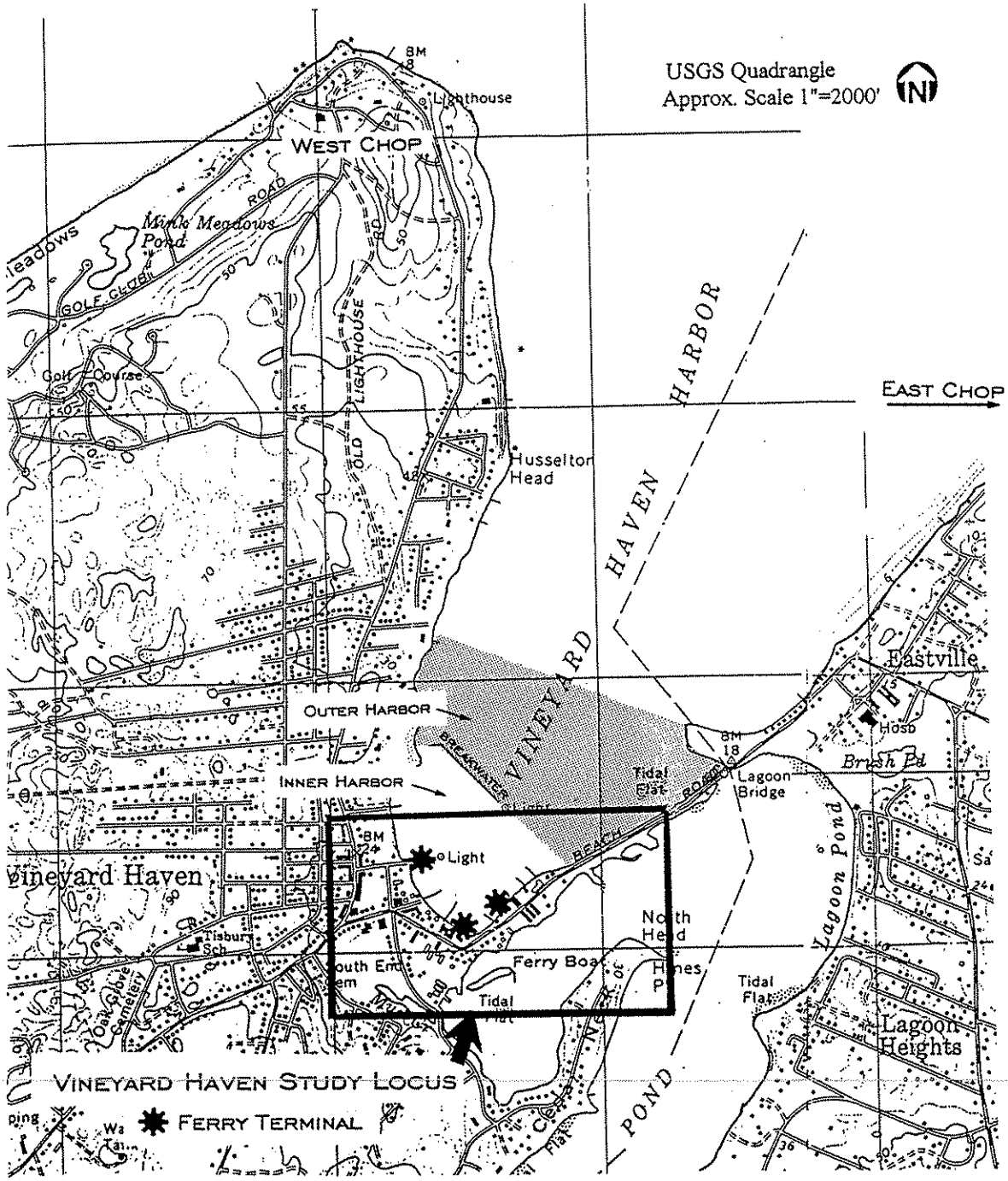


Figure 2.1

The land surrounding the harbor supporting the shore-side activity of passenger ferry service is delineated principally by the immediate street network and areas where ferry passenger congestion becomes dispersed and indistinguishable from the background level of street activity.

The village of Vineyard Haven rises from the west side of the harbor. It has a compact, pedestrian oriented form. Except Five Corners, intersections of the narrow, one-way streets are offset. Main Street, one block from the SSA terminal, is the focus of commercial activity and is a principal destination for visitors and Islanders alike. The concentration of storefronts and commercial activity decreases precipitously from Main Street to Water Street and, with it, decreases in the pedestrian character of the streetscape and the background levels of pedestrian activity.

A flat peninsula between the harbor and Lagoon Pond defines the south and east edges of the Inner Harbor, which includes the two private terminals. Beach Road runs from 60 to 300 feet from the harbor's edge and is the sole road serving this land. Beach Road is a segment of the Massachusetts State Highway, which is the only road between the commercial and tourism centers of Vineyard Haven and Oak Bluffs, and the only road between the village and up-Island. Land uses along Beach Road are more diverse than on Main Street and more spread out. Access is distinctly oriented to automobiles. These differences in land use density and pedestrian orientation from that found in the village center become more pronounced the further east along Beach Street one travels. Land in the Beach Road, East subarea on the eastern side of the harbor contains industrial and heavy commercial uses—many of which are harbor dependent—and few tourism uses. At the far east end of Beach Road, a seawall extends to the Lagoon Bridge and the land narrows to less than 150 feet. A state boat ramp facility occupies a small portion of this publicly owned strip of land.

Harbor Capacity

While this study's focus is on land-based infrastructure around the ports, the following observations regarding the waterside infrastructure are provided as context to the discussion of supporting infrastructure.

Nine piers and wharves ranging in length from 80 feet to 325 feet exist in the southeastern half of the Inner Harbor. Three of these facilities—the SSA terminal, Pier 44 and the north Tisbury Wharf—were used for ferry service in the summer of 1999. The others supported marinas, shipbuilding and services, commercial fishing, shipping barges and excursion vessels. Each of the ferry berths was empty for portions of the day--particularly Pier 44, which only received ferries over extended weekends. Thus, dockage for additional ferry service exists in the harbor. Additional capacity might also be accomplished without increasing the frequency of sailings; some piers are end-loading and could accommodate ferries of greater length than presently served.

Despite the availability of dockage capacity, the compactness of the Inner Harbor and the large volume of watercraft severely limit the capacity of the harbor to accommodate increased frequency of ferry vessels or the use of larger vessels. Current congestion levels limit the simultaneous mobility of even the existing large ships. The harbormaster has an agreement with the SSA that only one of its vessels can be underway in the Inner Harbor at a time. The town is considering including the private carriers and other large vessels in the agreement and extending its application to the Outer Harbor during the peak summer months.

Ferry Carriers

In the summer of 1999, three ferry carriers served Vineyard Haven Harbor on a regularly scheduled basis. Each carrier served different mainland ports, including two beyond Massachusetts. Private carriers reported running near capacity on their peak arrival and departure sailings. This study estimates the three carriers customarily transport more than 4,600 passengers, excluding people in motor vehicles, to (or from) the Island daily in the peak season. Tables 2-B, 2-C, and 2-D portray the capacity, estimated peak daily ridership with and without SSA passengers in motor vehicles, and share of ridership for each carrier to Vineyard Haven.

Table 2-B

Carrier Capacity and Estimated Peak Daily Ridership

Passenger Ferry Service to Martha's Vineyard -- August 1999*

Port	Carrier	Daily Capacity**	Est. Peak Ridership	Ridership % of Capacity	Ridership % of Port	Ridership % of Island
Vineyard Haven Harbor		14,407	6,661	46%	100%	55%
	Steamship Authority***	11,659	5,200	45%	78%	43%
	Cape Island Express	1,920	915	48%	14%	8%
	Fox Navigation	828	546	66%	8%	5%

* Travel each way; arrivals OR departures

** A mix of weekday and weekend capacity figures; totals may not reflect any one day of the week

*** Includes passengers on ferried motor vehicles

Table 2-C

Estimated Peak Daily Ridership by Carrier

Less SSA Passengers in Motor Vehicles

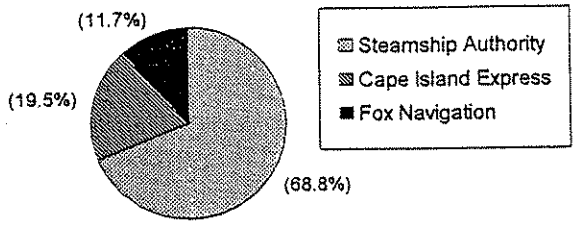
Passenger Ferry Service to Martha's Vineyard -- August 1999

Port	Carrier	Est. Peak Ridership	% of Port Ridership	% of Island Ridership
Vineyard Haven Harbor		4,685	100.0%	49.8%
	Steamship Authority	3,224	68.8%	34.3%
	Cape Island Express	915	19.5%	9.7%
	Fox Navigation	546	11.7%	5.8%

Table 2-D

Carrier Share of Daily Passenger Arrivals
Vineyard Haven Harbor - August 1999

Estimates; excludes motor vehicle passengers



Steamship Authority

The SSA carries the greatest volume of ferry passengers to and from the Island, even when discounting for riders of ferried motor vehicles. In the summer season of 1999, the SSA ran four vessels between its terminals in Vineyard Haven and Woods Hole. The *Islander* (796 passenger capacity), *Martha's Vineyard* (1,387), *Governor* (142) and *Gay Head* (250) combined to provide seventeen scheduled opportunities daily to arrive or depart from the Vineyard Haven terminal, with an additional late evening sailing on weekends and holidays. Factored into the capacity figures is the capability of each of these vessels to carry up to 50 automobiles. Two of the vessels, the largest capacity Martha's Vineyard and the larger freight boat, Gay Head, only served Vineyard Haven before 9 o'clock in the morning and after 7 o'clock in the evening; the bulk of the day these vessels served Oak Bluffs. Reported monthly ridership to and from Vineyard Haven for July and August 1999, averaged 7,936 people per day, about 62 percent of which were not associated with transported vehicles. Peak daily volumes in each direction are estimated to be near 5,200 (3,224 non-vehicular) passengers; a volume representing 78 percent of the harbor's ferry passengers (70 percent of the non-vehicular passengers). The latest available surveys of SSA patrons to and from the Vineyard in the mid-1990s showed between 70 and 79 percent to be visitors. Thirty-two percent visited for just one day.

Fox Navigation

The newest ferry carrier to Martha's Vineyard is Fox Navigation. It is the sole carrier originating from out of state, operating weekends May through October. Fox began running the high speed passenger vessel *Sassacus* from New London, Connecticut, to Pier 44 in 1998. A sister ship, *Tatabum*, was added in 1999 originating from Port Glen, New Jersey. The *Sassacus* carries 264 people and the *Tatabum* 300 people. The *Sassacus* ran twice daily, Thursday through Monday, arriving at Pier 44 at 11:00 a.m. and 10:30 p.m. Fox reported overall ridership to be about 50 percent of capacity. The Friday and Saturday morning *Sassacus* arrivals and the Saturday and Sunday evening departures from the Island are characterized by Fox to typically be near capacity. Fox speculated that between one-fourth to one-third of its passengers stayed overnight on the Island. In its initial year, the *Tatabum* only visited the Island on Friday afternoons and Sunday evenings and, on average, customarily ran between 100 and 150 passengers (33 to 50 percent of capacity). Because of its limited operation, Fox Navigation accounted for just 12 percent of the port's non-vehicular passengers.

Cape Island Express Lines, Inc.

In contrast to Fox Navigation, Cape Island Express Lines, Inc. has operated seasonal daily ferry service to the Island from New Bedford for decades. It runs a single ship, the *Schamonchi,* three times daily during the summer season with an additional Friday night sailing. The *Schamonchi* docked at Pier 44 for years before locating to the North Tisbury Wharf in 1998 and 1999. The vessel has a licensed capacity for 640 people but is allowed by the SSA to carry just 450 people. Carrier representatives reported the *Schamonchi* to have an overall ridership level of about 35 percent in 1999. Typical peak day ridership is estimated to be 880 people each way, or 46 percent of capacity. Tuesdays, Wednesdays and Thursdays are the line's busiest days, with the morning sailing being the busiest of each day. Observed morning arrivals averaged about 350 passengers, or 78 percent of the SSA-allowed capacity. The majority of passengers are day trippers. Augmenting the *Schamonchi's* passenger service is a growing, but still small, demand for hand freight—especially of highly perishable goods such as seafood and fresh cut flowers.

Study Area

The three ferry carriers serving Vineyard Haven in 1999 each used a different terminal with different types and levels of infrastructure to support passenger activity. As illustrated in Figure 2.2, the two private terminals lie at the southeastern corner of the harbor, across from the SSA terminal at the base of the village center. The Massachusetts State Highway—Beach Road and Beach Street—is the predominant unifying element of the shore-side infrastructure. The physical characteristics of the land use patterns and road networks in the areas surrounding the ferry terminals form two distinct but adjoining and interrelated sections: the compact village of the Water Street Area and the corridor spread out along Beach Road. Further differentiation is made in both of these sections.

As a primary destination unto itself, Main Street—the village's commercial core—routinely experiences congestion of pedestrians and vehicles. This concentration of activity is not solely a function of ferry passengers disembarking in Vineyard Haven. The remainder of the Water Street Area, while containing a number of retail establishments and intrinsic to the village of Vineyard Haven, is not so consistently crowded and the congestion that occurs is more directly linked to activity of the ferries. The infrastructure information for the commercial core is provided by this study for comparison purposes rather than to evaluate its capacity to accommodate ferry passengers. Similarly, while streets may be the most visible of infrastructure elements and vehicle circulation a paramount factor in congestion, as with the commercial core, much of the vehicular activity on the streets is not directly related to ferry arrivals or departures. Roads in the study area are examined for how they are used by vehicles picking up and dropping off passengers, and for non-motorized transportation—principally along the road edges by bicyclists and pedestrians.

The area along Beach Road has a character distinct from the village area. It begins at the Five Corners intersection and runs three-quarters of a mile along the southwest and southeast sides of the harbor to the Lagoon Bridge. Virtually all of the pedestrian activity east of Five Corners is associated with the private

ferries, however, occurs within the one-third mile extending to Tisbury Wharf. Differences in land uses and character along Beach Road resulted in it being described and evaluated in two segments: (1) west of and including the Pier 44 terminal and (2) east of Pier 44.

Each of the terminals and the surrounding subareas are individually described in terms of the existing supporting infrastructure, observed circulation, and primary shortcomings of the infrastructure. The infrastructure elements are summarized in tables and the generalized locations of staging areas and infrastructure shortcomings are illustrated on maps.

Steamship Authority Terminal

Infrastructure

The SSA facility at the end of Union and Water streets is the largest of the Island's ferry terminals. The volume of its passenger, automobile and freight business dictates large staging areas and running multiple vessels in a synchronized manner to the two slips along either side of the 325-foot Union Wharf. A new terminal building and reconfiguration of the staging areas were completed in 1994. Figure 2.3 shows the terminal's layout. The infrastructure elements at the terminal are quantified in Table 2-E and summarized below.

A combination of pavement markings and contrasting pavers guide pedestrians between the boats and the sidewalks at the terminal building. Paved staging areas for vehicles waiting to board the ferry consume the majority of the terminal site and lie mostly to the south of the pedestrian way and terminal building. Specific areas for passenger pick up and drop off, public transit buses, and luggage drop and pick up exist south of the building along Water Street. A roofed shelter approximately 125 feet long and accessible from both sides runs along the side of the street. Two tour buses can park and solicit business along the main walkway at the southern side of the terminal building. Taxis are along the north side of the building, separated from the other functional areas to the south—including the luggage pick up.

The terminal contains a number of amenities used by ferry passengers and the general public, alike. Besides ticketing counters and personnel offices, the building contains a large waiting room with bench seating, public restrooms, drinking fountains, lockers and telephones. Bike racks and additional seating and phones are outside, alongside the terminal building. Two large shelters with seating are located immediately adjacent the vessel boarding area. The terminal site also provides public access to the beachfront, alongside which is a small gazebo and bench seating. A tree-lined sidewalk extends from the harbor and gazebo to Water Street along the southern edge of the site.

Upon reaching the sidewalk at the terminal building, pedestrians exiting the ferries have to choose in which direction to proceed: go to either side of the building or enter the building. A large, two-sided display board with an Island-wide transit map and a downtown Vineyard Haven map is located at this decision making point. Nevertheless, there is minimal signage on the terminal site identifying staging areas or directing disembarking passengers.

Circulation

With some sailings and arrivals just 15 minutes apart and ships typically docked for 30 minutes, the two slips are periodically occupied simultaneously. The extreme range in SSA vessel capacities causes widely fluctuating volumes of passenger activity at the terminal throughout the day. The large volume and broad dispersion of SSA passengers departing the terminal site prevented this study from quantifying the mode and direction of passenger dispersal. Observations of circulation patterns, however, are noted below.

The length of time between ferry arrivals and sailings removes the potential conflict between cars picking up passengers versus dropping off passengers, such as exists at most of the terminals for the private carriers, which have quicker turnaround times. Cars in the pick up and drop off area internal to the SSA terminal site

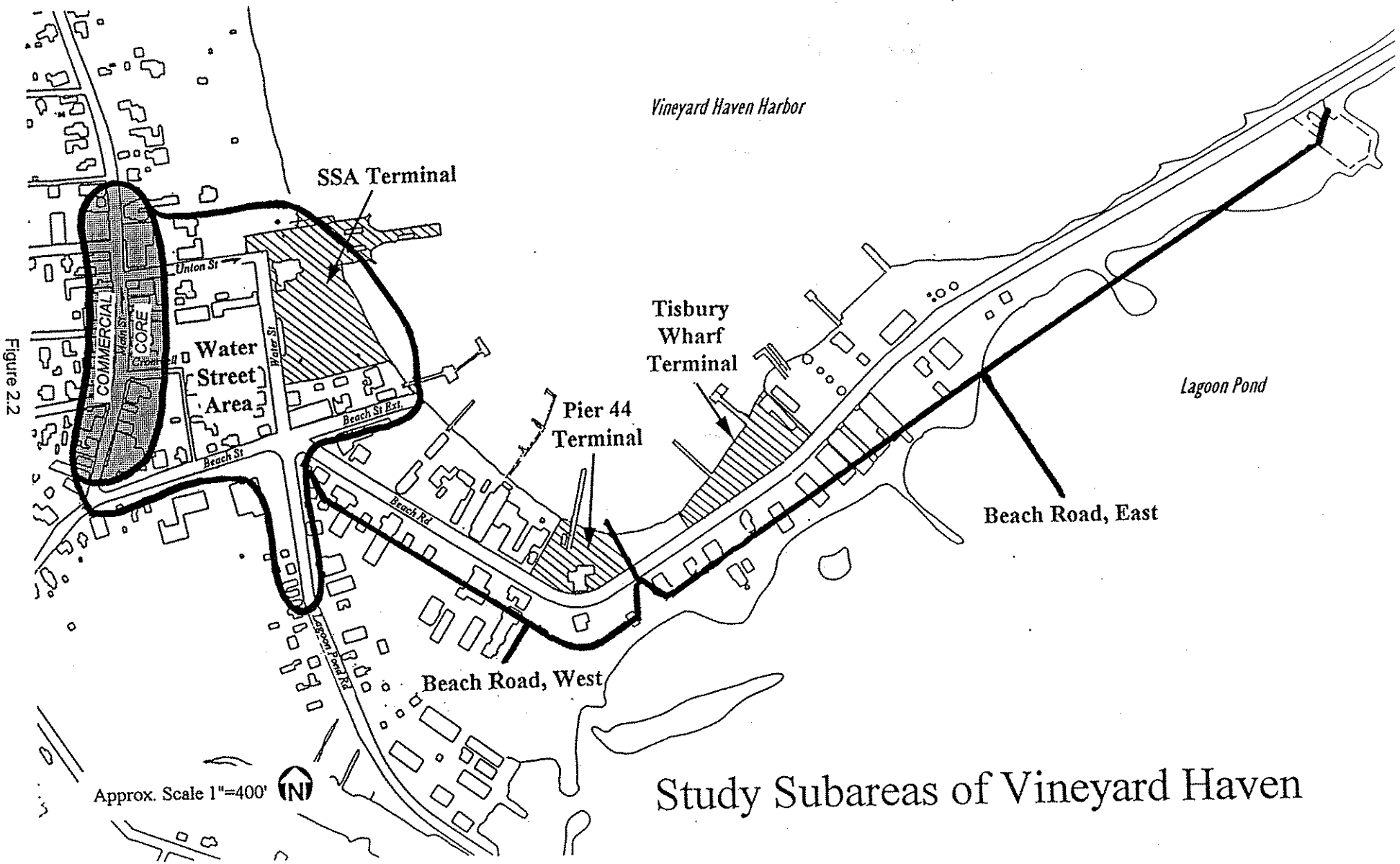


Figure 2.2 Study Subareas of Vineyard Haven

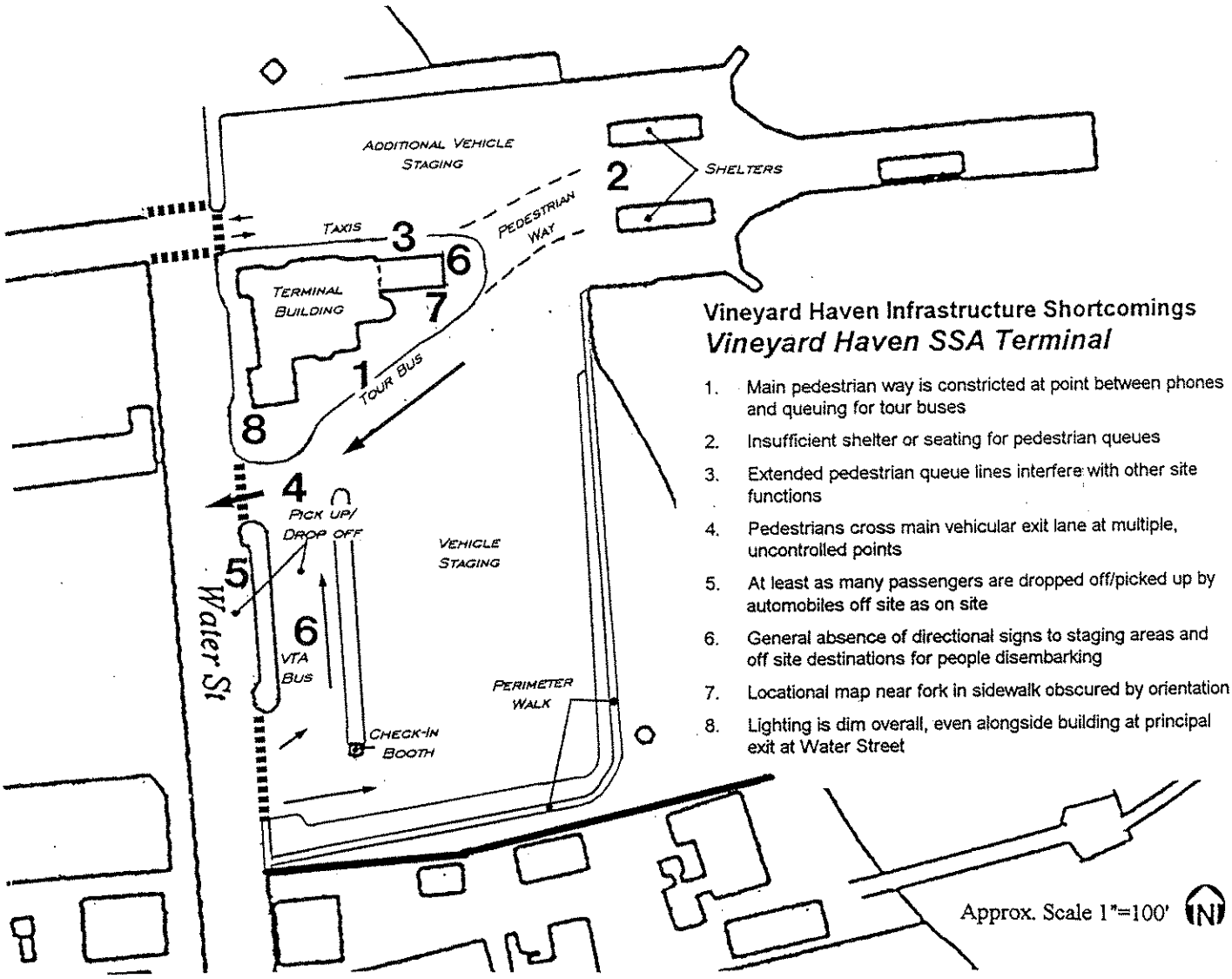


Figure 2.3

often stop in the through lanes and block others from exiting the area. Consequently, cars frequently maneuver though multiple lanes while people with luggage are getting in and out of other cars and walking about.

People wait near or under the shelters by the slips to meet passengers. But the shelters are not utilized by passengers when large queues form and passengers need to stand in line rather than seek shelter or rest. Queue lines for boarding also start in this area but may extend back a few hundred feet and wrap around the terminal building. Other times, SSA personnel will shift the queue line further to one side to make way for vehicle traffic. The pedestrian way between the slips and terminal building is periodically traversed by staged vehicles, but not while the bulk of passengers need to cross. Vehicular traffic in this area is under the direction of SSA personnel.

The wide sidewalk along the north side of the terminal building provides a direct route from the ferries to Union Street, the location of a major stop for privately operated buses and access to Main Street. However, the north sidewalk is less "active" or inviting, what with the building wall rising from one side and a platoon of taxis parked diagonally along the other. Instead, most people opt for the sunny, southern sidewalk where there is more activity on the sidewalk and in the adjoining staging areas. While only a couple of feet wider

Table 2-E

Port Area Infrastructure Supporting Passenger Ferry Service

Vineyard Haven - Steamship Authority Terminal

Element	Quantification
Pedestrian Way	Oversized brick walks along all three sides of terminal building, 10' to 12' typical (8' at phone booth opposite tour bus queue); 6' patterned concrete along both sides of pick-up/drop-off
Crosswalks	Contrasting pavers across terminal entrances/exits with Water St and between slips and terminal building (with painted edging)
Bicycle	3 bike racks at south side of terminal building; staging for transport controlled by SSA staff
Vehicle Circulation	Controlled by SSA staff; vehicles enter south curbcut, exit middle curbcut south of building, north curbcut for taxis and auxiliary entrance/exit; traffic officers control Water St during ferry arrivals
Pick-up/Drop-off	3 lanes accommodating about 30 cars; additional 5 cars at curbside pull-off along Water St
Transit	Principal VTA stop at pick-up/drop-off shelter
Taxi	Stand for 9 taxis at north side of building
Tour Bus	2 on-site spaces alongside main exit and walkway at terminal building; 4 spaces off-site at base of Union St
Signage	Modest-sized "Welcome to Martha's Vineyard" sign between slip and Tarmac; two-sided display board at east end of building; sign for luggage drop area; small directional sign for terminal functions at south entance
Information	Staff personnel and brochures in terminal building
Telephone	4 inside building and 4 outside along diagional walkway
Seating	8 benches in terminal; 4 benches around exterior of building; 16 benches at boarding area shelters; one bench on terminal side of pick-up/drop-off shelter
Shelter	Terminal building lobby; two 640 s.f. roofed shelters at boarding area; approximately 125' long roofed shelter along drop-off/pick-up area
Rest Rooms	8 stalls in building
Drinking Fountain	Inside building
Trash Cans	Sparsely distributed at terminal building and at boarding area
Lighting	Shielded streetlights at vehicular staging areas; lampposts and wall-mounted lights at terminal building; under-roof lighting of shelters
Amenities	Harbor views; pedestrian access to harborfront; small gazebo, benches, bike rack and concrete sidewalk along beach; connecting, tree-canopied sidewalk to Water St at southern end of site; landscape plantings at terminal building, staging area median and along beachfront
Miscellaneous	

than the north sidewalk and flanked on a portion of one side by one or two tour buses, the south sidewalk sets away from the building and widens in places with seating or room to step aside the flow of people.

The extent of activity on the south sidewalk creates congestion. A pay phone stands alongside the main walkway of the sidewalk rather than in one of the "pull outs." The queues for the tour buses opposite the phone combine to create a choke point in the flow of pedestrians along this walk. Pedestrians periodically step off the curb or cut across the principal vehicle exit lane to get to waiting vehicles, luggage or the VTA transit bus. There are no crosswalks to help direct such crossings. A few passengers well familiar with the terminal—as suggested by their purposeful gate—avoided the pedestrian congestion by filtering through the vehicle staging areas to exit the terminal south of the loading shelter. What little use the perimeter walk and beachfront access receives is mostly by nonferry patrons.

The confluence of several activities contributes to congestion at the southwestern corner of the terminal building. Cars picking up passengers merge into the flow of vehicles exiting the ferry. People cross the exiting traffic to reach luggage, waiting cars, transit buses or simply to follow the sidewalk south along Water Street. The main pedestrian walk widens at this southwestern corner to accommodate people stopping to orient themselves amid the flow of others. This area and the sidewalk at the northwestern corner of the terminal building at the second decision points for disembarking passengers. Upon reaching Water Street, some passengers turn and proceed along Water Street to the other building corner. It was not unusual for a few people to backtrack to their initial side of the building. Nevertheless, comparatively little activity occurs on the Water Street sidewalk alongside the terminal building. With little spill light from the terminal and the nearest street light existing across from the northern corner, the sidewalk at the southern corner of the terminal building receives less illumination at night.

The redirection and backtracking of passengers at Water Street suggests a lack of information prior to reaching this street. Despite the high profile location of the map display board at the east side of the terminal building, the board's nearly perpendicular orientation to passengers approaching from the ferry obscures its very existence. Similarly, although information may be obtained at the adjacent Chamber of Commerce visitor information booth and inside the SSA terminal, signage of and directions to such are not readily apparent and people frequently solicit information and directions from SSA staging personnel and interrupt police officers directing automobile traffic.

Tour bus carriers report filling three buses, more than one fifth of non-vehicular ferry traffic, during peak ferry arrivals. Passengers boarding and exiting the tour bus along the main walkway spill into the throughway of the main walkway. The location of the tour bus obscures view of the VTA transit bus location near Water Street. Transit buses captured fewer riders than did the private buses—perhaps less than half that of the private tour buses. Unlike the tour buses, the schedules of the VTA buses do not correspond directly to the arrivals and departures of the ferries. Ferry passengers may have to wait nearly an hour for a specific bus. Only one bench is provided for seating at the shelter. The one small schedule sign posting the schedule in small print is particularly difficult to read by the dim lighting at night. There is no map at the shelter to illustrate the routes or information about the private bus lines. The orientation of the transit bus staging area has the bus doors directed away from the shelter. The buses also stand one lane away from the shelter as the roof overhang does not provide enough clearance for the buses. Thus, the curb lane is not utilized.

Infrastructure Shortcomings

The shortcomings of ferry passenger supporting infrastructure at the SSA Vineyard Haven terminal center around how pedestrian movement is impeded or hindered. The locations of the shortcomings identified below are indicated on Figure 2.3.

1. Main pedestrian way is constricted at point between phones and queuing for tour buses
2. Insufficient shelter or seating for pedestrian queues

3. Extended pedestrian queue lines interfere with other site functions
4. Pedestrians cross main vehicular exit lane at multiple, uncontrolled points
5. At least as many passengers are dropped off/picked up by automobiles off site as on site
6. General absence of directional signs to staging areas and off site destinations for people disembarking
7. Location map near fork in sidewalk obscured by orientation
8. Lighting is dim overall, even alongside building at principal exit at Water Street

Water Street Area

Figure 2.4 shows the area of Vineyard Haven that contains the primary off site infrastructure supporting passenger activity associated with the SSA terminal. Five hundred feet up hill from the SSA terminal is Main Street, the densely developed commercial core of the village. The streetscape is also dense along the southern edge of the area—along Beach Street—but development on the southern side is more vehicular oriented with buildings set back behind parking areas. Running from the terminal to Five Corners, Water Street is the only means of vehicular egress from the terminal and area extending to Main Street, making the Five Corners intersection the foremost vehicular gateway to the Island. Parking lots along and at the end of Water Street fragment the streetscape and the intensity of background pedestrian activity. Lagoon Pond Road extends south from Five Corners. It is bordered by no tourism oriented establishments but serves as an alternative to using State Road for accessing Edgartown-Vineyard Haven Road.

Infrastructure

The infrastructure elements in the Water Street Area are delineated and quantified in Table 2-F. Several elements are noted below.

There are continuous sidewalks on at least one side of all the streets in the Water Street Area, and several additional pedestrian ways exist between Main Street and the public rest rooms at the western edge of the A&P parking lot. Portions of the sidewalk on either side of Beach Street are blocked by utility poles are two feet wide. Main Street's sidewalks vary greatly in width and material, with some segments less than three feet in width and one section at-grade with simply the roadway edge marked. Sidewalks do not exist on the north side of either Union Street or Cromwell Lane, the east side of Water Street between the SSA terminal and Five Corners, and the east side of Lagoon Pond Road. Twenty crosswalks exist throughout the area at each street intersection.

On street parking is provided along the west side of Main Street (diagonal), a third of Union Street (parallel) and both sides of Beach Street Extension (parallel). The on street spaces have one-hour limits. Two 24-hour parking lots for approximately 120 cars exist west of Water Street. There is no parking dedicated solely for ferry-related use.

The east end of Union Street serves as a major bus stop for tour buses and private transit buses. This location is adjacent both the terminal building and the Chamber of Commerce's visitor center. The manned booth is open seasonally and sits 150 feet north of the SSA terminal building. A sign at Five Corners directs people towards the Chamber's office on Beach Street.

Public rest rooms are sited behind the buildings on Main Street, at the west end of the A&P parking lot. Seating is provided outside the facility. Main Street has several places to sit, some shaded by awnings. Benches at the Union Street bus stop accommodate about a dozen people.

Most of the signs are oriented to vehicles. Directional signs along Beach Street for the ferry are for the "Vineyard Ferry" rather than referencing the SSA or the Woods Hole destination to distinguish it from other

Table 2-F

Port Area Infrastructure Supporting Passenger Ferry Service
Vineyard Haven - Water Street Area

Element	Quantification
Pedestrian Way	Water St: E side - 5' to 7' along terminal drop-off area, remainder to 5-corners is private walk with 4' clearance; W side - 6' brick narrowing to 5' asphalt with no curb at 5-corners Union St: S side - 6' concrete at W 1/2 (PP), E 1/2 concrete widens to 7' at bus stop (where bench seating also exists) Main St: E side - most variable in width and material, 5' typical, including a 100' long mid-section that has no grade separation from the street; W side 6' to 8.5' brick and concrete (DP) Cromwell Ln: S side - less than 3' brick (under 2' at tree obstruction) extending 60 feet from Main St Walkways exceeding 5.5' connect Main and Union to central parking lot Beach S: N side - 4' to 5', mixed materials, utility poles obstruct to less than 3'; S side - 6' concrete for 100' from 5-corners, remainder mixed materials and less than 4' (under 2' at utility poles and hydrant) Beach St Extension: S side - 12' wide brick extends about 100' back from 5-corners before narrowing (PP) Lagoon Pond Rd: E side - 4' concrete extending 150' from 5-corners; W side - 4' to 5' concrete; 3' asphalt S of post office
Crosswalks	20 crosswalks, all at street intersections; mid-block Beach St crossing is at alley intersection; 4 crossings of Main within a 400' span
Bicycle	Racks at W end of central parking lot, off of Main and Water streets, and at post office and Chamber information booth
Vehicle Circulation	Beach St is the principal route through the downtown area; Main St one-way N bound; Union and Cromwell one-way E bound; Water two-way but terminates at Union; all traffic exiting terminal must use 5-corner intersection; Water St circulation aided by traffic officers during ferry arrivals
Pick-up/Drop-off	2-hour parking at 36-car lot at end of Water and Union, and +80-car lot across Water from terminal's curbside pick-up/drop-off; 1-hour parallel parking (PP) on short segment of Union and along Beach St Extended; 1-hour diagional parking (DP) along the west side of Main
Transit	Curbside stop for private transit bus on Union near Water; public VTA route circles Main/Union/Water with stop at SSA terminal.
Taxi	Stand at SSA terminal
Tour Bus	Curbside stop for 4 buses on Union near Water (also at terminal)
Signage	Directional signs to towns (with mileage) and to Chamber of Commerce; signs to ferry (SSA) terminal; staging direction signs at terminal entrance oriented towards Water St; "Main Street" directional sign near terminal
Information	Staffed information booth immediately north of terminal at end of Water St; Chamber of Commerce office along Beach St
Telephone	Phones along Main and next to post office

— Table continued —

Table 2-F (continued)

Port Area Infrastructure Supporting Passenger Ferry Service **Vineyard Haven - Water Street Area (continued)**	
Element	**Quantification**
Seating	Benches at several places along Main and at Union bus stop; benches also alongside several businesses
Shelter	Commercial building awnings (primarily on Main St)
Rest Rooms	4-stall facility at W end of central parking lot
Drinking Fountain	None
Trash Cans	Widely dispersed
Lighting	Cobra-head streetlights; additional, pedestrian-scaled streetlamps scattered along Main; substantial spill-over light from abutting uses; no streetlights and little off-street illumination on Beach St Extension
Amenities	Beach access at the Chamber of Commerce information booth; narrow harbor vistas from higher Main St elevation
Miscellaneous	Main St is a high intensity pedestrian domain and 5-corners a notorious traffic congestion point; rentals of autos, bikes and mopeds are concentrated along or near Water St

ferry carriers and terminals. No signs direct people to the bus stop or to the rest rooms. At the base of Union Street a sign directs people from the ferry to Main Street, above which hangs a more colorful and eye-catching "Do Not Enter" sign (for vehicles).

Standard street lighting throughout the area is augmented by pedestrian scaled lighting only along Main Street and the western half of Union Street. The parking lots and the pedestrian ways off Main Street have little or no spill light from adjoining enterprises, leaving some portions dimly illuminated.

Circulation

Other than at its ends intersecting other streets, there are no pedestrian crosswalks on Water Street and people cross at multiple points to enter and exit the SSA terminal site. The least amount of crossing is attempted along the terminal loading shelter. Pedestrians cross both north and south of the main vehicular exit. Those crossing south of the exit cross the flow of exiting cars twice. North, between the exit and Union Street, there is very little traffic and pedestrians cross diagonally with little concern or conflict. Crossings are more dispersed between the terminal entrance and Five Corners, where there are more street-front establishments on both sides of the street and where pedestrians take advantage of slowly moving, backed up traffic.

Water Street traffic backs up from both the Five Corners intersection and, in the other direction, from cars entering the terminal site, dropping off passengers along Water Street or turning left to enter the A&P parking lot. Pedestrians crossing the street or crossing curb-cuts along the sidewalks also slow traffic movement. Cars and pedestrians also mix in the A&P parking lot, the aisles of which are sometimes used for pick up and drop off of passengers and as a pedestrian way between Water and Main streets.

People walk along both sides of Water Street between the SSA terminal and Five Corners. On the east side, the private sidewalk in front of a popular tourist attraction is frequently filled with patrons. The corner building is not open to the public and the paved apron between it and the roadway is commonly blocked by a vehicle. Consequently, pedestrians routinely stroll along the eastern edge of Water Street, sometimes two

abreast. The private sidewalk is at approximately the same level as the roadway but is separated by a granite curb that rises several inches, which is a tripping hazard from either side.

At Five Corners, the corners on either side of Water Street are curbless and pitch into the street intersection. A low street sign at the west corner where the walkway is the narrowest is a hazard to taller pedestrians. Passengers cross Water Street at Five Corners in both directions, those crossing east having crossed to the west side before reaching the crosswalk. Many pedestrians do not confine themselves to the crosswalks and filter between cars near the intersection. The crosswalk at Lagoon Pond Road sets back several yards from the stop sign and the pavement stop bar for vehicles. While this enables automobiles to view oncoming cross traffic, the unusual placement of the crosswalk is obscured from view by pedestrians and by vehicles entering Lagoon Pond Road. No signs alert pedestrians or motorists about the nonstandard placement of the crosswalk and many pedestrians cross in front of cars waiting to pull out into the intersection.

Other challenging crosswalks exist along Beach Street, whose third, left-hand turn lane frequently obscures the presence of pedestrians in the crosswalks. Combined with the higher volume and speed of background traffic, the environment along Beach Street is the least pedestrian-friendly in the subarea. The narrow sidewalks are interrupted by utility poles and hydrants. The extra vehicle lane eliminates the street shoulder that provides a modicum of a buffer between pedestrians and cars, and also constricts bicycles and mopeds.

Riders fill private transit buses at the base of Union Street during the peak ferry arrivals. While one route runs every 15 minutes, other shuttle routes have longer intervals. A few people standing at the Union Street stop expressed confusion in seeing the VTA buses over at the SSA terminal stop. One man remarked that the VTA bus sitting at the terminal would probably drive around the terminal and make another stop at Union Street. Passenger queues for buses can fill the sidewalk at Union Street, forcing people on their way to Main Street to step off the curb onto the bus parking zone or farther into the street if buses are present. The one-way eastbound Union Street is also identified on Island bicycle maps as the westbound bicycle route.

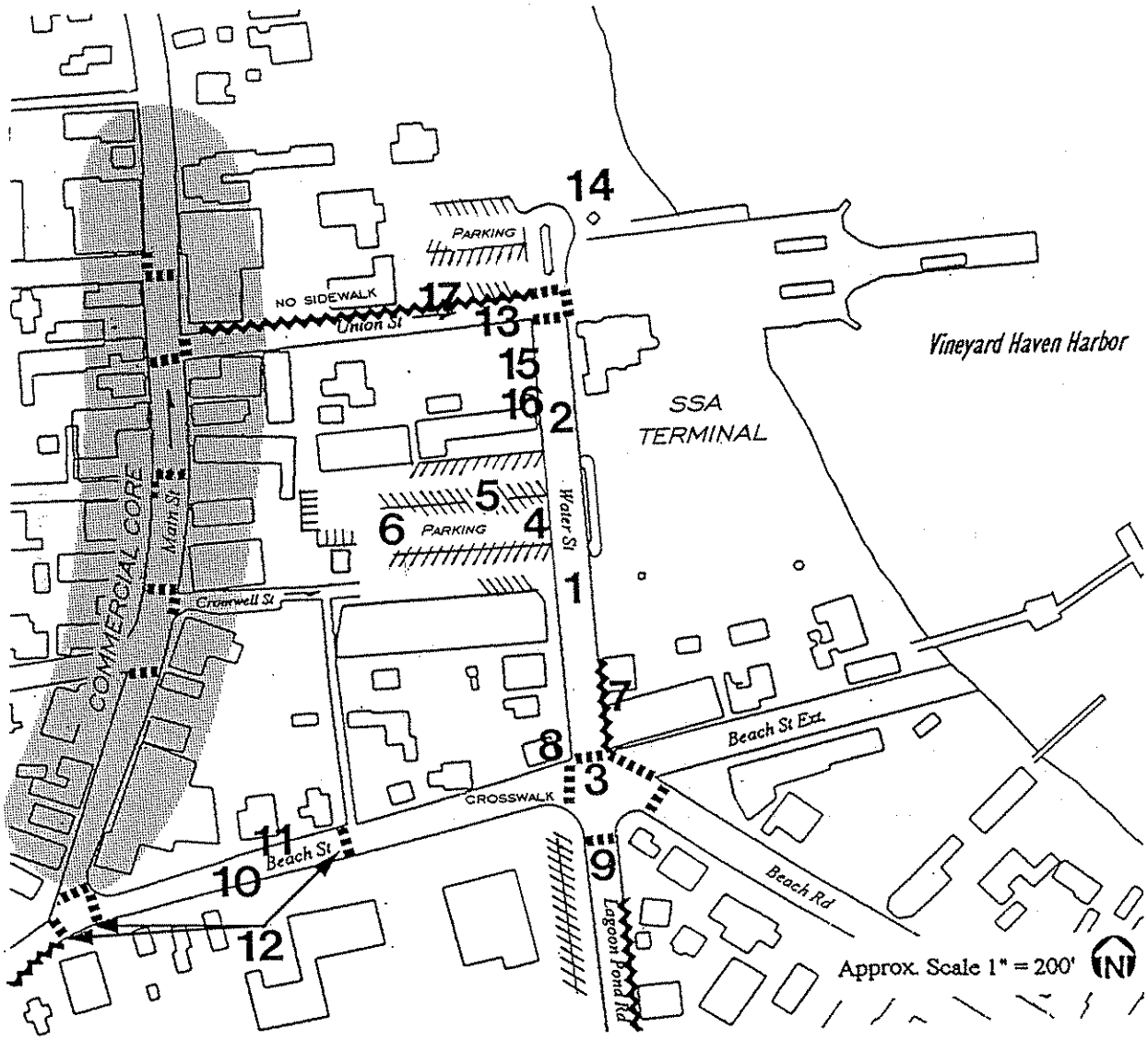
Police officers directing the heavy traffic exiting the terminal onto Water Street are frequently asked directions by pedestrians and people in cars. People were also frequently observed stopped at a variety of places examining maps to orient themselves. A number of factors reduce the visibility and accessibility of the Chamber of Commerce's visitor center to passengers disembarking the ferry. The booth is not readily noticeable from the ferry as activity at the SSA terminal is oriented to the south side of the terminal building, away from the information booth. Visibility of the information booth can also be blocked by staged trucks and charter buses. One must exit the terminal site to Water Street in order to get to the visitor center. The isolated location of the booth from shops or other attractions reduce the likelihood of visitors venturing back to the center once they have left the terminal area. However, the site is convenient for users of the Union Street bus stop.

While the congestion of pedestrians, bicycles, cars and buses during SSA ferry events can result virtually in gridlock, circulation on streets and sidewalks normally return to background levels within 30 minutes.

Infrastructure Shortcomings

The principal shortcomings of infrastructure supporting ferry passenger service in the Water Street Area center around how pedestrian movement is impeded or hindered. The locations of the shortcomings identified below are indicated on Figure 2.4.

1. Uncontrolled pedestrian crossings of Water Street at multiple locations amidst numerous vehicle turning movements
2. No crosswalk of Water Street at main exit from SSA terminal
3. Pedestrian crossing at Five Corners is challenging due to the multiple, uncontrolled turning movements of vehicles at this intersection



Vineyard Haven Infrastructure Shortcomings

Water Street Area

1. Uncontrolled pedestrian crossings of Water Street at multiple locations amidst numerous vehicle turning movements
2. No crosswalk of Water Street at main exit from SSA terminal
3. Pedestrian crossing at 5-Corners is challenging due to the multiple, uncontrolled turning movements of vehicles at this intersection
4. West sidewalk along Water Street interrupted by a series of curb cuts to central parking lot
5. Cars stand in parking lot aisles and Water Street for loading and unloading
6. Central parking lot receives a lot of pedestrian through-traffic with no dedicated way
7. Narrow, private way between SSA and 5-Corners is often obstructed by patrons and vehicles; free-standing curb is a tripping hazard
8. Narrow, curbless walk at northwest corner of 5-Corners undifferentiated from roadway and traversed by turning vehicles
9. Pedestrians crossing Lagoon Pond Road at 5-Corners obscured from view by crosswalk placement behind vehicles at stop bar
10. Narrow, obstructed walks on both sides of Beach Street have no buffer from fast moving traffic
11. Additional travel lane within Beach Street eliminates edge "fog lines" and reduces separation between vehicles, bicycles and sidewalks
12. View of pedestrians in crosswalks of 3-lane Beach Street obstructed by standing vehicles in turn lanes
13. Union Street sidewalk obstructed by queues for tour buses
14. Out of way location for Chamber visitor center; no signs directing people to it
15. Virtually no signs orienting or directing pedestrians
16. No pedestrian-scale lighting along Water Street and most other streets
17. Designated (but not posted) bicycle route from SSA terminal goes against one-way traffic on Union Street

Figure 2.4

4. West sidewalk along Water Street interrupted by a series of curb cuts to central parking lot
5. Cars stand in parking lot aisles and Water Street for loading and unloading
6. Central parking lot receives a lot of pedestrian through-traffic with no dedicated way
7. Narrow, private way between SSA and Five Corners is often obstructed by patrons and vehicles; freestanding curb is a tripping hazard
8. Narrow, curbless walk at northwest corner of Five Corners undifferentiated from roadway and traversed by turning vehicles
9. Pedestrians crossing Lagoon Pond Road at Five Corners obscured from view by crosswalk placement behind vehicles at stop bar
10. Narrow, obstructed walks on both sides of Beach Street have no buffer from fast-moving traffic
11. Additional travel lane within Beach Street eliminates edge "fog lines" and reduces separation between vehicles, bicycles and sidewalks
12. View of pedestrians in crosswalks of 3-lane Beach Street obstructed by standing vehicles in turn lanes
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14. Out of way location for Chamber visitor center; no signs directing people to it
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17. Designated (but not posted) bike route from SSA terminal goes against one-way traffic on Union Street

Pier 44 Terminal

Infrastructure

Pier 44 extends more than 250 feet from the private property at the bend in Beach Road. While large private pleasure craft also occasionally dock at this pier, it is frequently empty. A small business renting personal watercraft operates from the small ticket shed at the shore end of the pier. A gas station, convenience store and pharmacy occupy the primary structure on the property (Figure 2.5). Internal vehicle circulation is directed east to west between the entrances at either end of the road bend. A dozen parking spaces are split among the east and west ends of the building. A few more spaces lie along the western edge of the site, next to an area reserved to park idle tour buses. Additional parking is accommodated alongside a lane behind the building, on the harbor side. There are no dedicated vehicle staging areas (as of 2000, two of the parking spaces along the west side of the main building are now reserved for taxis).

During observations, a high mounted flood light at the property's west street-front provided the only light to the pier area of the terminal site. Towards the end of the 1999 season, illumination was greatly improved by the addition of lighting at the rear of the building.

Seven picnic tables and benches are placed on the beach area between a split rail fence and the waterfront. There is no public rest room on the premises but handicapped-accessible facilities are being mandated by the Board of Health as an addition to the commercial building. The site is devoid of informational or directional signs—even that the ferry operates from the facility. Table 2-G itemizes the supporting infrastructure elements at the Pier 44 terminal.

Circulation

Passenger ferry use of Pier 44 in 1999 was by Fox Navigation, which ran service only Thursdays through Sundays. Prior to 1998, the larger capacity *Schamonchi* docked at Pier 44 on a daily basis. When free of Fox

vessels, the *Schamonchi* resumed use of Pier 44 in 2000. The traffic circulation on the Pier 44 terminal site in 1999 was highly congested for periods of less than half an hour. Beginning ten to fifteen minutes prior to the arrival of the morning ferry, standing vehicles start to fill the travel lane around the rear of the property's main building. The maneuvering areas for the gas station and parking spaces at either side of the building became blocked shortly before the ferry docked, leaving no room for additional vehicles to enter the site. Vehicles waiting to turn into the site periodically backed up Beach Road traffic for brief periods. Vehicles at the rear of the building could not leave until vehicles cleared from the west side of the site.

Passengers, some with luggage, had to navigate through the site's tangle of vehicles. A high percentage of ferry passengers were picked up by private automobiles. A night observation had more than 100 people boarding cars—over 80 percent of that particular trip's passengers. Close to half of the people crossed Beach Road to cars in the Tisbury Marketplace parking lot. During the day, the volume of people walking off the site increased. Some people snaked through the fueling area or walked around the back of the building to exit the eastern side of the site. Pedestrians exited the site from all points along the curved Beach Road frontage but mostly from the western entrance.

In addition to four or more taxis tightly packed in the western parking area, on two occasions taxis were observed loading passengers while fueling. A trolley momentarily stopped next to the roadway, near the fuel pumps, soliciting passengers who would have to cross and queue in the path of cars exiting the fueling area. Motorists searching for parking space also resorted to standing in close proximity to the fueling area. Gas station attendants quickly instructed drivers to leave the fueling area and try parking across the street.

Vineyard Haven Infrastructure Shortcomings

Pier 44 Terminal

1. Small site becomes side-by-side with cars, taxis and buses to pick up passengers, which crowds out patrons of on site businesses
2. Vehicular congestion can block additional vehicles from entering the site, periodically backing up Beach Road traffic in either direction
3. Substantial amounts of passengers picked up across street in private parking lot
4. No pedestrian way from pier to sidewalk–pedestrians must wind through tightly parked vehicles
5. Tight quarters for tour buses; block Beach Road when backing into site; can obstruct pedestrians from heading west or viewing crosswalk
6. No rest rooms or shelter
7. Absence of effective signage

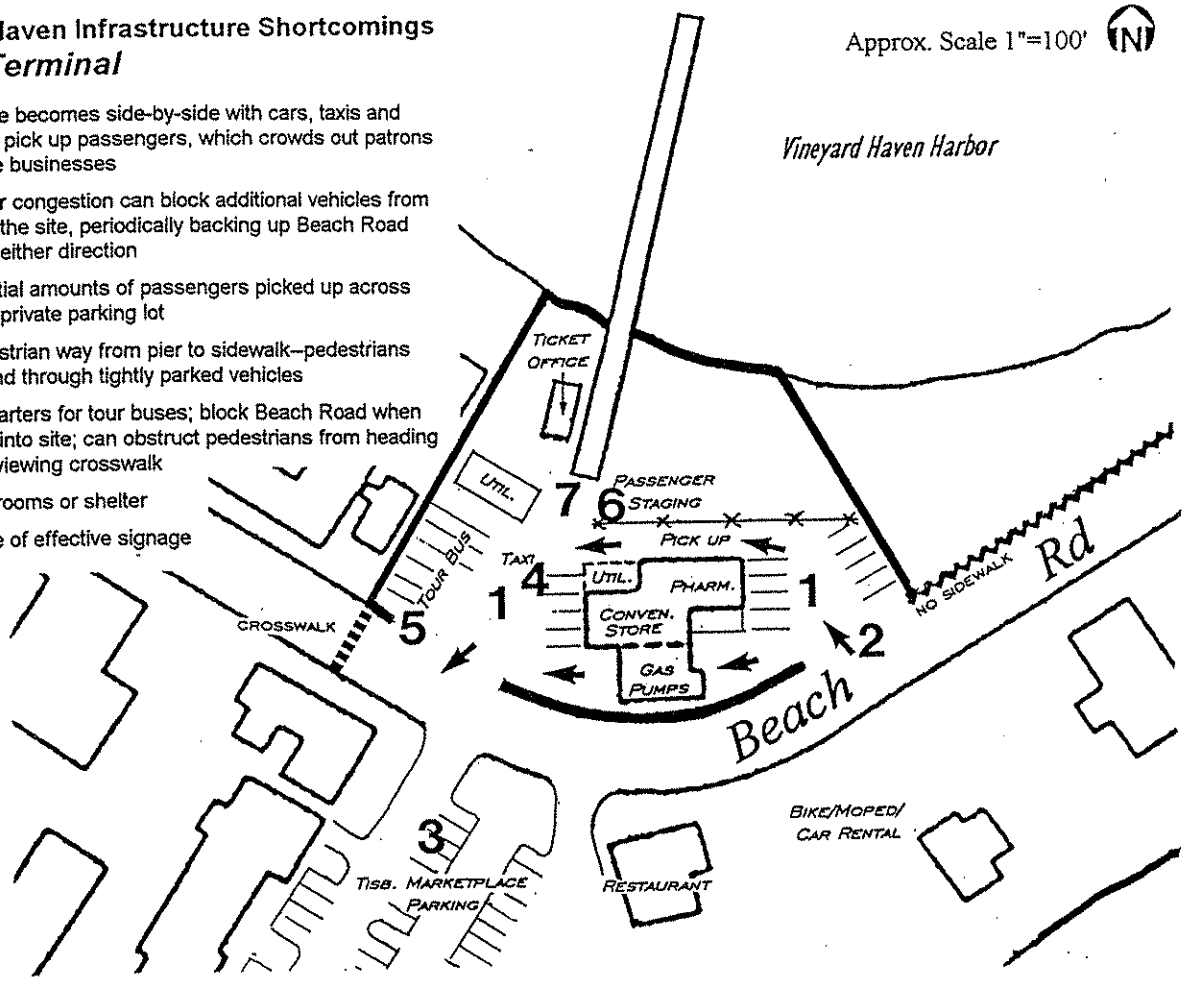


Figure 2.5

Table 2-G

Port Area Infrastructure Supporting Passenger Ferry Service
Vineyard Haven - Pier 44 Terminal

Element	Quantification
Pedestrian Way	None
Crosswalks	None
Bicycle	None
Vehicle Circulation	Two, one-way curbcuts direct vehicles east to west; street side of commercial building for gas pump staging, single lane on harbor side for all other users
Pick-up/Drop-off	7 spaces W of building with 7 additional spaces along W boundary for bus parking; 9 spaces E of building; vehicles stand along travel lane and occupy entire circulation area of W parking area
Transit	No stop but shuttle ("yellow" route) runs along Beach Rd
Taxi	No dedicated spaces
Tour Bus	On-site
Signage	None
Information	None on site
Telephone	None
Seating	7 picnic tables with benches on beach area
Shelter	None
Rest Rooms	None (under directive to construct 2 restrooms)
Drinking Fountain	None
Trash Cans	At beginning of pier and western corner at Beach Rd; also at main building
Lighting	One high-mounted flood from southwest corner for west parking area; building-mounted floodlights at harbor side; east parking area lit by streetlight and business sign
Amenities	Wide, sandy beach with broad view of harbor activity
Miscellaneous	Gas station/convenience store and pharmacy are site's prinicipal uses; small ticket shed at beginning of pier also used for jetski rental

The tight quarters and congestion of vehicles require the tour bus to back into an unmarked space. This maneuver briefly halted traffic movement on Beach Road in both directions until the bus was out of the street. On one occasion, the nose of the bus remained in the sidewalk area of the entrance. This blocked ferry passengers from being able to see the pedestrian crosswalk and sign on the west side of the bus. It also forced people to walk into the street to proceed west towards Five Corners and the village center. The bus doors face west, so bus passengers also must walk around the front of the bus.

Infrastructure Shortcomings

The location of the following list of shortcomings in the infrastructure supporting passenger ferry service at the Pier 44 terminal are shown on Figure 2.5.

1. Small site becomes side-by-side with cars, taxis and buses to pick up passengers, which crowds out patrons of on site businesses
2. Vehicular congestion can block additional vehicles from entering the site, periodically backing up Beach Road traffic in either direction
3. Substantial amounts of passengers picked up across street in private parking lot
4. No pedestrian way from pier to sidewalk—pedestrians must wind through tightly parked vehicles
5. Tight quarters for tour buses; block Beach Road when backing into site; can obstruct pedestrians from heading west or viewing crosswalk
6. No rest rooms or shelter
7. Absence of effective signage

Beach Road, West

Infrastructure

Table 2-H inventories the infrastructure elements supporting passenger ferry service along Beach Road, west of and including the frontage of the Pier 44 site and Five Corners (Figure 2.6). Several elements are elaborated on below.

Sidewalks run continuously along both sides of the road but are interrupted by more than 25 curb-cuts for vehicles to access abutting properties. Most sidewalks are between four and five feet wide and usually comprised of asphalt. New concrete sidewalks, also four to five feet wide, extend a couple of hundred feet east from Five Corners. Nine utility poles centered within the north sidewalk reduce the effective width of the sidewalk too less than two feet. Most of this north sidewalk is undulated asphalt and broken and buckled in places. The concrete curbing along the north side is deteriorated, with large chunks missing.

Within the street itself, relatively wide street edges—three to five feet in width—outside the vehicle travel lanes exist along both sides of the road. These provide a wider horizontal buffer between cars and pedestrians on the sidewalks and cars. The inside (north) street edge at the road bend reduces to as little as eight inches in width. A crosswalk at the west end of the road bend and the Pier 44 site is the only one until reaching the Five Corners intersection more than 900 feet away.

There is no infrastructure in the public right-of-way to orient or comfort travelers. Some abutting businesses have pay phones and seating for public use. Spill light from adjacent land uses substantially augment the dim illumination of sidewalks by streetlights. Inconveniently, the lowest amount of illumination is along the mid-section of the northern sidewalk, which also provides the poorest footing and contains obstructions.

Circulation

Most passengers walking between the road bend and Five Corners stayed on the north side of the road. Because of the narrow width of the sidewalks, it is not unusual for pedestrians to use the shoulder either momentarily to pass other pedestrians, or for long distances in order to pull luggage or walk aside companions. Pedestrians, including tour bus patrons, were also forced into the street when the nose of tour buses protruding from the Pier 44 site.

The crosswalk next to Pier 44 is not utilized by the majority of ferry-related pedestrians. Dozens of passengers cross Beach Road immediately upon leaving the Pier 44 site. Three in four people crossing the

street to awaiting vehicles or a variety of tourism-oriented services forego the marked crosswalk, instead crossing within the curve of Beach Road at multiple locations—most often directly between the western curb cut for Pier 44 and the Tisbury Marketplace. Automobile traffic backed up momentarily due to pedestrians crossing the road, or vehicles turning onto or off of the road. Pedestrians also wind through stopped cars anywhere along the road bend to cross Beach Road.

Many of the passengers crossing Beach Road between Pier 44 and the marketplace were associated with cars picking them up. This produced additional pedestrian crossings of Beach Road by people meeting arriving

Table 2-H

Port Area Infrastructure Supporting Passenger Ferry Service
Vineyard Haven - Beach Road, West (5-Corners to Pier 44)

Element	Quantification
Pedestrian Way	Mostly well-worn granite curbs and uneven/buckled asphalt walks, new curbing and +5' wide concrete walks at 5-Corners end; 4' to 5' wide N side in worst condition and obstructed to less than 2' in places by utility poles; S side 4' to 5' wide, segment between Tisbury Market curb cuts less than 4'; many curb cuts for driveways
Crosswalks	One at west end of Pier 44 site and at 5-Corners
Bicycle	Marked roadside edge used; S side width varies from 3' to 4', 4.6' along outside of road bend; N side - 4' to 5', but less than 3' (to as little as 8") along inside of road bend
Vehicle Circulation	Major roadway between Tisbury and Oak Bluffs; sole road serving abutting land uses with numerous access drives and turning movements
Pick-up/Drop-off	No street parking or municipal lots
Transit	No marked stops but shuttle ("yellow" route) travels Beach Rd
Taxi	No marked stands
Tour Bus	No marked stops
Signage	No information or orientation signs
Information	None
Telephone	3 locations on private property along area
Seating	None
Shelter	None
Rest Rooms	Nearest public facilities at Water Street area
Drinking Fountain	None
Trash Cans	One at Pier 44 crosswalk and at 5-Corners
Lighting	Cobra-head streetlights on poles along harbor side of road; spill lighting, mostly from abutting uses on the S side
Amenities	Some private landscape planting and seating
Miscellaneous	Mixture of land uses, most with curb cuts for automoble access

passengers. It also distributed the traffic trying to pull into traffic at the curve of Beach Road but increased the amount of simultaneous turning movements attempted along both the inside and outside of the road bend.

The midweek 11:00 a.m. arrival of the ferry corresponded to the beginning of the peak morning traffic volumes on Beach Road. Traffic at the road bend from 10:30 to 11:15 was alternatively light and heavy, but nearly always moving well. The more than two dozen curb cuts along this section of Beach Road increase the potential for delays due to turning movements, occasionally backing up traffic momentarily.

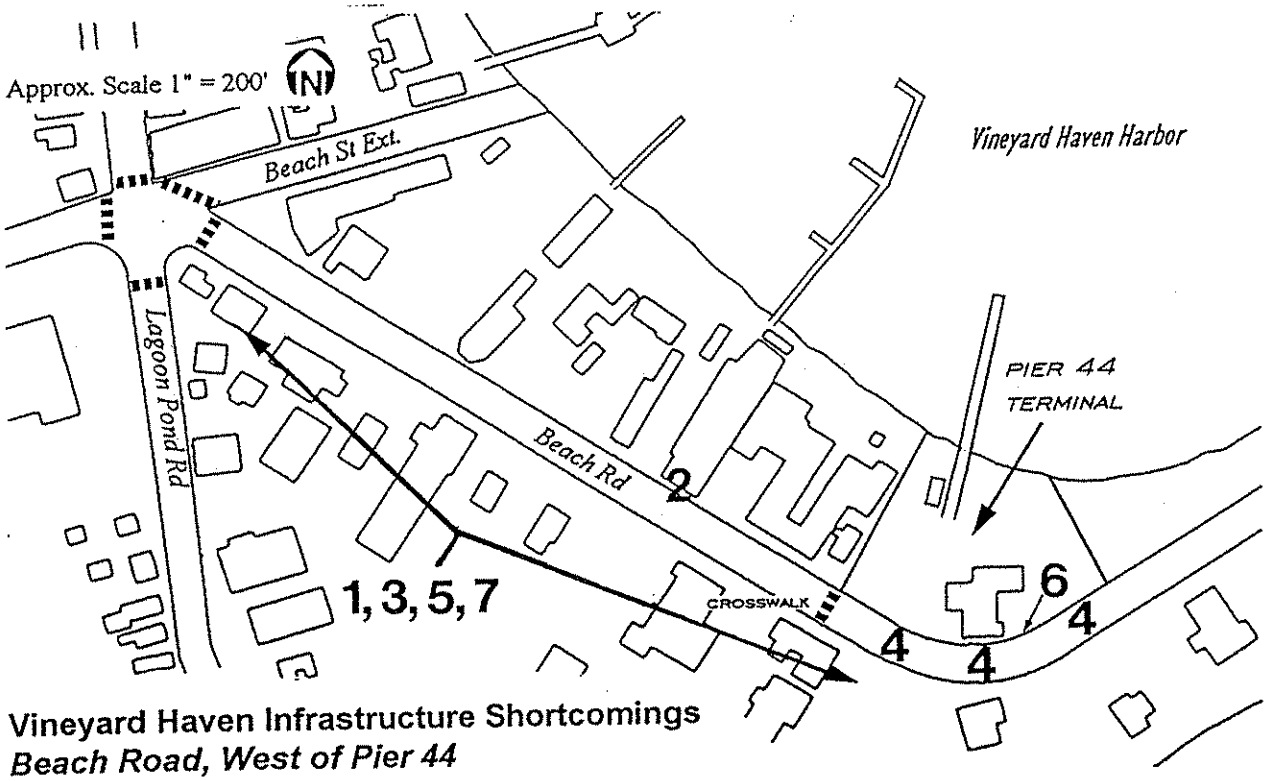
Standing water from inadequate stormwater drainage was observed at curb cuts in the north sidewalk just west of the Pier 44 terminal site. Pedestrians detoured around the puddles onto the road edge. Sand wash from abutting properties along the road edge and at curb cuts poses a slipping hazard, particularly to bicyclists.

But for more pedestrian activity in the vicinity of Five Corners, pedestrian and automobile activity and congestion related to ferries in the western portion of Beach Road clears within thirty minutes of a ferry arrival.

Infrastructure Shortcomings

The locations of the shortcomings in the infrastructure supporting passenger ferry service in the Beach Road, West subarea cited below are indicated on Figure 2.6.

1. Majority of sidewalks and curbs on both sides are deteriorated, narrow and frequently interrupted by curb cuts



Vineyard Haven Infrastructure Shortcomings
Beach Road, West of Pier 44

1. Majority of sidewalks and curbs on both sides deteriorated, narrow and frequently interrupted by curb cuts
2. Northern, most direct, sidewalk is in poorest condition and obstructed by utility poles to less than two feet wide in places
3. No separation of sidewalks from relatively fast moving vehicles or moped and bicycle use of road edge
4. Uncontrolled pedestrian crossings at multiple points along the road bend, across from Pier 44
5. Curbside and curb cuts collect sand and pond with storm water
6. Road edge on inside radius of road bend reduces to 8".
7. No seating, signs or shelter

Figure 2.6

2. Northern, most direct, sidewalk is in poorest condition and obstructed by utility poles to less than two feet wide in places
3. No separation of sidewalks from relatively fast moving vehicles or moped and bicycle use of road edge
4. Uncontrolled pedestrian crossings at multiple points along the road bend, across from Pier 44
5. Curbside and curb cuts collect sand and pond with storm water
6. No seating, signs or shelter

Tisbury Wharf Terminal

Infrastructure

The privately owned Tisbury Wharf has two end-loading piers at the southeastern side of the harbor along Beach Road. In the summer of 1999, the northern wharf was used by the *Schamonchi* three to four times daily, with extended periods of non-use. The southern wharf is not used by ferries but reserved for transient vessels. The terminal site is mostly a level, graveled expanse divided into two sections by a moveable fence. The larger section is reserved for the North Wharf (Figure 2.7). An office building with dedicated parking areas sits at the northern end of the site. The building also contains rest rooms for use by ferry patrons. The ticket office is located at the harbor end of the pier.

A fence and shrubs line the road perimeter of the site (there is no curb along this frontage of Beach Road) and confines all access to vehicular entrances at the north and south ends; vehicles enter at the north and exit from the south. A few picnic tables with benches provide seating in the passenger staging area. A cordon line separates the passenger staging from staging for tour buses and taxis and from traffic circulating through the site. Parking for transit buses and pick up, drop off lies alongside Beach Road. There are no dedicated pedestrian ways nor signs containing information or directions. There is one large flood light near the taxi stand area that does not provide much light near the dock nor the parking area, the latter receiving some spill light from the Beach Road streetlights. Additional quantification of the supporting infrastructure is contained in Table 2-I.

Circulation

Vehicles fill the travel lane at the loading area near the entrance. The majority of passengers must wind through slowly creeping vehicles to board VTA buses or cars, or to exit the site on their way towards the village center. Pedestrians must be wary of cars backing out of parking spaces. An absence of signs for passengers leads to them milling about and seeking information from anyone who looks like they might know something (a study observer was asked for information nine times in a ten minute span). Information sought included where to purchase tickets. There is also minimal signage for vehicles; the "one-way" signs are usually blocked by the VTA bus. One car driver arrived early looking for the "New London" (Fox's *Sassacus* at Pier 44) ferry. On site staff kept cars from parking by the tour buses and taxis and generally kept traffic circulating, but did not venture far from the buses.

Two observed morning arrivals each had about 350 passengers, less than 80 percent of vessel capacity. Half of the passengers walked off the terminal site—almost all southwest towards the village center. The majority of passengers appeared to be day trippers but about one in six people were picked up by waiting automobiles and some additional pedestrians had luggage. About two dozen cars departed with more than twice that many passengers. Twice as many cars headed back through Five Corners as headed towards Oak Bluffs. The tour bus operator reported that two tour buses at the morning and afternoon arrivals are typically full. At the observed arrivals the tour buses picked up half that—about 50 people, or 15 percent of the passengers. Two VTA buses loaded about 25 people, consistent with VTA records of ridership at the terminal. Most of the 24 and 19 bicyclists (7 and 5 percent of passengers) exited southwest on Beach Road. Taxi ridership was less than 5 percent of passengers departing the terminal site.

Table 2-I

Port Area Infrastructure Supporting Passenger Ferry Service
Vineyard Haven - (North) Tisbury Wharf

Element	Quantification
Pedestrian Way	Fenced-off passenger staging area; no dedicated or marked ways to street
Crosswalks	None
Bicycle	None
Vehicle Circulation	Unmarked gravel surface; enter northeast end - exit southwest end; circulation between car, bus and taxi staging; staff direct traffic
Pick-up/Drop-off	Unmarked gravel surface; space for approximately 35 cars near Beach Rd and southern exit; space for 5+ cars associated with on-site office uses; drop-off occurs amid circulating traffic
Transit	VTA stop (unmarked) on-site coinciding with daytime ferry schedule
Taxi	Not marked; staff keep area near buses clear for 3 to 5 taxis
Tour Bus	Not marked; staff assist buses to back into location near foot of wharf
Signage	"New Bedford Ferry" sign at entrance proped against base of fence - visible only to S-bound traffic; "one-way" signs for on-site vehicles hidden by VTA bus; no informational or directional signs
Information	Off-site
Telephone	Off-site
Seating	3 picnic tables in passenger staging area; a few large, flat boulders near harbor's edge are used as seating
Shelter	None
Rest Rooms	Restroom in on-site office building available to ferry patrons, but no sign indicates such and a staff person must unlock the door
Drinking Fountain	None
Trash Cans	One at beginning of wharf
Lighting	One high-mounted floodlight approximately 40' from building, 100' from the wharf and 90' from street
Amenities	Expansive view of harbor activity; landscape plants along Beach Rd
Miscellaneous	Ticket office in small dock-house at end of wharf; office use of building at northeast end of site; 1/4 of gravelled site cordoned-off for southern wharf

An evening observation differed significantly from the morning observations in that only seven passengers walked off the terminal site and no buses served the site. Thirty-six cars carried nearly all the passengers from the site, with slightly more exiting towards Oak Bluffs than towards Five Corners. Pedestrians walking to the site to board the late sailing walked the narrow road edge against traffic and dim lighting. To avoid having to roll or carry his luggage over the gravel parking area, one man pulled his rolling luggage all the way to the terminal entrance along the road edge, which narrows to two feet in places. Several of the walkers were in varying stages of intoxication.

Vineyard Haven Infrastructure Shortcomings
Tisbury Wharf Terminal

1. No demarcated pedestrian way; walk amid vehicular circulation, parking and staging areas
2. Pick up/drop off occurs along internal circulation route, occasionally blocking entrance and Beach Road traffic
3. Gravel surface difficult for small-wheeled apparatus
4. Scant seating and no shelter
5. Southern end of site has very low illumination; no pedestrian-scale lighting
6. Limited utility/availability of on site rest room
7. Absence of effective signage

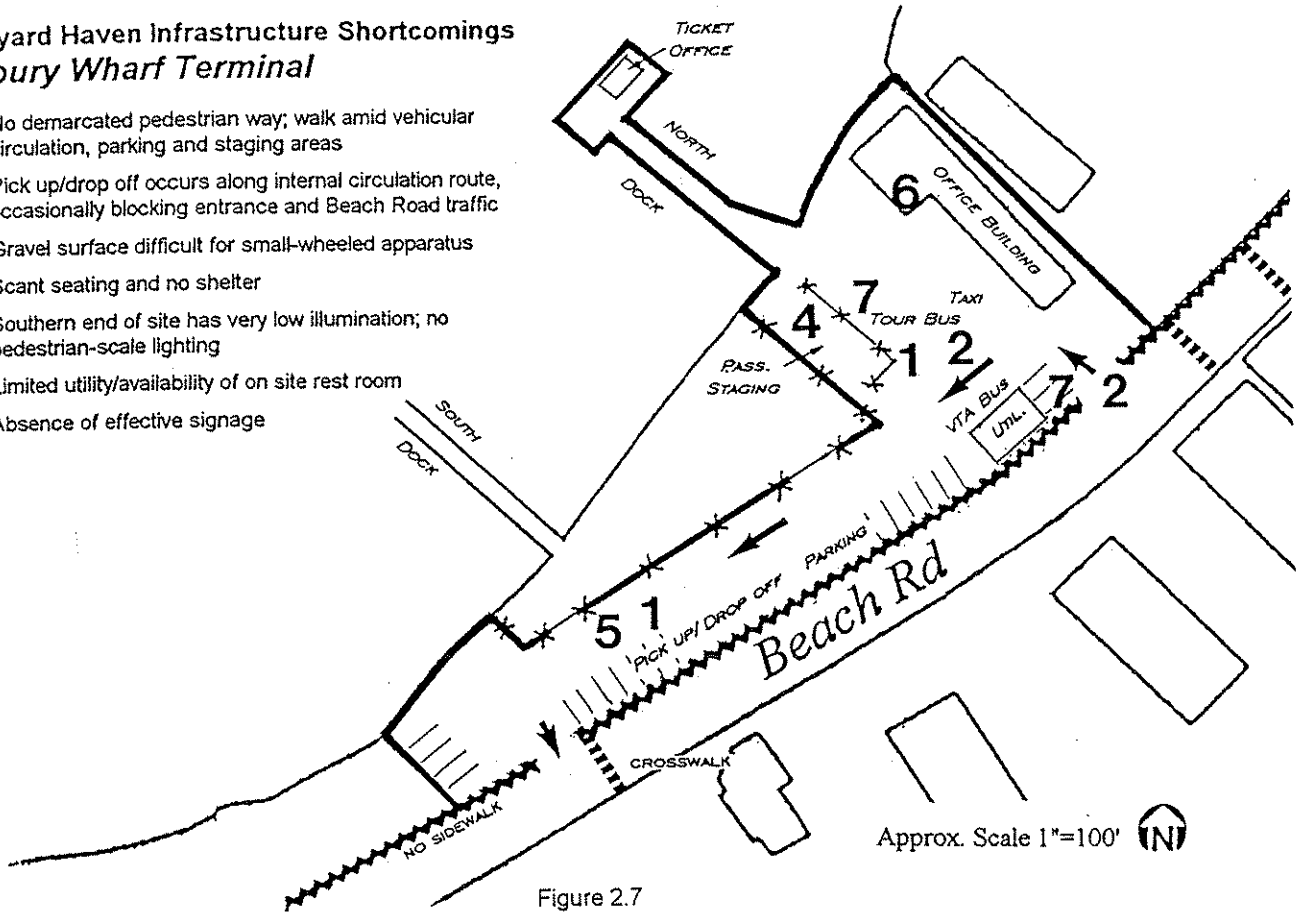


Figure 2.7

Despite the above shortcomings, on site congestion exists for just ten to twenty minutes three times a day. And other than for about thirty minutes around each ferry docking, the site is virtually vacant and idle.

Infrastructure Shortcomings

The locations of the shortcomings in the infrastructure supporting passenger ferry service at the Tisbury Wharf terminal cited below are indicated on Figure 2.7.

1. No demarcated pedestrian way; walk amid vehicular circulation, parking and staging areas
2. Pick up/drop off occurs along internal circulation route, occasionally blocking entrance and Beach Road traffic
3. Gravel surface difficult for small-wheeled apparatus
4. Scant seating and no shelter
5. Southern end of site has very low illumination; no pedestrian-scale lighting
6. Limited utility/availability of on site rest room
7. Absence of effective signage

Beach Road, East

Infrastructure

Table 2-J inventories the infrastructure elements supporting passenger ferry service along Beach Road, east of the road bend and the Pier 44 site. Several elements are expounded upon below.

The infrastructure of the subarea east of the curve in Beach Road differs for the western segment in that only the southeastern side of the road contains a sidewalk, the harbor side of the road having no sidewalk of curb. The sidewalk extends from the Beach Road, West subarea to a heating oil dispatching center. There is no sidewalk for the next 400 feet until reaching the beginning of a recently constructed bike path extending to the state boat ramp. The concrete sidewalk is worn and the concrete curbing is deteriorated in places. The asphalt bike path is nine feet wide and separated from Beach Road by a narrower vegetated strip.

From the sidewalk-less roadside between the Pier 44 site and the southern exit of the Tisbury Wharf terminal land drops away sharply to the harbor's edge along the northeastern half of this segment. The southwestern half nearest the Pier 44 site is abutted by a sliver of private land over which pedestrians have worn a dirt footpath. Footpaths are also worn along the curb edge on the opposite side of the road between the end of the sidewalk and the bikepath, and beyond the bike path towards the Lagoon Bridge.

A four- to five-and-one-quarter foot road edge lies along the southeast side of Beach Road while at the harbor side it is between three- and four-feet-wide. Utility poles border the northwest side of the road where they reduce the edge width at two locations to two-and-one-half feet of clearance. The road edges also contain storm drain grates and considerable sand wash from the two dozen adjacent driveways and unpaved parking areas. Puddling of storm water at the curb edge was most prevalent northeast of the Tisbury Wharf site in front of the heating oil dispatching center.

Five pedestrian crosswalks are marked between the bend in Beach Road and the seawall and bike path towards Lagoon Bridge. Four of these crosswalks exist northeast of the entrance to Tisbury Wharf, away from virtually all pedestrian activity associated with the ferries. Nevertheless, the three crosswalks nearest the Tisbury Wharf are well used by employees at the abutting industrial and heavy commercial uses straddling this portion of the road. The easternmost crosswalk at the beginning of the seawall lies near the western end of the bike path. The remaining crosswalk lies immediately northeast of the Tisbury Wharf exit. This is the only one of the crossings that is not marked with a road sign cautioning motorists.

Standard "cobra-head" style street lights along the northwester side of the road provide dim illumination of the sidewalks and road edge. With a lower density of adjacent land uses, there is less spill light to augment the lighting. Along the bike path, beyond any adjacent uses which might contribute spill light, decorative pedestrian-scale street lamps are spaced approximately 130 feet apart. This results in dark intervals between the lamps.

No direction or information signs for pedestrians exist along this stretch of Beach Road. The narrow public right-of-way along Beach Road does not include any public seating, shelter, restrooms, telephones, or drinking fountains. A sole bench midway along the bicycle path provides seating to enjoy the water views. A solitary trash receptacle was observed near the west end of the bike path.

Circulation

Nearly all the pedestrian activity associated with Tisbury Wharf occurs southwest of the terminal, back towards the village center. Observations of morning *Schamonchi* arrivals revealed more than 150 pedestrians walking southwest along Beach Road towards Five Corners. Despite the existence of a crosswalk immediately northeast of the Tisbury Wharf exit leading to the sole sidewalk along this portion of Beach Road, nine out of ten of these passengers walked single file in the three-foot-wide road edge along the northwestern side, stepping off, away from traffic as soon as the abutting land allowed. Nevertheless, dozens of these same passengers eventually crossed Beach Road by the time they reached the road bend in order to visit shops and services on the southern side of the street. These uncontrolled crossings occur at particularly poor locations in that visibility of both driver and pedestrian is limited.

Nearly a dozen people approaching the Tisbury Wharf to catch the afternoon departure were observed following the sidewalk past the terminal exit and cross Beach Road just before reaching the entrance rather

Table 2-J

Port Area Infrastructure Supporting Passenger Ferry Service
Vineyard Haven - Beach Road, East (East of Pier 44 towards Drawbridge)

Element	Quantification
Pedestrian Way	N side - no walk or curb; S side - well-worn concrete curb and sidewalk 4' to +5' wide, ends 450' from 9' wide asphalt bike path to state boat ramp
Crosswalks	One immediately east of Tisbury Wharf exit; three within 300' of each other serve abutting industrial uses; one at beginning of seawall linking to bike path
Bicycle	Marked roadside edge width varies: N side - 3' to 4' (utility poles reduce width to 2.5' at two points near Tisbury Wharf); S side - 4' to more than 5'; 9' wide asphalt bike path beginning opposite southwest end of seawall 900' to state boat ramp
Vehicle Circulation	Major roadway between Tisbury and Oak Bluffs; sole road serving abutting land uses with numerous access drives
Pick-up/Drop-off	No curbside parking or municipal lots
Transit	No marked stops but shuttle ("yellow" route) travels Beach Rd
Taxi	No marked stands
Tour Bus	No marked stops
Signage	No information or orientation signs
Information	None
Telephone	One at southwest end of bike path
Seating	One bench along bike path
Shelter	None
Rest Rooms	Nearest public facilities at Water Street area
Drinking Fountain	None
Trash Cans	One at southwest end of bike path
Lighting	Cobra-head streetlights along harbor side of road; little spill-light from sparse building density and wholesale commercial/industrial uses; widely spaced pedestrian-scale lamps along bike path
Amenities	Close, wide view of harbor east of roadbend; panoramic views of harbor, sound and lagoon from causeway
Miscellaneous	Abutting uses mostly industrial/wholesale commercial with no continuity of structures; substantial area allocated to vehicular parking and service; many wide curbcuts for entrances

than walk another twenty or so feet to the crosswalk northeast of the entrance. All of these people appeared to be of an older demographic or were pushing a child's stroller.

Beach Road traffic near the Tisbury Wharf entrance momentarily backed up in either direction due to congestion in the terminal site but the westbound lane also backed up from the western subarea of Beach

Vineyard Haven Infrastructure Shortcomings
Beach Road, East of Pier 44

1. No sidewalk or shoulder along Tisbury Wharf side of road -- pedestrians' preferred route
2. Deteriorated narrow southeastern sidewalk and crumbling curbs interrupted by numerous and wide curb cuts
3. Sidewalk is not continuous to the bike path further east
4. No separation of sidewalk from fast moving traffic, including moped and bicycle use of road edge
5. Crosswalk at Tisbury Wharf exit not at location desired by pedestrians
6. Uncontrolled pedestrian crossings near the road bend
7. Curbside and curb cuts collect sand and pond with storm water

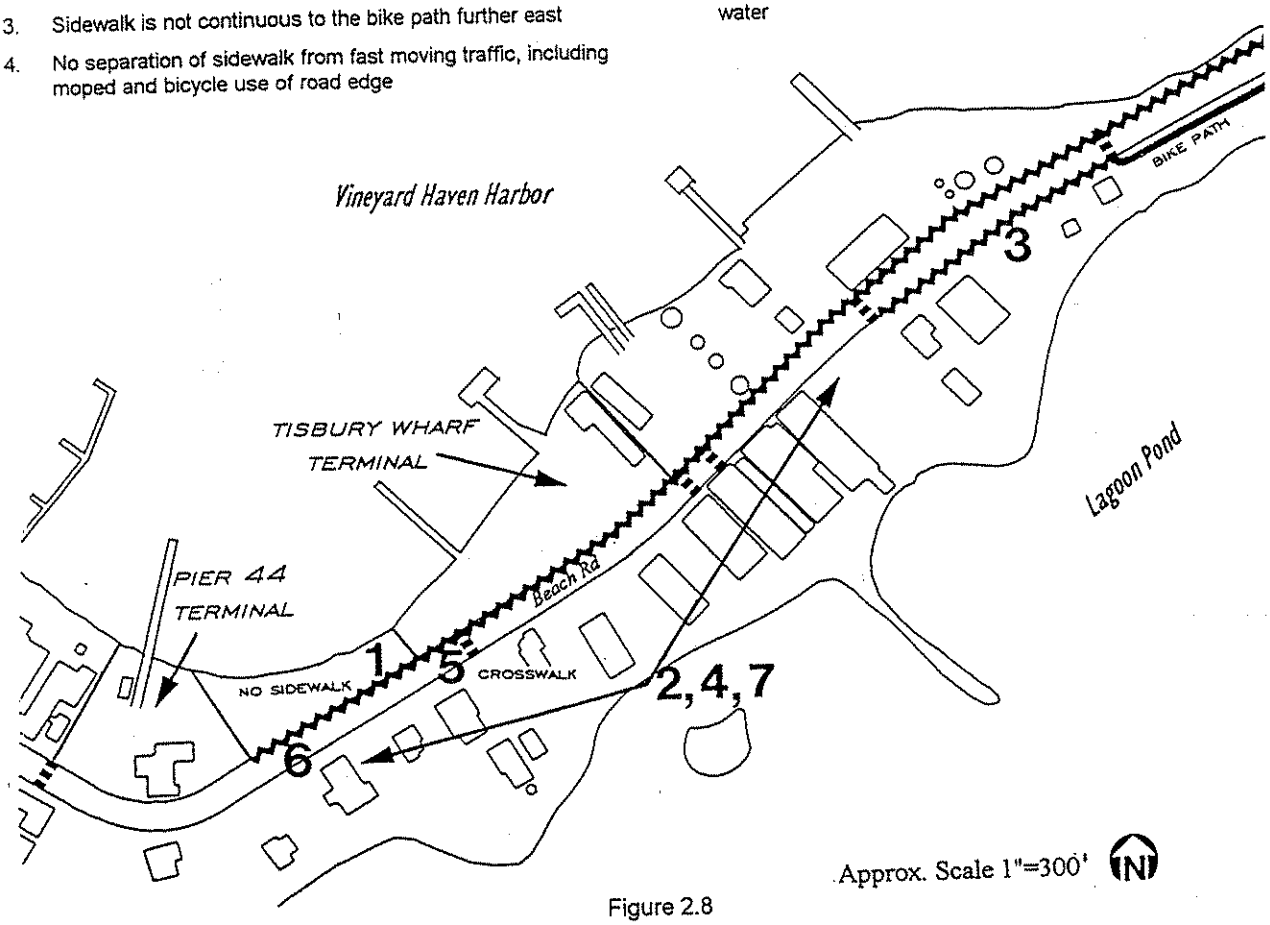


Figure 2.8

Road for several minutes at a time. Nevertheless, ferry related activity is dispersed from the public right-of-way all the way to Five Corners within fifteen minutes of unloading from the Tisbury Wharf.

Infrastructure Shortcomings

The locations of the shortcomings in the infrastructure supporting passenger ferry service in the Beach Road, East subarea cited below are indicated on Figure 2.8.

1. No sidewalk or shoulder along Tisbury Wharf side of road—pedestrians' preferred route
2. Deteriorated narrow southeastern sidewalk and crumbling curbs interrupted by numerous curb cuts
3. Sidewalk is not continuous to the bike path further east
4. No separation of sidewalk from fast-moving traffic, including moped and bicycle use of road edge
5. Crosswalk at Tisbury Wharf exit not at location desired by pedestrians
6. Uncontrolled pedestrian crossings near the road bend
7. Curbside and curb cuts collect sand and pond with storm water

Town Plans

The constraints and goals the Town of Tisbury has identified for Vineyard Haven Harbor are discussed in several plans and studies produced over the past two decades but most comprehensively elucidated in the 1995 Vineyard Haven Harbor Plan. One theme common to these documents is the desire of the Tisbury community to retain the existing eclectic vitality and character of the harborfront, especially water-dependent uses that keep it a "working" harbor. Increased demand to use the harbor waters and the adjacent land is viewed by the town as the primary threat to this character. The town is attempting to control the rate and type of growth that can occur at the harbor through a variety of mechanisms addressing issues of congestion, economic development, cultural identity, water quality, and visual and physical access to the harbor.

There can be no doubt that the community is concerned about the capability of the harbor waters to accommodate additional water-borne traffic. The harbor plan considered the mooring space within the Inner Harbor to have been saturated in 1995. The town has an agreement with the SSA limiting the movement of more than one large ship at a time within the Inner Harbor. Extending this restriction to all large vessels within the Inner Harbor and, in the peak summer months, to the Outer Harbor is under consideration by the town, as is a "call in" requirement to the harbormaster to coordinate vessel movements.

The latest attempt by the town to wrest control of activities in and around the harbor is through designation of the harbor and land between the water and Beach Road and Water Street as a District of Critical Planning Concern. The DCPC is a regulatory mechanism extending from the authority of the Martha's Vineyard Commission which the Island's towns are able to request of the commission. The basis for creation of the Vineyard Haven Harbor DCPC is to ". . . protect the waterfront and harbor resources from the impacts of inappropriate water uses and waterfront development; such regulations shall integrate consideration of impacts on both the waterfront and the resources of the harbor itself." The DCPC regulations were approved by the MVC and adopted by the Town of Tisbury at a special Town Meeting in October 2000. One of the regulations require new or expanded ferry service to obtain a license from the town after review of the impacts upon the harbor community.

Dependence upon individual, on-site wastewater disposal systems has been a limiting factor for development along the harbor-front and village for decades. Failure of old or overburdened systems have contributed to deterioration of harbor water quality. Tisbury's Wastewater Facilities Plan (1999 volume) calls for a centralized sanitary sewer system for a concentrated area of the downtown and harbor-front to alleviate existing failed or failing individual, on-site systems. The service area, which closely mirrors the study area of this report, represents about 80 percent of peak daily septage in Tisbury. While the promotion of growth is not a goal of the sewer system, the treatment plant is designed for modest (5 to 13 percent) increases in flows of the existing land uses to be served, including new rest room facilities at the Pier 44 site. The treatment plant was designed with another, unallocated, 13 percent of spare capacity. Most of the unallocated capacity was subsequently "assigned" by action of the April 2000 Town Meeting to extend the service area northeast from the Pier 44 site to the seawall. In order to minimize pressure to expand the collection and treatment system in the future, the facilities plan contains a town-wide management plan to keep parcels beyond the service area from becoming candidates for sewer service due to further system failures. Construction of the sewer system is scheduled to begin in early 2001 and be operational by 2003. Designed to accommodate increased demand within a specific service area over a twenty year period, expansion of the plant's capacity is already under consideration.

Several studies and plans encourage the town to give greater priority to pedestrians in the congested downtown and harborfront area. The 1987 Preliminary Facade and Streetscape Improvement Study identified pedestrian improvements for "gateway" locations including signage and pedestrian Islands. The harbor plan recommends the town provide sidewalks, street trees, benches, lighting, and signage directed at attracting visitors to downtown and the waterfront. The state is to be urged to upgrade sidewalks and landscaping along Beach Road, removing the obstructing utility poles. It also calls for a bike path along Beach Road to the

drawbridge. Implementation of such improvements is recommended by the plan to be made in conjunction with other capital projects, specifically identifying the sewer system installation.

Despite this recommendation for coordinated infrastructure improvements, no upgrading of the streets, sidewalks or other infrastructure seems to be planned as part of the impending sewer project. The planned sewer system will use the town-owned rights-of-way of portions of Union, Water, Main, Cromwell and Lagoon Pond roads, and the state-owned right-of-way of Beach Street and Beach Road. Replacement of sidewalks will only be made to the extent that they are disturbed by construction. Extensive improvement not directly related to development of the sewer system will require a specific appropriation and authorization by the town's voters. The Massachusetts Highways Department has no plans on the horizon for any improvements to the state's right-of-way.

The Tisbury Board of Selectmen is currently considering updating the 1991 State Road Corridor Study examining measures to alleviate congestion, which would include the appropriate accommodation of pedestrian and bicycle traffic. A study group was formed in 2000 to examine the different components of circulation and congestion along State Road. Any interest on behalf of the town to improve traffic movement along Beach Road and Beach Street may well be tempered by the town's animosity to making travel easier for through traffic. Reacting to studies that 85 percent of vehicle trips on the state road is through traffic, the harbor plan found that ". . . no purpose (is) served to the downtown and waterfront by expediting the speedy departure of this pass-through traffic." Looking at the traffic volume as an economic opportunity, the harbor plan states that "(g)etting (people) out of their automobiles and attracting them to linger is a prime commercial objective." Whether or not the town views vehicle traffic associated with the ferries to benefit downtown Vineyard Haven, it is clear that traffic congestion is felt to be overly burdensome.

The Waterfront/Commercial District of the Tisbury Zoning By-Law allows ferry facilities by special permit of the planning board. Criteria for granting a special permit include finding by the board that "(t)he proposed use will not overburden any road, public water, drainage or sewer system . . . (to unduly impair) . . . the health, safety or the general welfare (of the town)." The board must also find that there will be no diminution of the district's visual character and that opportunities for visual and pedestrian access to the waterfront will be increased. The district further allows the planning board to impose conditions addressing appearance and screening, facility size, time of operation, and the number and location of traffic and pedestrian features.

The visual character of both the harbor and the surrounding land is cited by documents as important features worthy of protection and enhancement. The harbor plan recommends reserving an area at the head of the harbor for exclusive use by the tall sailing ships that are a unique trademark of the Vineyard Haven Harbor. The plan also notes the utilitarian architectural appearance of the structures around the harbor and calls for guidelines emphasizing the identity and history of the harbor and the existing buildings. Improving the visual accessability of the harbor is among the goals of the 1997 Tisbury Open Space Plan, as is controlling light pollution. Both the harbor and open space plans urge securing opportunities for public access and maritime uses of the waterfront. Pedestrian access to the shoreline is particularly attractive along Vineyard Haven Harbor because the majority of it is open, sandy beach.

Conclusions and Suggestions

Approximately 4,700 of the 5,200 ferry passengers ferried among three carriers to Vineyard Haven on a typical sunny day in August 1999 are estimated to have crossed without a motor vehicle. The area surrounding the Vineyard Haven Harbor supporting this activity is divided into two very distinct sections. Appropriately, the newer and more extensive infrastructure is generally found on the village (west) side of the harbor where the SSA brings 70 percent of the harbor's passengers. All vehicles in the Water Street area must exit via the tricky Five Corners intersection. Pedestrians fan out from the SSA terminal along numerous routes, some through parking lots and between buildings, heading to awaiting cars of buses, Main Street or Five Corners. The strip of Beach Road along the south and east sides of the harbor serving the other two

terminals has a bare minimum of infrastructure that would not likely be less if there were there no ferry service to accommodate. The road and abutting uses are vehicle oriented. Virtually all the pedestrian passengers from the private carriers form a procession to Five Corners, where they disperse.

The volume of pedestrian and vehicular activity around ferry arrivals creates congestion at each of the three terminals and in the surrounding areas. While often chaotic, the congestion usually subsides to a background level of activity within 15 to 30 minutes of passengers disembarking. But for the few short periods around each arrival of the private ferries, the private terminals have minimal activity.

But for a couple of directional signs aimed mostly at motorist, the SSA terminal had the only orientation information in the study area. It was not unusual for people to backtrack in front of the SSA terminal and along Water Street. The small, staffed information booth at the end of Water and Union streets is close to exiting SSA passengers but away from the their direction.

Sidewalks exist along both sides of most of the streets in the study area but most are narrow and deteriorated. Beyond the commercial core of the village, there is little curbside parking to help buffer pedestrians on sidewalks. The poorest sidewalk lies between Pier 44 and Five Corners, the primary route for passengers of the private ferries. Receiving less use, but perhaps more hazardous, is the short, narrow section of Beach Street sidewalk at the southern end of the crosswalk to Main Street.

The hazard posed to pedestrians by the absence of buffers between sidewalks and street traffic, and the frequent use of the road edge by pedestrians is considerably reduced in the study area due to the roadway congestion of cars and the knotty Five Corners intersection. Pedestrians routinely weave through stopped or slow-moving traffic anywhere along the roadways and intersections. This was less of a problem along the straight segments of Beach Road, where there are few pedestrian oriented uses on either side. Pedestrians are much more cautious—even in the crosswalks—along the three-laned Beach Street, where motorist seem to travel faster despite there being less distance between them and the sidewalk. Even when confined to sidewalks and crosswalks, pedestrians are significant contributors to traffic congestion.

Traffic congestion is lessened by at least some transit options available at each of the terminals. Taxis, transit buses, and tour buses capture more than 10 percent of some of the carriers' peak arrivals, thereby reducing the immediate impact of ferry passengers upon the port area by distributing them to other parts of the Island (including the other port towns). Although not examined in this study, another portion of the arrivals leave the port area by the ready availability of bicycle, moped, and car rentals in the immediate vicinity of the ferry terminals.

Yet another portion of arriving ferry passengers are whisked away from the port area by private vehicles. Substantial portions of this transportation was parked off site a the SSA and Pier 44 terminals, increasing the amount of pedestrians crossing the streets. The two terminals serving the private ferries—whose passengers are commonly thought to be nearly all day trippers—have up to one-quarter of arrivals met by someone with a car. Even if some of these passengers are, indeed, visiting just for the day, being picked up by someone already on-Island suggests the visitors might occupy their time differently and in different locales than visitors with no acquaintances on the Island.

Suggestions for Improving Port Area Infrastructure to Accommodate Passenger Ferry Service at Vineyard Haven

There are several actions to improve the infrastructure supporting ferry passengers that are common to all three of the Island's port towns. These are listed below and explained in the Combined section of this study. Following the overall list are several detailed suggestions specific to Vineyard Haven but listed in no particular order of priority. The suggestions do not cover all of the identified shortcomings.

Overall Suggestions

a. Circulation of this infrastructure capacity study to the towns and stakeholders for comment

b. Each town should identify principal pedestrian routes in their village centers, to which the ferry terminals would be linked, prioritizing the filling of any missing links.

c. Sample surveys from all ferry lines should be conducted to update passenger profiles.

d. The towns, business communities and ferry carriers should consider a unified way-finding system to aid visitor circulation. Consistent symbols, colors and terminology would be presented to ferry users beginning onboard the vessels and with any mailed promotional information.

e. Each ferry vessel should provide orientation diagrams of the terminal and village center of its Vineyard port, showing major destinations.

f. Encourage the inter- and intra-coordination of transportation modes—such as the pre-sale of tour bus tickets aboard ferries—to expedite transfer of passengers.

g. Explore the feasibility of a program complementary to that for motorist yielding to pedestrians at crosswalks: educate pedestrians of laws requiring use of crosswalks, post signs and conduct appropriate enforcement. This should be integrated with any relocations of or additions to the crosswalks in the villages (and, perhaps, the entire Island).

Vineyard Haven Suggestions

a. Add a crosswalk at Water Street immediately north of the SSA terminal's main exit. Evaluate the possibility of another Water Street crosswalk north or south of the primary terminal entrance.

b. Increase pedestrian-scale lighting at the SSA terminal's main exit.

c. Provide a large sidewalk bulb-out at the decision making point east of the SSA terminal building beside the taxi stand, providing more room for direction signs and promoting pedestrian movement along the north side of the terminal to Union Street.

d. Tisbury Wharf and Pier 44 should display signs indicating which ferry(ies) is accommodated, posted scheduals, and basis orientation information at the passenger staging areas.

e. Coordinate, if not consolidate, the multiple bus stop locations at the SSA terminal and at Union Street.

f. Evaluate the feasibility of burying utilities along Beach Road to improve use of the street right-of-way for sidewalks, which would also improve the area's visual quality.

g. Explore use of sidewalk extensions bending around obstructions that cannot be removed.

h. Pedestrians at Tisbury Wharf can be separated from exiting vehicles by a fence or portable cordon line parallel to the existing fence between the South Wharf area and the North Wharf parking.

i. Relocate the crosswalk at the south exit of Tisbury Wharf to the southwest side of the exit.

j. Auxiliary pedestrian-scaled lighting is needed at Tisbury Wharf.

k. Work with landowner(s) along the harbor side of Beach Road to establish a pedestrian way between the Tisbury Wharf and Pier 44 parcels.

l. Direct pedestrians exiting Pier 44 along west and east perimeters of site to appropriate crossing locations of Beach Road: the existing crosswalk to the west and, to the east, a new crosswalk across from the bicycle and vehicle rentals.

m. Extend the Beach Road sidewalk to the bike path.

Greater effort to direct visitors from the SSA terminal up Union Street can ease the congestion of pedestrians crossing Water Street and the queue of vehicles waiting to get through Five Corners. The volume of pedestrians crossing Water Street justifies the addition of one or two marked crosswalks to gain better control of pedestrians crossing the street.

The three different locations each for transit and tour bus loading at and adjacent the SSA terminal have no maps or references to the other bus lines. With the VTA incorporation of the "Yellow" transit line, there may be the opportunity to consolidate two the two transit stops.

Additional measures to safely direct ferry passengers from crossing the hazardous road bend in Beach Road. This is particularly challenging considering many of the people greeting passengers park at the Tisbury Marketplace and the market's shops and adjacent vehicle rental business. While a sidewalk between Pier 44 and Tisbury Wharf on the harbor side of Beach Road appears to the desired route of ferry passengers from and to the wharf, a less expensive solution may be to simply relocate the existing crosswalk so that it is not counterintuitive to the other side of the Tisbury Wharf exit.

Some of the listed suggestions address shortcomings in the pedestrian infrastructure along Beach Road. Several more shortcomings identified in the Five Corners and Beach Street areas are not addressed due to the complexity of the vehicular turning requirements and visibility from the intersection. The Town of Tisbury has begun to evaluate the State Road infrastructure to formulate recommendations to the Massachusetts Department of Highways.

The Town should also evaluate whether opportunities remain to improve provisions for pedestrians and bicyclists in conjunction with the imminent installation of the community sewer along the harborfront.

With the advent of community sewer service to the prime land along the harbor, development pressures will increase. Even if no change in ferry ridership occurs, new development may increase the pedestrian or vehicular use of the infrastructure, increasing competition for the existing infrastructure.

Oak Bluffs

Synopsis

Ferry service is conducted at the port town of Oak Bluffs seasonally. A typical nice August day in 1999 is estimated to have seen 44 percent of all people ferried to Martha's Vineyard arrive at Oak Bluffs. Factoring out the passengers transported with motor vehicles, the remaining 4,500 passengers brought to Oak Bluffs represented almost half of such passengers to the Island and were evenly distributed among the port's three carriers. The carriers originate from different mainland ports on Cape Cod, with one also providing the only ferry service between Nantucket and the Vineyard. Cruise ship tenders also periodically frequent the harbor.

The terminals serving the three carriers are divided among the Oak Bluffs Harbor and the exposed Nantucket Sound. The inter-lying North Bluff peninsula and immediately surrounding downtown area is densely developed with many tourism oriented uses, but extensive water frontage along streets, wide street rights-of-way, a park, and the virtual absence of tall trees provide much of downtown a more open atmosphere. A major street artery connecting to Vineyard Haven and Edgartown bisects the study area. The convergence of this street with Circuit Avenue—the principal access to the commercial core of downtown—forms downtown's busiest intersection. Substantial portions of street rights-of-way are used for diagonal parking.

Infrastructure supporting passenger ferry service at Oak Bluffs is extensive, some or which appears underutilized. Nevertheless, there are shortcomings for the existing volume of ferry passengers. None of the terminal sites have direction or information signs. An information booth is centrally located at the busy Circuit Avenue intersection. Pedestrian ways are inadequate or missing at North Bluff and along routes to the main bus stop and to the newest rest room facility. The proximity and condition of public rest room facilities continues to be an issue. The volume and complexity of traffic and pedestrian movement at the intersection adjacent the SSA terminal during arrivals requires the control by two police officers. This activity, however, is just transferred to the more complex and congested intersection at Circuit Avenue. While the sidewalks become crowded when ferry passengers disembark or queue to board, and street traffic can slow to a crawl, the congestion within the immediate vicinity of the terminals usually returns to a background level of activity within 10 to 30 minutes—depending on the volume of passengers. Congestion persists at the Circuit Avenue intersection, which consistently has a higher background level than the surroundings.

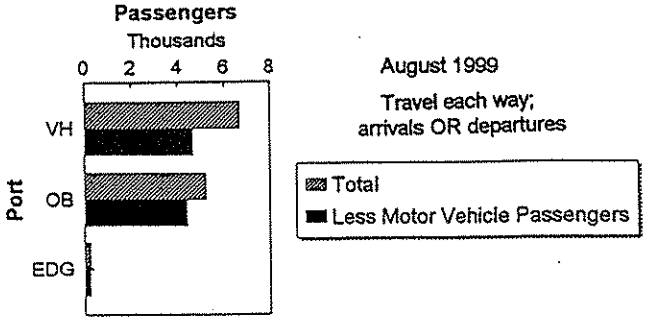
Much of the Town's plans identify infrastructure needs to support ferry service focus on the town-owned North Bluff, where some of the greatest improvements in passenger convenience and gateway appearance can be realized. However, changes being considered for the SSA terminal, the vacating of Town Hall across from the terminal, and the installation of community sewers throughout the study area present opportunities to consider broader infrastructure changes that might moderate activity at the pivotal Circuit Avenue intersection.

Overview of Port Area

Like Vineyard Haven, Oak Bluffs contains three of the Island's seven ferry terminals: the SSA pier, the town-owned North Bluff, and the private Dockside Pier. Oak Bluffs is estimated to have accounted for almost half of the passengers ferried to the Island daily in August 1999 when discounting passengers ferried with motor vehicles, as shown in Table 3-A. One significant way in which Oak Bluffs differs from the two other Island port towns is that ferry access occurs on two sides of the downtown (Figure 3.1). This disperses both the movements of the ferries and, by providing multiple

Table 3-A

Estimated Peak Daily Ridership by Port



routes, ferry passengers leaving or arriving at the terminals. The northeastern side of downtown is a bluff facing the Nantucket Sound, along which the only vessel dockage is the SSA terminal. Oak Bluffs Harbor lies northwest of downtown. The nearly 30-acre harbor has a narrow opening to Nantucket Sound and is used primarily for docking pleasure craft, but also contains a small contingent of commercial fishing boats. Commercial dockage for pleasure craft lines the east and south perimeters of the harbor and moorings occupy the harbor's center. The harbor's west edge contains private piers serving abutting residences and a marina. Only the east side of the harbor is used by the ferries.

The land surrounding the terminals supporting the shore-side activities of passenger ferry service is delineated principally by the immediate street network and areas where ferry passenger congestion becomes dispersed and indistinguishable from the background level of street activity. The compact, pedestrian oriented downtown of Oak Bluffs rises southeast from the harbor. A core of commercial development along Circuit Avenue is a principal destination for both visitors and Islanders. The intersection of the north end of Circuit Avenue with a several other roads is a fulcrum of energy and activity, being the "entrance" to Circuit Avenue from east, west, and north. Additional commercial development extends in several directions from this point: to the SSA and Ocean Park, along Circuit Avenue Extension, and to the southeast corner of the harbor. A public bath house for mariners and a convenience store lie at the southwestern corner of the harbor. While the uses at the southwest corner are available to and used by ferry patrons, they are more than 800 feet from the commercial uses at the southeastern corner and the focus of passenger activity. Therefore, the study area only includes the eastern half of the harbor.

A cluster of residences occupy the eastern half of the North Bluff peninsula, as well as along the west side of Ocean Park and on the south side of Lake Avenue across for the harbor. Seaview Avenue and Seaview Avenue Extension ride the eastern crest of a bluff overlooking the Nantucket Sound. Amid the heavy pedestrian activity of the downtown, the pattern and direction of streets produce a high number of street intersections and pedestrian crossings. Most of the street segments provide diagonal, on-street parking on one side. The main roads coming from Edgartown and the village of Vineyard Haven converge and bisect the study area along its principal line of activity.

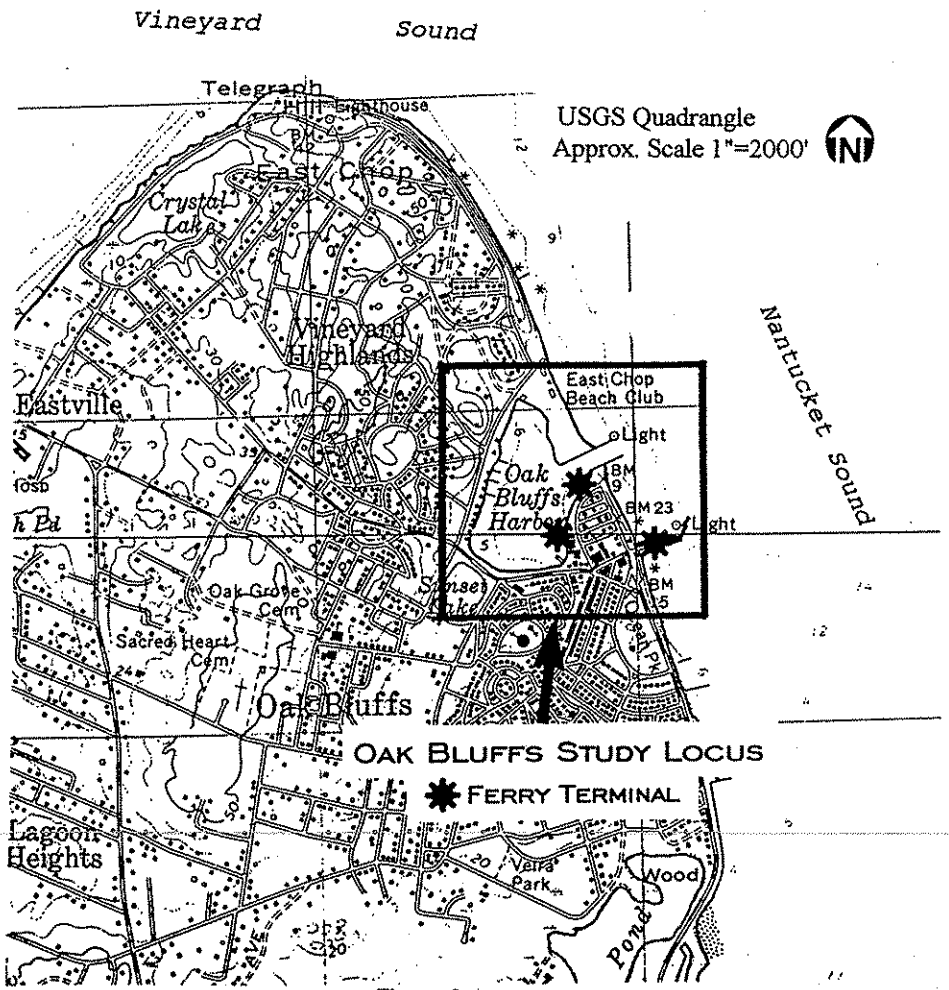


Figure 3.1

Harbor Capacity

While this study focuses on land-based infrastructure around the port, the following observations regarding the waterside infrastructure provide context to the discussion of supporting infrastructure.

Ferries dock at two terminals on the eastern side of the harbor. Immediately inside the harbor entrance, the Oak Bluffs bulkhead has approximately 300 feet of uninterrupted berthing space which is used by the 130-foot *Island Queen* and a few commercial fishing vessels. The Hy-Line ferries are closer to 100 feet in length and dock on a rotating basis at the end of the Dockside Pier, midway along the east side of the harbor front. Both the bulkhead and the end-loading pier can physically accommodate larger vessels, but the available clear area of the harbor in which to turn around and the water's shallow draft are limiting factors for vessels much larger than the existing ferries. Both terminals are free of ferries for more than an hour several times throughout the day. There is occasional use of these facilities by other vessels, however. Perhaps most noticeable are the tenders shuttling passengers from cruise ships that periodically anchor in the sound throughout the warmer months. Hy-Line vessels not in service as ferries were observed in use as tenders using the Dockside Pier. Despite the tight maneuvering room in the harbor, both the *Island Queen* and a Hy-Line vessel can be, and often are, docked at the same time, however briefly. The narrow harbor entrance precludes simultaneous passage by the ferries or similarly sized vessels and sometimes they must wait outside the entrance until the way is clear.

Navigability is also an issue for vessels docking at the SSA terminal outside the harbor, directly on Nantucket Sound. Although the SSA pier is the lone docking facility along the sound in the study area and extends more than 400 feet from the shoreline, the open waters of the sound make avoiding shallows and submerged rocks more difficult for vessels. The 1999 schedule left three windows of less than 60 minutes each to squeeze in additional sailings--less time than given each of the sailings. Without considering the availability of SSA vessels or mainland berthing space, the daily schedule at Oak Bluffs could start earlier or end later to provide sufficient time to add more sailings. In past years, the SSA has occasionally allowed other large vessels to temporarily dock alongside its pier, away from the ferries' slip. The SSA is presently undertaking a detailed study to upgrade its Oak Bluffs facility, two objectives of which are to extend the seasons in which the slip can safely be used and to plan for the possibility of passenger-only ferries to berth simultaneously with the automobile ferries.

Ferry Carriers

Three ferry carriers served Oak Bluffs in the summer of 1999 on a regularly scheduled basis. Each carrier served different mainland ports on Cape Cod, with the Hy-Line ferries also providing direct connections between the Vineyard and Nantucket. The SSA ran its largest capacity vessel, the *Martha's Vineyard*, and also transported automobiles and freight. Combined, the carriers ran 21 to 22 round trips daily, with the capacity to transport more than 13,000 people to Oak Bluffs daily. Although average daily ridership levels for each carrier are less than half design capacity, the private carriers reported morning arrivals on certain days of the week to typically be near capacity. When also discounting for the SSA passengers in motor vehicles, "typical peak" daily ridership is estimated at 4,378 people arriving at (or departing from) Oak Bluffs. This volume is evenly distributed among the three carriers. Table 3-B, 3-C, and 3-D portray the capacity, estimated peak daily ridership with and without SSA motor vehicle passengers, and carrier share of Oak Bluffs ridership. Descriptions of each of the carriers are presented below.

Steamship Authority

In the peak season of July and August 1999 the Oak Bluffs SSA terminal accounted for about one-third of all SSA traffic to and from Martha's Vineyard and more than 40 percent of all passengers to Oak Bluffs. Starting at midmorning, the Oak Bluffs terminal alternately received the *Martha's Vineyard* (1,387 passenger capacity) and the *Gay Head* (250) a total of seven times daily. Both vessels can carry up to 50 automobiles, which is included in the capacity figures. Reported monthly ridership for July and August 1999, averaged 3,500 people per day to and from Oak Bluffs, about 69 percent of which were not associated with ferried vehicles. Peak daily volume in each direction is estimated to be near 2,250 (1,550 non-vehicular) passengers. Surveys of SSA patrons to and from the Vineyard in the mid-1990s showed between 70 and 79 percent to be visitors, with 32 percent visiting for just one day.

Table 3-B
Carrier Capacity and Estimated Peak Daily Ridership
Passenger Ferry Service to Martha's Vineyard – August 1999*

Port	Carrier	Daily Capacity**	Est. Peak Ridership	Ridership % of Capacity	Ridership % of Port	Ridership % of Island
Oak Bluffs Ports		13,272	5,191	39%	100%	43%
	Steamship Authority***	5,974	2,250	38%	43%	19%
	Island Queen	4,158	1,430	34%	28%	12%
	Hy-Line Cruises	3,140	1,511	48%	29%	13%

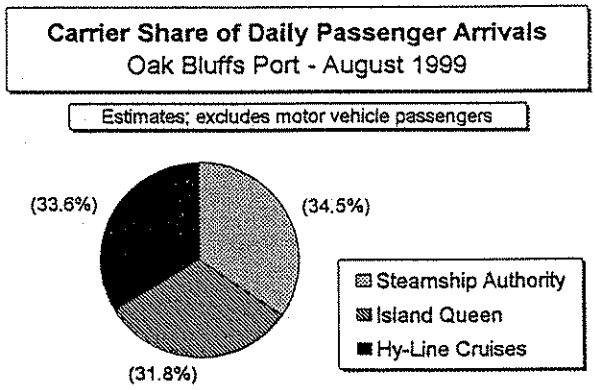
* Travel each way; arrivals OR departures
** A mix of weekday and weekend capacity figures; totals may not reflect any one day of the week
*** Includes passengers on ferried motor vehicles

Table 3-C
Estimated Peak Daily Ridership by Port and Carrier
Less SSA Passengers in Motor Vehicles
Passenger Ferry Service to Martha's Vineyard – August 1999*

Port	Carrier	Est. Peak Ridership	% of Port Ridership	% of Island Ridership
Oak Bluffs		4,491	100%	48%
	Steamship Authority	1,550	35%	16%
	Island Queen	1,430	32%	15%
	Hy-Line Cruises	1,511	34%	16%

* One way travel; arrivals OR departures

Table 3-D



Island Queen

The *Island Queen* has served Oak Bluffs from Falmouth seasonally for many years. At 30 minutes, the carrier offers the shortest travel time of all the ferries in this study. It ran seven daily round trips in 1999, adding a late evening trip on Fridays. The *Island Queen* is licensed to carry 594 people. The carrier reported averaging 2,200 boardings per day, or about 26 percent of overall capacity. This study estimates "typical peak" days to average about 1,430 passengers each way (34 percent of capacity), with individual sailings of roughly 450 people, or around three-quarters capacity. The composition of the *Island Queen's* passengers varies between the weekends and the busier midweek. The carrier estimates that 70 percent of the weekend passengers stay over at least one night—many having homes on the Island. The midweek passengers are primarily day trippers.

Hy-Line Cruises

Operating seasonally from Hyannis, Hy-Line Cruises provides connections from the Oak Bluffs Harbor to Hyannis and Nantucket. This is the only carrier providing scheduled service between the two islands. Hy-Line provided four daily round trips between the mainland and Oak Bluffs, and another three round trips from Nantucket. A fleet of sister ships with capacities ranging from 400 to 520 people are interchangeable among Hy-Line's routes. Ridership for August 1999 averaged 890 passengers per day for the Hyannis route, which was about 46 percent of licensed capacity, and 272 passengers for the Nantucket route, or 23 percent of capacity. Ridership on typical peak days is estimated to have been at 60 and 30 percent, respectively. Peak morning sailings from Hyannis were reported to run around 90 percent full. Nine in ten passengers are thought by the carrier to be day trippers. The Nantucket run is also comprised mainly of day trippers but is unique among the ferry routes in that the majority of passengers, 75 percent, originate from the Vineyard. Thus, the Nantucket run is a "reverse commute," with the bulk of passengers departing Oak Bluffs in the first half of the day and returning in the latter half—the reverse of most day trippers aboard the ferries.

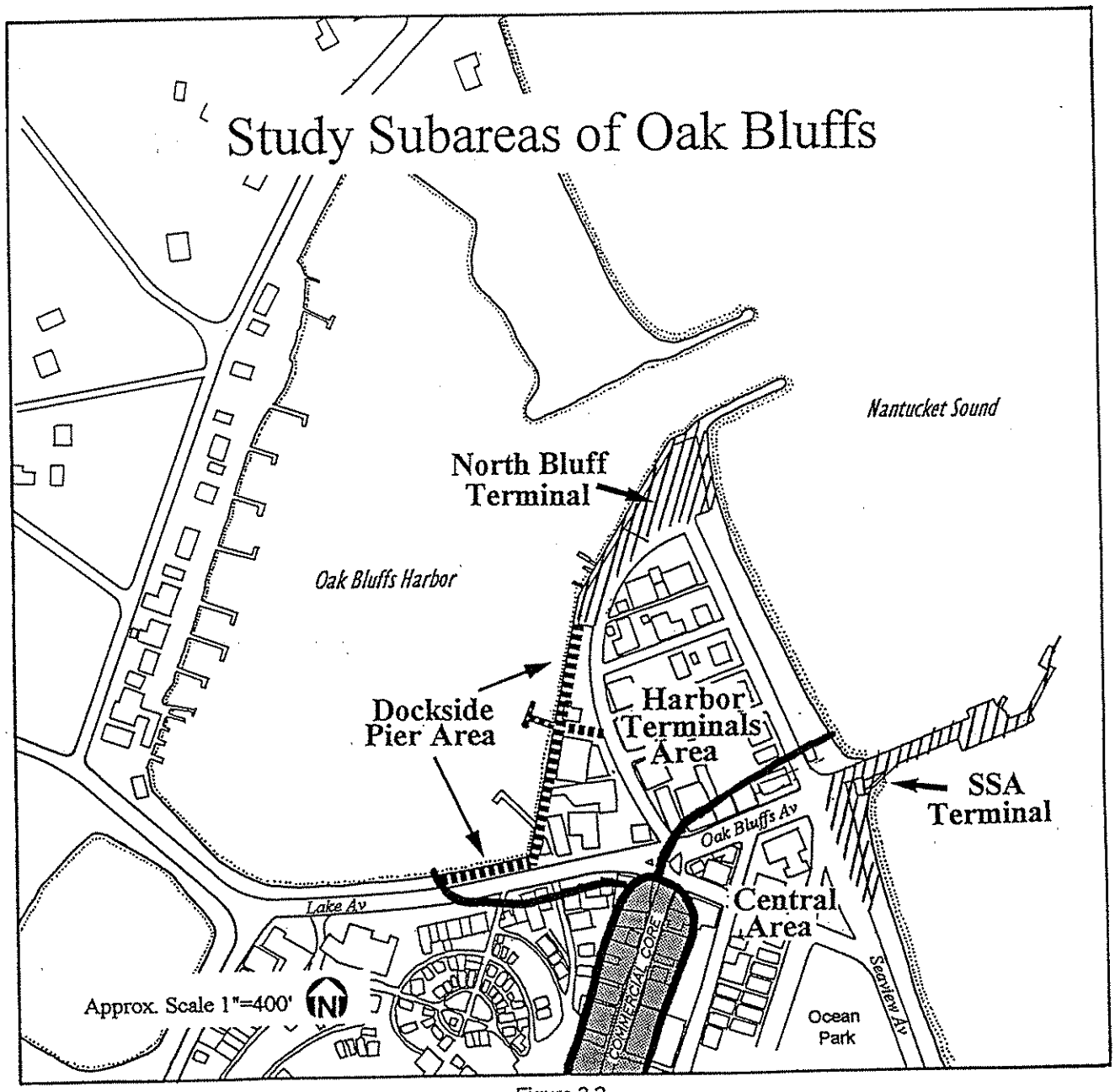


Figure 3.2

Study Area

The three ferry carriers serving Oak Bluffs in 1999 each used a different terminal with different types and levels of infrastructure to support passenger activity. The extent of the infrastructure considered in this study was determined by the immediate street network and areas where ferry passenger congestion becomes dispersed and absorbed into the background level of street activity. The Oak Bluffs study area as depicted in Figure 3.2 is located between the Oak Bluffs Harbor and Ocean Park. Based on observed activity, the study area was divided into five subareas. The SSA and North Bluff terminals are each a subarea, but the Dockside Pier is combined with the adjacent pedestrian ways where staging for the Hy-Line ferries occurs. The remaining streets of the northern end of downtown are divided into two subareas by the main through-traffic artery, Lake and Seaview avenues, that connects to Vineyard Haven and Edgartown.

As a primary destination unto itself, Circuit Avenue routinely experiences pedestrian and vehicle congestion that is not necessarily a direct result of ferry passengers disembarking at Oak Bluffs. Information regarding the infrastructure in this commercial core is provided for comparison purposes rather than to evaluate its capacity to accommodate ferry passengers. So, too, the roads serve a much broader clientele than is just associated with an immediate ferry arrival. Roads are not evaluated for their absolute capacity so much as how they are used by vehicles for picking up and dropping off passengers, and used by cyclists and pedestrians.

Each of the subareas are individually described in terms of the existing supporting infrastructure, observed circulation, and primary shortcomings of the infrastructure. For each subarea there is also a table of the infrastructure elements and a map illustrating the generalized locations of staging areas and infrastructure shortcomings.

Steamship Authority Terminal

Infrastructure

The SSA is in the midst of a detailed assessment of how to improve its Oak Bluffs facility by expanding the pier to accommodate more of the staging areas from along Seaview Avenue. The port areas study focuses its observations of the SSA terminal to the infrastructure and activity along the street. Table 3-E inventories infrastructure elements at the SSA terminal. Figure 3.3 illustrates the layout of the functional areas as well as noting the shortcomings cited at the end of this discussion of the terminal.

The SSA terminal at Oak Bluffs has large staging areas for automobiles and freight on the pier that extends several hundred feet from the shore to a single ferry slip. Additional staging of cars and the pick up and drop off of passengers occurs in four lanes between the sidewalk and travel lanes of Seaview Avenue. No physical barrier exists between the staging lanes and the travel lanes. Taxis and tour buses stand alongside the sidewalk, south of the terminal building. The compact terminal building has a small queuing area for ticketing, two rest rooms and some offices. The luggage drop is in front on the building, off the sidewalk curb, at the corner of Seaview and the pier entrance. Passengers queue on a walkway, half of which is under cover, along the southern edge of the pier and veering south of the terminal building. The sidewalk along the staging areas at Seaview Avenue is twelve feet wide. The principal pedestrian crosswalk leading towards downtown bisects the vehicle staging areas on Seaview Avenue. There is little seating and no orientation signs for arrivals.

Circulation

The seven daily round trips to Oak Bluffs by the SSA alternated between its largest capacity (1,387 people) vessel and a freight ship less than one-fifth that capacity (250 people). Vessels are docked for 30 minutes, with intervals between ferry departures and arrivals alternating between 30 and 60 minutes. The large volume and multiple dispersion points from the terminal prevented this study from fully quantifying the mode and direction of passenger dispersal. Observations of circulation patterns, however, are noted below.

Table 3-E

Port Area Infrastructure Supporting Passenger Ferry Service
Oak Bluffs - Steamship Authority Terminal

Element	Quantification
Pedestrian Way	Staging on pier and long gangway; 12' wide concrete along E side of Seaview; green painted surface leads from the gangway to the crosswalk in front of terminal building
Crosswalks	Crossing of Seaview Av S of Oak Bluffs Av passes through auto staging
Bicycle	No racks; staging on pier
Vehicle Circulation	Staging of transported vehicles on pier and along terminal side of Seaview; ferried vehicles exit straight across Seaview to Oak Bluffs Av; intersection movement during disembarking controlled by traffic officers
Pick-up/Drop-off	4-lane vehicle staging area on E side of Seaview controlled by SSA staff
Transit	Off-site across Seaview
Taxi	5 curbside spaces near terminal building
Tour Bus	3 curbside spaces south of taxi stand
Signage	Large sign above building entrance identifying terminal; schedule board on front of terminal building; various directional signs near gangway entrance for people boarding
Information	450' (1.7 minutes) away at end of Oak Bluffs Av
Telephone	At terminal building
Seating	Bench in front of terminal building
Shelter	Long gangway along side of pier; small terminal building
Rest Rooms	2 in terminal building
Drinking Fountain	In terminal building
Trash Cans	4 along sidewalk
Lighting	Pedestrian-scaled streetlamps along sidewalk
Amenities	Panoramic views of Nantucket Sound and of Ocean Park and bordering architecture
Miscellaneous	Long narrow passage from ship to shore dramatizes arrival/departure

Passengers stepping off the pier walkway onto the sidewalk are confronted with a jumble of activity. The perpendicular sidewalk demands people decide which way to turn without the aid of any signs. Taxi and tour bus operators hawk their services amid passengers getting their bearings or awaiting their luggage. Nevertheless, the majority of pedestrians bear slightly north to exit across Seaview Avenue. This movement conflicts with others trying to retrieve their luggage for loading into a taxi or car and traverses the multi-lane vehicle staging area. Dozens of passengers also exit north across the pier entrance, use the crosswalk south of the terminal site, and filter through the vehicle staging area to cross Seaview Avenue away from the crosswalks.

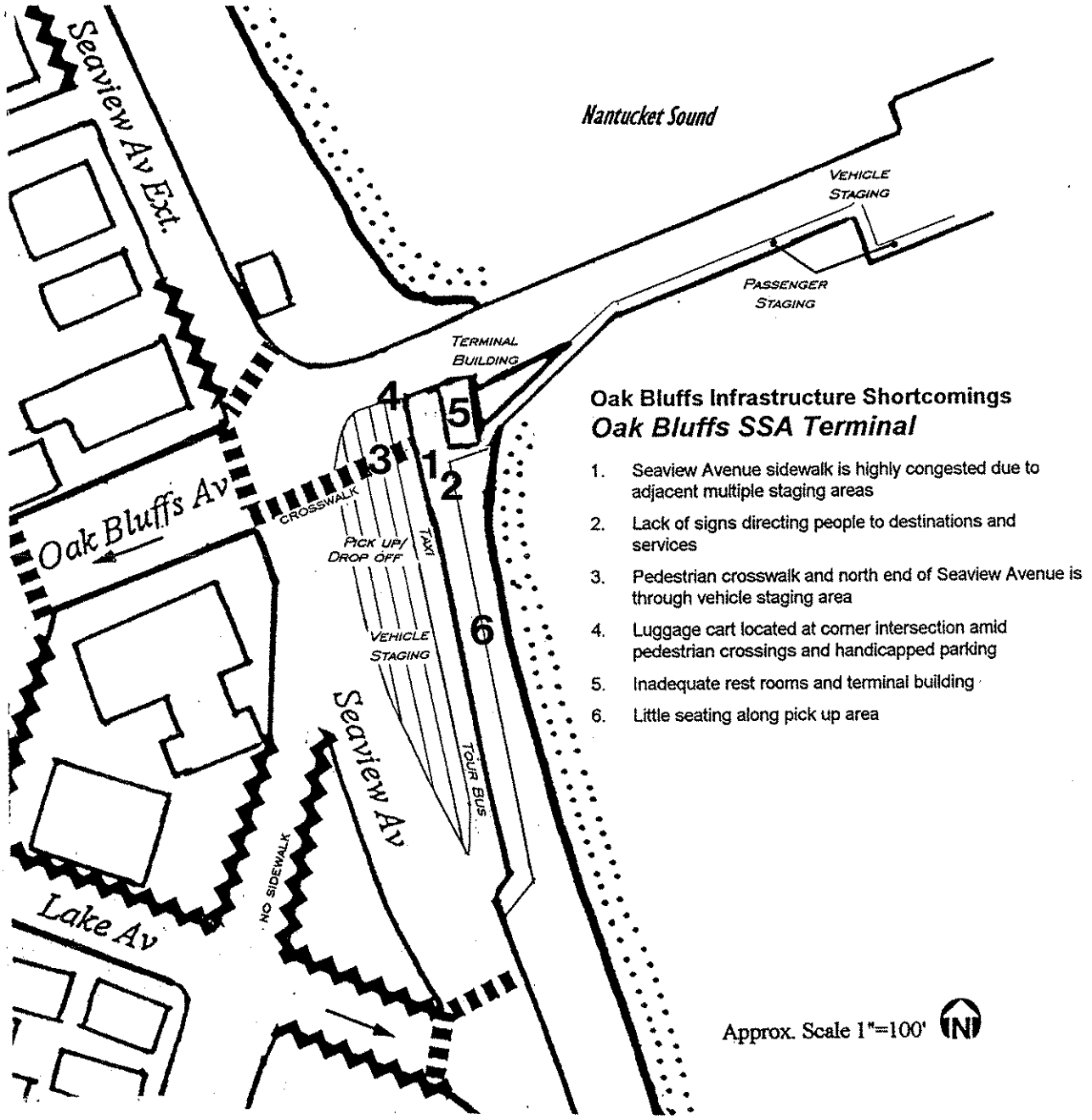


Figure 3.3

Cars picking up or dropping off passengers in the vehicle staging lanes often snake through openings in other lanes to exit the area. The complexity of vehicle and pedestrian movement at the intersection of Seaview and Oak Bluffs avenues is controlled by two law officers. A SSA attendant with a portable stand in the vehicle staging area is also available to direct cars but is often walking amid the parked cars. People on foot and in cars frequently ask questions of both the traffic control officers and the SSA attendant.

The period of activity and congestion at the terminal typically lasts no more than 30 minutes after the arrival of a ferry.

Infrastructure Shortcomings

The shortcomings of the infrastructure at the SSA Oak Bluffs Terminal supporting ferry passengers center around how pedestrian movement is impeded or hindered. The locations of the shortcomings identified below are indicated on Figure 3.3.

1. Seaview Avenue sidewalk is highly congested due to adjacent multiple staging areas
2. Lack of signs directing people to destinations and services
3. Pedestrian crosswalk and north end of Seaview Avenue is through vehicle staging area
4. Luggage cart located at corner intersection amid pedestrian crossings and handicapped parking
5. Inadequate rest rooms and terminal building
6. Little seating along pick up area

Central Area

Infrastructure

The Central Area extends along both sides of Oak Bluffs Avenue south to Ocean Park and Park Avenue, and from Seaview Avenue to Circuit Avenue (Figure 3.4). This area of downtown Oak Bluffs contains the primary infrastructure supporting passenger ferry activity between the SSA terminal and the commercial core. This area is distinguished from the abutting Harbor Terminals subarea because it encompasses the flow of SSA passengers from the ferry. Development along Oak Bluffs Avenue is also more dense and pedestrian oriented. Table 3-F inventories individual infrastructure elements of the Central Area, some of which are highlighted below.

The main throughway linking downtown Oak Bluffs with Vineyard Haven and Edgartown is divided among two one-way streets in the Central Area—Oak Bluffs Avenue westbound and Lake Avenue eastbound. Three one-way streets intersect the split section of the throughway. Curbside parking, most of it diagonal, exists along at least one side of virtually all the streets. Oak Bluffs Avenue and the northern end of Seaview Avenue are the widest roadways in all the port towns.

About half of the streets have sidewalks or a marked street edge for pedestrians. Sidewalk widths vary from four to twelve feet. Utility poles and steps from adjacent businesses along the north side of Oak Bluffs Avenue and Circuit Avenue reduce the effective widths of sidewalks—as does the overhang of diagonally parked vehicles. In no cases are clear sidewalk widths reduced to less than four feet.

Five of the eight street intersections in the subarea have at least one pedestrian crosswalk. They exist along Circuit Avenue, Oak Bluffs Avenue and Seaview Avenue. Two crosswalks of Oak Bluffs Avenue span three traffic lanes, a parallel parking lane, and a diagonal parking lane.

The antiquated rest room building north of the SSA terminal is run-down but heavily used. But for the two rest rooms in the SSA terminal building, it is the nearest facility to all three ferries terminals. A rest room facility off Kennebec Avenue was erected by the Town in the late 1990s, two blocks away from the SSA terminal and three blocks from the Hy-Line ferries. The only directions to rest rooms was at the southwest corner of Oak Bluffs and Seaview avenues; these were written-out and contained no graphic orientation. No other direction or orientation signs exist. The Visitor Information Booth run by the Oak Bluffs Business Association is centrally located at the convergence of downtown's roadways.

Circulation

The activity at the intersection of Seaview and Oak Bluffs avenues during arrivals of SSA ferries requires the presence of two police officers to control the vehicular and pedestrian movements. For alternating intervals,

Table 3-F

Port Area Infrastructure Supporting Passenger Ferry Service
Oak Bluffs - Central Area

Element	Quantification
Pedestrian Way	Seaview Av: E side - 12' asphalt (PP); W side - 6' wide curbed walk extending 20' from Oak Bluffs Av (PP) Oak Bluffs Av: S side, eastern block - 6.5' brick (DP); S side, western block - 8' to 10' asphalt (DP); N side - 6.5' brick and asphalt reduced to 4' by obstructions (PP) Ocean Av: W side - 50' long 10' wide marked asphalt Kennebec Av: W side (extending N from Park Av) - 100' long, 5' wide concrete (reduced to less than 4' by overhang from DP) Lake Av (E of Circuit Av): S side, Circuit to Kennebec - 8.5' concrete with brick accents (PP), Kennebec to Ocean - 7.5' marked roadway edge; N side, Circuit to Kennebec - 10' reduced by stairs to 4.5' (DP) Park Av: At post office - 6' to 7' concrete with brick accents; S side, Kennebec to Ocean - 4' concrete (PP) Circuit Av (to Park Av): E side - 5' to 7' concrete with brick accents (DP); W side - 5' to +6' concrete with brick accents
Crosswalks	2 cross Seaview at N and S ends of SSA terminal, southern one continures across Lake Av; 4 crossing of Oak Bluffs Av at 3 road intersections (2 westernmost crossings continue S across Lake Av to either side of Circuit Av); across Circuit Av at Lake and Park avenues; across N end of Kennebec Av
Bicycle	Racks at both restroom facilities and S of Flying Horses
Vehicle Circulation	One-way streets except Seaview; Lake Av (E bound) and Oak Bluffs Av (W bound) connect main routes through downtown – Lake and Seaview avenues; Circuit Av (S bound) is the "main street" with high activity
Pick-up/Drop-off	No spaces dedicated for ferry; mixture of parallel (PP) and diagional (DP) parking along at least one side of most streets - except for the majority of Kennebec Av and Lake Av between Circuit and Central avenues; time limits 1 or 2 hours (15 minutes next to post office)
Transit	Main stops at E end of Lake Av and N end of Seaview Av
Taxi	2 spaces at N end of Seaview across from SSA terminal; 1 space S side Oak Bluffs Av near Information Booth
Tour Bus	Stops at E end of Lake Av and across Seaview
Signage	Protected message case at SW corner of Seaview/Oak Bluffs avenues faces Oak Bluffs Av, contained greeting and written directions to rest rooms
Information	Visitor information booth at junction of Circuit/Lake/Oak Bluffs avenues
Telephones	Bank of 8 immediately adjacent terminal; Circuit Av
Seating	Benches at bus stops S of terminal and E end of Lake Av and surrounding park areas; benches along portions of Oak Bluffs and Lake avenues; seating at information booth and at post office

— Table continued —

Table 3-F (continued)

Port Area Infrastructure Supporting Passenger Ferry Service
Oak Bluffs - Central Area (continued)

Element	Quantification
Shelter	A few commercial building awnings
Rest Rooms	Immediately N of SSA terminal and at Kennebec between Lake and Park avenues
Drinking Fountain	Next to Information Booth between Lake and Oak Bluffs avenues
Trash Cans	Sparsely distributed
Lighting	Cobra-head streetlights; pedestrian-scale lamps augment Circuit Av and portions of Lake and Oak Bluffs avenues; Ocean Park area has only pedistrian-scale lamps
Amenities	Large, grassy park with plenty of benches and walks overlooking Nantucket Sound and Victorian architecture; war memorials and statue; landscape planting focal point at Circuit/Lake/Oak Bluffs intersection; street trees along Circuit Av; pedestrian mall at post office
Miscellaneous	High activity area for pedestrians and autos

street traffic is prevented from entering the intersection in order to allow ferried vehicles to exit the SSA pier. Exiting vehicles must proceed straight across the intersection to Oaks Bluffs Avenue. Vehicles wishing to head south on Seaview Avenue—including tour buses from the North Bluff area—must proceed to the Circuit Avenue intersection and double back to Seaview Avenue along Lake Avenue. This results in additional traffic at three more intersections already heavily congested with vehicles and pedestrians. For brief periods, Oak Bluffs Avenue periodically backs up to Seaview Avenue which prevents additional vehicles from exiting the pier, Seaview Avenue, or Seaview Avenue Extension. Seaview Avenue Extension backed up into the North Bluff parking lot when the *Island Queen* arrived at the same time as the SSA ferry. Adding to the road congestion were the routine handful of automobile drivers picking up or dropping off passengers who parked illegally or stopped in travel lanes.

Passengers exit the SSA terminal from many locations: across the pier exit immediately north of the terminal building to the bank of telephones and the rest rooms, south of the terminal to bus stops on either side of Seaview Avenue, and across Seaview Avenue at all points in between. Most passengers use the Seaview Avenue crosswalk extending from the terminal building to Oak Bluffs Avenue.

Observations of two arrivals at only half capacity (609 and 709 total passengers) showed 63 percent and 52 percent (288 and 286 passengers, respectively) of the passengers on foot used the crosswalk to reach the southwest corner of the intersection. About three in five of those crossing continued down the south side of Oak Bluffs Avenue towards Circuit Avenue. The others turned south to buses at Ocean Avenue, or, more often, turned north across Oak Bluffs Avenue, where most then proceeded down the north side of Oak Bluffs Avenue. People also backtracked from corner to corner, usually having been initially drawn to phones, rest rooms, or convenience store on the north side of the intersection. From the north on Seaview Avenue Extension, a couple of dozen *Island Queen* passengers added to the activity when the ferries' arrivals coincided.

Both pedestrians and motorists departing the SSA terminal commonly sought information from the traffic control officers or the SSA vehicle staging area attendant. Despite the heavy flow of pedestrians, the southwest corner of Seaview and Oak Bluffs avenues is not as frenzied as at the terminal, and frequently people stopped to check their maps and to orient themselves. While the Visitor Information Booth is approximately 300 feet down Oak Bluffs Avenue, its sign is not visible from this point.

Oak Bluffs Infrastructure Shortcomings

Central Area (Oak Bluffs Av south to Park Av; Seaview Av west to Circuit Av)

1. Heavy pedestrian movement across all sides of Seaview/Oak Bluffs intersection (also receives all motor vehicle traffic and some pedestrian and bicycle traffic exiting North Bluff and Dockside Pier terminals)
2. Pedestrians and vehicles channeled to a single, high congestion area at convergence of Oak Bluffs/Lake/Circuit avenues and visitor information booth
3. Broad expanse of Seaview Avenue for pedestrians to cross south of Oak Bluffs Avenue
4. Uncontrolled pedestrian crossings of Seaview at multiple locations
5. Lengthy crosswalk of three traffic lanes of Oak Bluffs Avenue at Kennebec Avenue
6. No crosswalks at intersections of Lake Avenue with Kennebec or Ocean avenues
7. No vertical or horizontal separation of walkway and vehicles along midsection of Lake Avenue
8. No continuous pedestrian way between visitor information booth and main bus stops at Lake and Seaview avenues
9. No hard surface for waiting area of primary bus stop
10. No pedestrian way along Kennebec Avenue between Oak Bluffs Avenue and public rest rooms
11. North sidewalk along Oak Bluffs Avenue has numerous obstructions
12. No orientation signs near "decision point" at Oak Bluffs/Seaview avenues; information booth sign not visible from this point
13. Severely antiquated rest rooms next to the SSA terminal

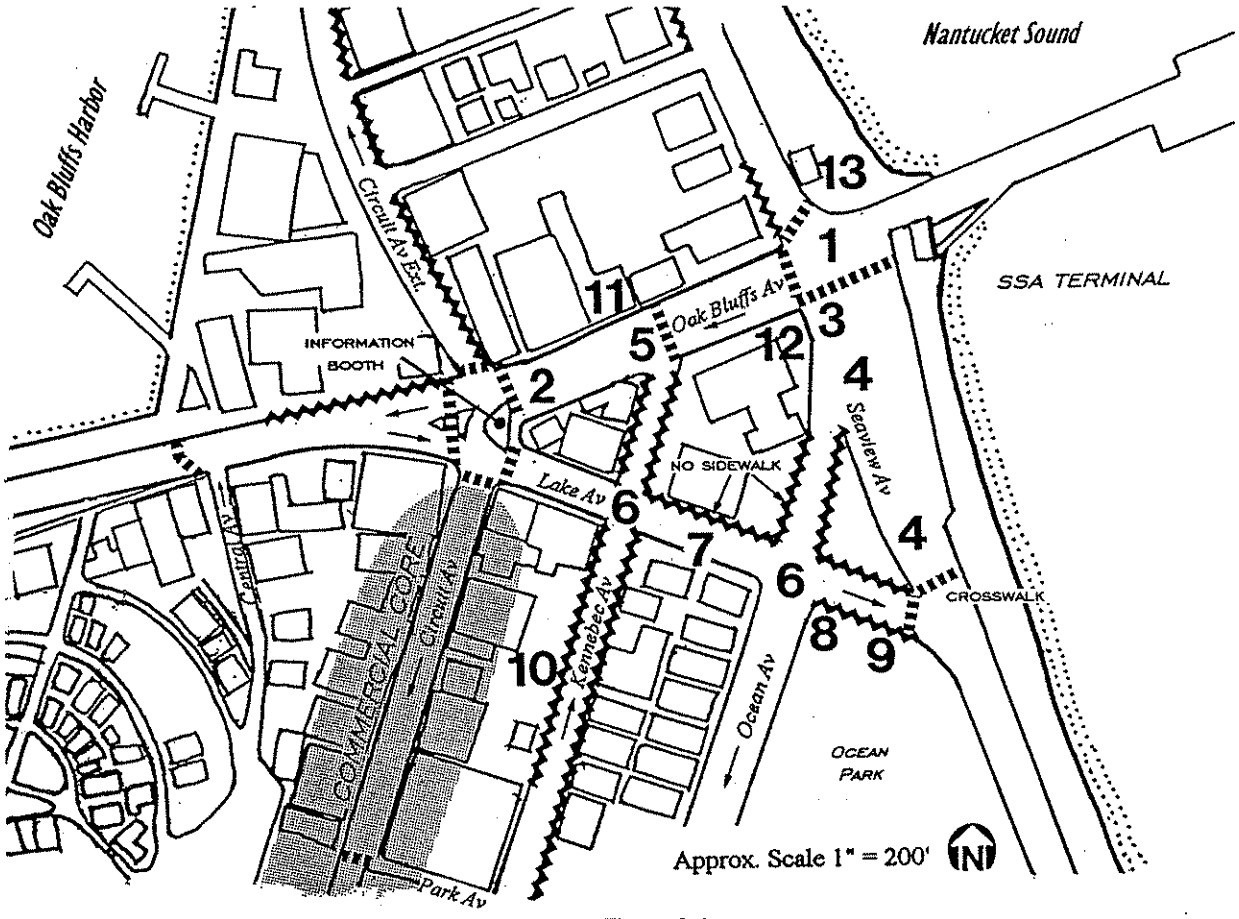


Figure 3.4

The combination of wide sidewalks and curbside parking in the Central Area contributed to pedestrians keeping to the sidewalks where available. The main exception was along the west side of Circuit Avenue where people frequently stepped off the curb to get around one another. Despite attracting high concentrations of people moving slowly among the shops, Circuit Avenue has some of the narrowest sidewalks in the subarea. Throughout the subarea, pedestrians were prone to cutting corners and straying from the marked crosswalks. At the intersection by the SSA terminal, traffic control officers were quick to thwart such actions. Uncontrolled street crossings by ferry passengers was most prevalent along Seaview Avenue. Among all

people in the Central Area, however, such crossings occurred most routinely along Lake Avenue which, despite the location of the major bus stops, is missing sidewalk segments and has a paucity of crosswalks. Sidewalks are conspicuously absent along Kennebec Avenue between Oak Bluffs Avenue and the new rest room facility.

The magnitude of pedestrians is a factor in the slow movement of vehicles in the area. Even when people use the crosswalks, the volume of pedestrians imped turning movements and can back up traffic. The center, through-lane of Oak Bluffs Avenue has no turns, but is traversed by three, long crosswalks. Clusters of pedestrians, especially in the vicinity of the street confluence at the information booth where passengers from all three ferries converge, periodically backs up traffic to Seaview Avenue for very brief periods.

Activity and congestion levels east of Kennebec Avenue return to a background level after about 30 minutes of the SSA ferry arrival. Shortly thereafter, congestion dispersed to a heightened background level elsewhere in the subarea. The vicinity of the information booth was also particularly susceptible to surges in pedestrian activity resulting from arrivals of either of the two private ferries.

Shortcomings

The shortcomings of the infrastructure in the Central Area supporting ferry passengers center around how pedestrian movement is impeded or hindered. The locations of the shortcomings identified below are indicated on Figure 3.4.

1. Heavy pedestrian movement across all sides of Seaview/Oak Bluffs intersection (also receives all motor vehicle traffic and some pedestrian and bicycle traffic exiting North Bluff and Dockside Pier terminals)
2. Pedestrians and vehicles channeled to a single, high congestion area at convergence of Oak Bluffs/Lake/Circuit avenues and visitor information booth
3. Broad expanse of Seaview Avenue for pedestrians to cross south of Oak Bluffs Avenue
4. Uncontrolled pedestrian crossings of Seaview at multiple locations
5. Lengthy crosswalk of three traffic lanes of Oak Bluffs Avenue at Kennebec Avenue
6. No crosswalks at intersections of Lake Avenue with Kennebec or Ocean avenues
7. No vertical or horizontal separation of walkway and vehicles along midsection of Lake Avenue
8. No continuous pedestrian way between visitor information booth and main bus stops at Lake and Seaview avenues
9. No hard surface for waiting area of primary bus stop
10. No pedestrian way along Kennebec Avenue between Oak Bluffs Avenue and public rest rooms
11. North sidewalk along Oak Bluffs Avenue has numerous obstructions
12. No orientation signs near "decision point" at Oak Bluffs/Seaview avenues; information booth sign not visible from this point
13. Severely antiquated rest rooms next to the SSA terminal

North Bluff Terminal

Infrastructure

The Town owns the northern tip of the Oak Bluffs study area, where the extensions of Circuit and Seaview avenues converge. The narrow triangular-shaped parcel extends more than 450 feet southwest along the harbor, where the *Island Queen* berths next to the harbor inlet. Less than half that length and more distant from the water's edge, the parcel's northeast side fronts Nantucket Sound. Comprised entirely of parking lot

and an eighteen-foot-wide access way along the bulkhead, the site is completely hard-surfaced and contains no buildings or vegetation. The site provides broad views of the harbor and the sound. The staging area for passengers includes bench seating with backs for more than one hundred people on the harbor side of the pedestrian way. A guardrail perforated with several openings wide enough for vehicles separates the parking

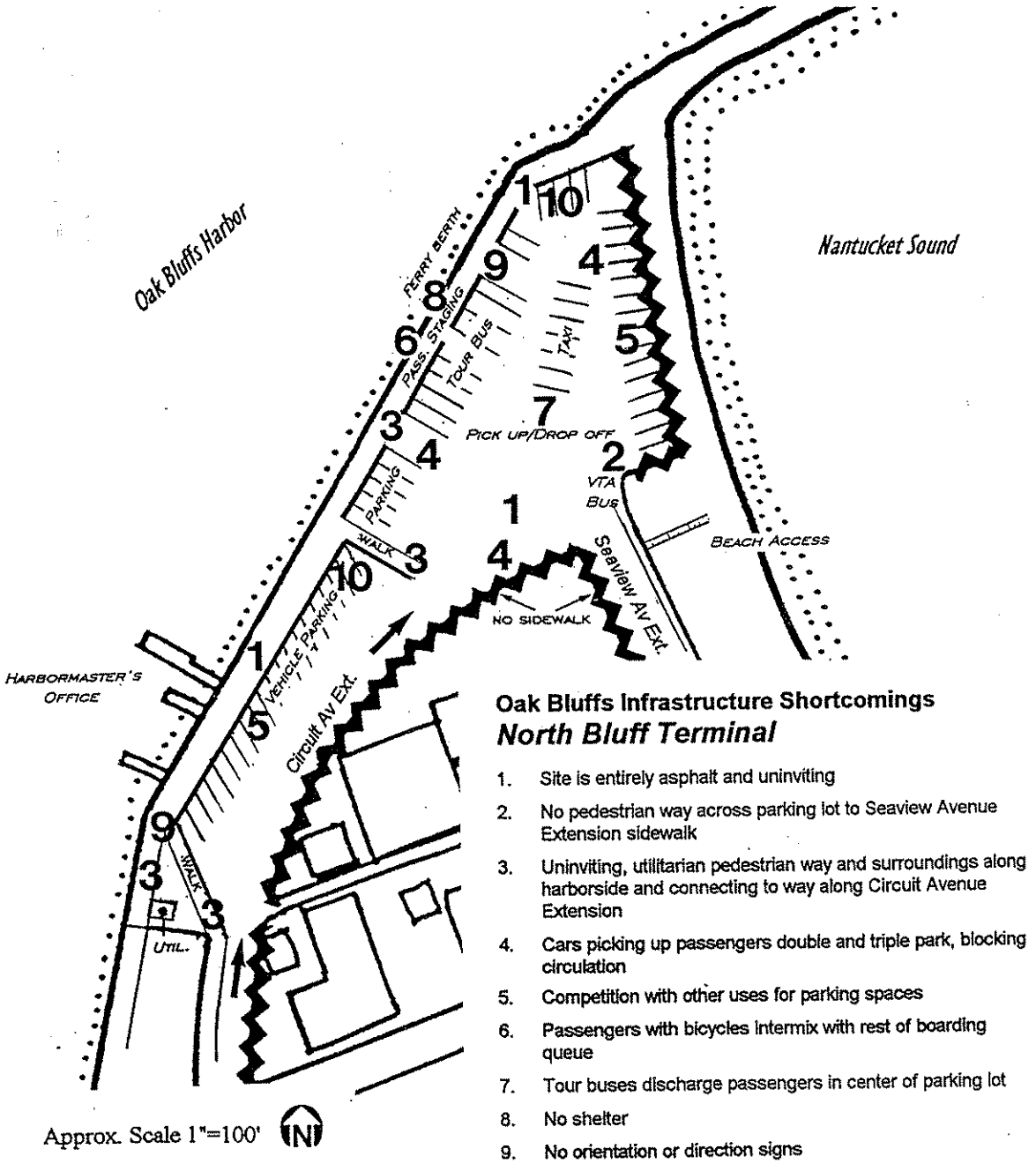
Table 3-G

Port Area Infrastructure Supporting Passenger Ferry Service
Oak Bluffs - North Bluff Terminal (Island Queen)

Element	Quantification
Pedestrian Way	18.5' wide way between harbor bulkhead and parking lot guard rails; comprised mostly of asphalt strips but divided entire length by flush, 4' concrete strip; reduced to 9' width at passenger staging area along ferry berth; marked way at S end of area connects to marked way along Circuit Av Ext.
Crosswalks	None
Bicycle	No racks; cyclists share staging area with pedestrians
Vehicle Circulation	Parking area is the terminus of Circuit and Seaview avenue extensions; exit only via Seaview; through-traffic from Circuit stays to the SE side of parking area
Pick-up/Drop-off	Parking for 28 cars (4 reserved), 24-hour limit; additional 21 spaces (2 reserved) in adjoining section accessable only from Circuit; 2-hour limit; no spaces dedicated for ferry use
Transit	VTA stop near base of Seaview Av Ext.
Taxi	6 spaces in center of parking lot
Tour Bus	4 spaces back up to pedestrian staging area
Signage	Large colorful "Island Queen" sign and schedule at pedestrian staging area; "Welcome to Oak Bluffs" sign at S end of site
Information	1,000' (3.8 minutes) away across from S end of Circuit Av Ext.
Telephones	At S end of site - 400' (1.5 minutes) from passenger landing; off-site - 200' (0.8 minutes)
Seating	Benches for approximately 115 at pedestrian staging area
Shelter	None
Rest Rooms	750' (2.8 minutes) away near SSA terminal; 1,400' (5.4 minutes) to Kennebec facility
Drinking Fountain	1,000' (3.8 minutes) away next to Information Booth
Trash Cans	None in proximity of passenger staging area; dumpster at far southern end
Lighting	Cobra-head streetlights
Amenities	Expansive views of harbor and Nantucket Sound
Miscellaneous	Multi-use facility – parking and loading areas for commercial fishermen and for small Patriot commuter/specialty shipping service

area from the pedestrian way. Nine feet of sidewalk area remains between the seating area and the guard rail to allow passersby to continue along the harborside walk. The only commercial enterprises visible from where passengers disembark are across the parking lot along Circuit Avenue Extension, the nearest being a bicycle rental some 200 feet away. No direction or orientation signs exist on or within eyeshot of the site.

Two parking areas consume most of the site and accommodate a variety of uses. In addition to the tour bus, taxi and automobile pick up and drop off serving the ferry operation, the lot provides parking for the harbor-master, fishermen and sightseers. The lot is also commonly used by tradespeople commuting between Falmouth and the Island via the small Patriot boats, which also shuttles specialty freight. Parking spaces are along the waterside perimeters of the parcel. The lower lot has nineteen 2-hour parking spaces and two spaces



Oak Bluffs Infrastructure Shortcomings

North Bluff Terminal

1. Site is entirely asphalt and uninviting
2. No pedestrian way across parking lot to Seaview Avenue Extension sidewalk
3. Uninviting, utilitarian pedestrian way and surroundings along harborside and connecting to way along Circuit Avenue Extension
4. Cars picking up passengers double and triple park, blocking circulation
5. Competition with other uses for parking spaces
6. Passengers with bicycles intermix with rest of boarding queue
7. Tour buses discharge passengers in center of parking lot
8. No shelter
9. No orientation or direction signs
10. No pedestrian-scale lighting

Figure 3.5

reserved for the harbormaster. Vehicles can only access this lot from Circuit Avenue Extension. The upper lot has twenty-four spaces where 24-hour parking is allowed, and four additional reserved spaces. While no parking spaces are reserved for cars associated with ferry use, four spaces for buses adjacent the passenger staging area are provided, as are six mid-lot taxi spaces. An inventory of infrastructure elements at North Bluff is found in Table 3-G.

Circulation

Confusion of vehicles jockeying for position and pedestrians and cars intermingling throughout the expanse of the upper parking lot. More than half of the passengers walk away from the terminal site and most of these walk across the parking lot to one of the streets rather than use the harborside walkway.

Few parking spaces were usually free for use by cars loading or unloading ferry passengers. Typically, cars awaiting passengers double-parked, parked in the taxi spaces or extended the mid-lot taxi line twofold, and parked along the far curb of Circuit Avenue Extension—sometimes continuing up the hill of Seaview Avenue Extension. As many as eighteen cars at a time, or three-quarters of the non-reserved spaces, were observed "irregularly" parked in the upper lot waiting on the ferry. Up to five cars parked (one double-parked) alongside the fire hydrant where the extensions of Circuit and Seaview avenues meet. This ad hoc parking occasionally obstructed the entrance to the upper lot from Circuit Avenue Extension. During one 45-minute observation around a morning arrival, ten cars entered the upper lot from Seaview, circled, and exited the lot without stopping. Occasionally amid this activity of cars, an additional tour bus would enter the parking area prior to the ferry's arrival and back into its parking space. Buses also dropped off and picked up riders between ferry events. Many of the people exiting the buses proceeded towards the active areas of downtown as opposed to the ferry passenger staging area.

In a morning observation of an arrival of slightly more than 200 passengers, approximately 35 percent of the *Island Queen's* capacity, 55 percent walked off the terminal site, 22 percent boarded tour buses, car and taxi passengers each accounted for roughly 9 percent, and 5 percent left the site via bicycles they had ferried over. Of the passengers walking off the site, more than half exited across the parking lot to Circuit Avenue Extension, foregoing either of the two pedestrian ways extending from the harborside walkway. More passengers were observed crossing the parking lot and exiting up Seaview Avenue Extension than using the harborside walkway.

The number of bicyclists observed exiting the ferry fluctuated from less than a dozen to several dozen. They were just as likely to exit the terminal against the one-way traffic of Circuit Avenue Extension, if not more so, than to use Seaview Avenue Extension. The nearest bike rack sits some 200 feet south of the southern end of the terminal site—nearly 600 feet from the boarding area. Only the occasional bicycle was observed parked alongside a post or guard rail on the entire terminal site.

One to three taxis typically dropped off one to three passengers each. Tour bus tickets are sold aboard the Island Queen and the carrier estimates 85 percent of arriving passengers have usually made prior arrangements to board a bus or to be picked up. Tour buses deposited riders—ferry-bound or not—in the middle of the parking lot as it is the town-designated downtown stop. Across the parking at the base of Seaview Avenue Extension, half a dozen ferry passengers boarded the VTA transit bus.

Passengers could disperse from the terminal and vehicles all boarded within five minutes of the ferry arriving. If the arrival of the *Island Queen* coincided with a SSA arrival, exiting vehicles would sometimes back up on Seaview Avenue Extension all the way into the terminal parking lot. Even so, in less than ten minutes from the ferry's docking, the parking lot cleared.

Passenger queuing in the afternoon began an hour prior to sailings. Passengers filled the seating area and a few hundred more pedestrians and a dozen or so bicyclists filled the width of the harborside walkway along

the bulkhead. Passengers could disembark and large queues embark with the *Island Queen* still being able to set sail within ten to twelve minutes of docking.

Infrastructure Shortcomings

Below are the shortcomings in the infrastructure supporting passenger ferry service at the North Bluff Terminal. Their locations are indicated on Figure 3.5.

1. Site is entirely asphalt and uninviting
2. No pedestrian way across parking lot to Seaview Avenue Extension sidewalk
3. Uninviting, utilitarian pedestrian way and surroundings along harbor side and connecting to way along Circuit Avenue Extension
4. Cars picking up passengers double and triple park, blocking circulation
5. Competition with other uses for parking spaces
6. Passengers with bicycles intermix with rest of boarding queue
7. Tour buses discharge passengers in center of parking lot
8. No shelter
9. No orientation or direction signs
10. No pedestrian-scale lighting

Dockside Pier Area

Infrastructure

Comprised of just two walkways, no motor vehicles are allowed in the Dockside Pier Area. Running along the harbor-front, this subarea links North Bluff to Lake Avenue, and Circuit Avenue Extension to the commercial Dockside Pier. While the latter connection is midway along the subarea's length, it is situated near the northernmost extent of the commercially active area of the harbor-front. No buildings border the harborside walkway beyond the restaurant lying north of the brick walk, where the environment is more exposed. From Circuit Avenue Extension, passengers can walk directly to the information booth and the center of downtown. At the southeast corner of the harbor, the walkway leads to Lake Avenue and an alternative route Circuit Avenue. A float for launches and a patio restaurant also add to the activity at this corner of the harbor. A bank of telephones and bicycle racks are at this decision making point, but no signs or maps. The edge of Oak Bluffs' trademark colorful cottages lie across Lake Avenue from the southern arm of the harborside walkway.

The Hy-Line ferries share the Dockside Pier with a Jet-ski rental, a parasailing operation, and a half dozen slips. Tenders from visiting cruise ships anchored in the sound also commonly dock at this pier. A tiny ticket booth sits on the pier alongside the sidewalk. A sign overhanging the pier entrance identifying the ferry's presence faces the walkway connecting to Circuit Avenue Extension. A portable cordon line is placed along the middle of the eight-foot-wide public sidewalk for queuing passengers waiting to board. Queuing for Hy-Line ferries extends north from the pier, queuing for the occasional cruise ship tenders line up south of the pier. The bulkhead's two-foot-wide concrete "curb" on the harborside of the walkway rises about one foot above the walk. Table 3-H provides an inventory of infrastructure elements in the Dockside Pier Area.

An 18-foot-wide brick walk extends between Dockside Pier and the walk along Circuit Avenue Extension. Bikes at racks immediately opposite the pier reduced the width by more than half. A doorway and display windows of a retailer abutting the south side are oriented towards the walk. Here, landscape planters also provide informal seating. The opposite side of the walk is less pedestrian oriented or active—closest to Circuit Avenue Extension is paved surface for a moped and car rental business.

Table 3-H

Port Area Infrastructure Supporting Passenger Ferry Service
Oak Bluffs - Dockside Pier Area (Hy-Line)

Element	Quantification
Pedestrian Way	E perimeter of harbor - 8' concrete walk separated from water's edge by 2' wide, 1' high concrete bulkhead apron (encroachments and seating reduce effective width to 6' in places; use of harborside 1/2 for passenger queuing reduces width by 4') S perimeter of harbor - 12' concrete walk separated from water's edge by 2' wide, 1' high concrete bulkhead apron Across from Dockside Pier - 18' wide brick walk (reduced to 8' by bikes at bike rack) runs 80' to Circuit Av Extension walkway
Crosswalks	3 cross Lake Av along S arm of harborside walk
Bicycle	Racks on brick walk, along harborside walk immediately S of pier, and at SE corner of harborside walk
Vehicle Circulation	Vehicles are prohibited
Pick-up/Drop-off	Out of area parking at North Bluff lot and along bordering streets
Transit	VTA runs along bordering streets; main stops 800' (3 minutes) and 900' (3.4 minutes) near Seaview Av
Taxi	On Circuit Av Extension
Tour Bus	Unloads at Circuit Av Extension
Signage	"Welcome to Oak Bluffs" sign across from pier
Information	480' (1.8 minutes) away across from S end of Circuit Av Ext
Telephones	Across from pier; bank of 8 at SE corner of harborside walk
Seating	S of Dockside Pier, 6 benches along shore side of harborside walk; bulkhead apron commonly used for seating; additional seating provided by some abutters; 12 benches along S arm of harborside walk
Shelter	Some commercial building awnings off public right-of-way
Rest Rooms	800' (3 minutes) away near SSA terminal; 900' (3.4 minutes) away at Kennebec facility
Drinking Fountain	480' (1.8 minutes) away near Information Booth
Trash Cans	Several distributed along harborside walk
Lighting	Pedestrian-scale streetlamps along E arm; none along S arm (spill-light from cobra-head streetlights across Lake Av
Amenities	Adjacent water and docked boats; views of harbor activity and signature Victorian architecture
Miscellaneous	Active, pedestian-oriented enterprises open onto E arm of harborside walk; S arm has no adjacent uses

Oak Bluffs Infrastructure Shortcomings
Dockside Pier Area (Hy-Line)

1. Passenger queue lines use the harborside walk north of the pier, reducing its usable width to less then four feet (more problematic with cruise line tender queues lined up south of the pier, where there are more abutting uses and more pedestrian activity)
2. Unloading of passengers impede pedestrians walking along the harborside walk
3. Bicycles, whether or not queued for ferry, constrict flow of walk extending from pier to Circuit Avenue Extension
4. No shelter
5. No orientation or direction signs
6. Activity at southeast corner of harborside constricted by close placement of phones, bike racks and dumpsters

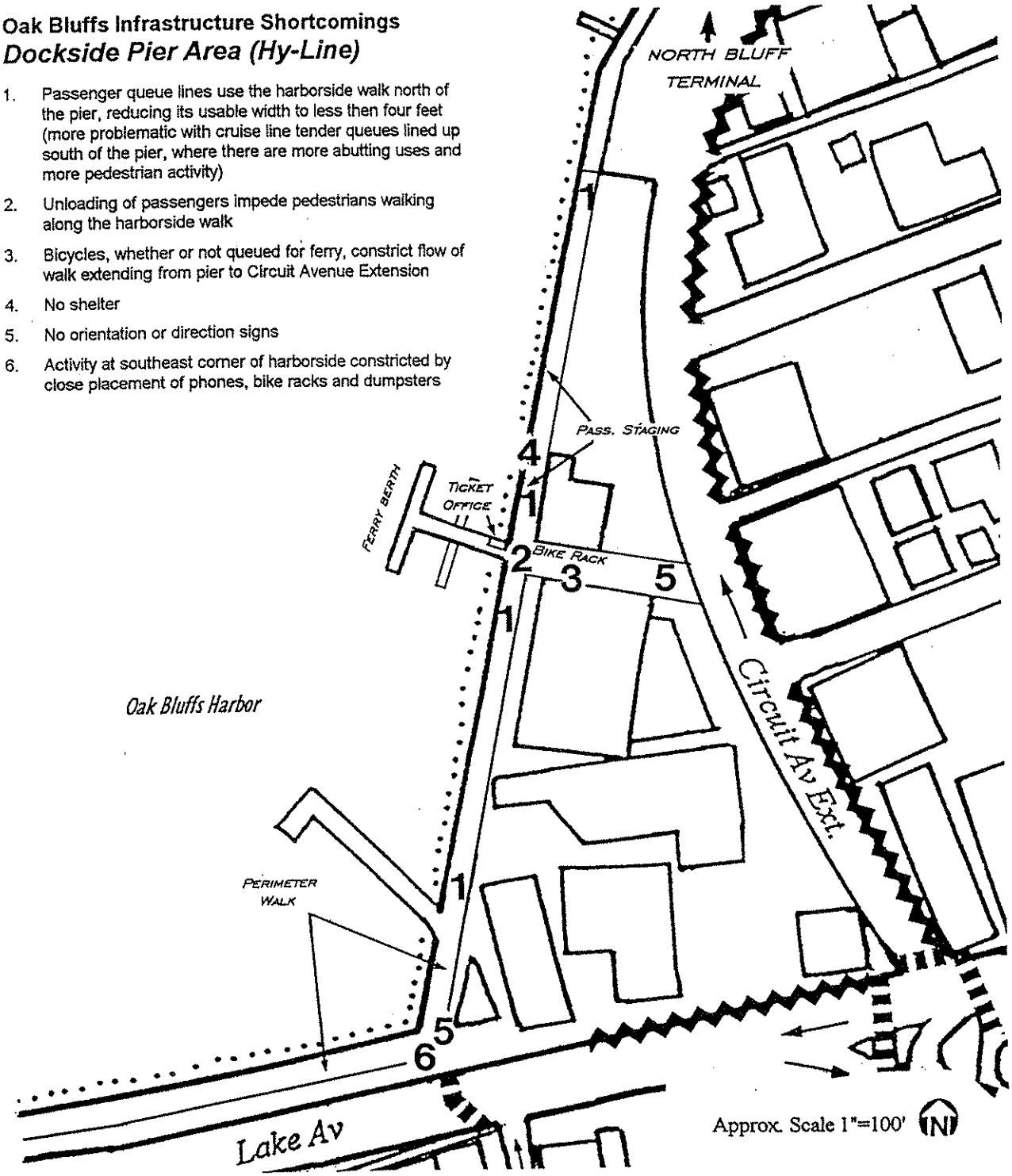


Figure 3.6

Circulation

The combination of large pleasure craft docking on one side of the east arm of the harborside walkway and tourism oriented uses on the other, make for a visually engaging and active pedestrian environment. Nevertheless, the background level of pedestrian activity varies wildly, frequently leaving the area virtually empty of pedestrians. Passengers disembarking the Hy-Line boats and stepping off the Dockside Pier intersect the harborside walkway at a right angle. Almost all of the passengers proceeded directly across the walkway to Circuit Avenue Extension. An employee of the tour bus helped direct people to buses and fielded questions from others. Only a few pedestrians were walking along the harborside walk and impeded from continuing along the harbor-front by the mass of ferry passengers exiting the pier. A bicycle rack, staging of ferry-bound bicycles, people waiting to greet passengers, and passengers getting their bearings and asking questions constricted the flow of passengers leaving the pier and brick walk. Maneuvering space was improved by the subsequent relocation of the bicycle rack to the south side of the brick walk at the Circuit Avenue Extension end. Once at Circuit Avenue Extension, people were confronted with another decision making point, bounded by car, moped, and bicycle rentals, and taxi and tour bus services. Again, no signs informed the visitors.

A bus carrier estimates 10 to 15 percent of Hy-Line passengers board the tour buses, 75 percent of which it estimates is from the presale of tickets aboard the ferries and at the mainland port. Only a few bicycles were parked in the vicinity of Dockside Pier. Although not thought to be directly connected to ferry passengers, a large number of bicycles were routinely seen at the southeast corner of the harbor. On one early afternoon, in addition to the rack overflowing with sixteen bikes, eleven more bikes were attached to a nearby lamppost and two signposts. The bicycles, telephone bank, trash Dumpsters and large utility box at the harbor's southeast corner restricts movement of pedestrians.

Dockside Pier is also used for tenders from the visiting cruise ships that periodically anchor in the sound off Oak Bluffs. Cruise passengers awaiting to return to their ship were observed lined up and cordoned off in a line extending south along the sidewalk instead of north. More than 100 passengers can queue 30 minutes prior to boarding for either ferries or tenders. No shade is available for those waiting. The queue lines can extend more than 200 feet along the length of the harborside walkway, leaving the remaining four-foot width of the harborside walk to handle exiting passengers and other pedestrians. Benches, other furnishings, and people standing at "sidewalk service" food and beverage establishments encroach further into the walkway, making passage very tight at several places. Whether or not they were waiting for a ferry, people frequently used the bulkhead "curb" for seating. No ferry passengers were discerned using the southern arm of the harborside walk.

Infrastructure Shortcomings

Below are the shortcomings in the infrastructure supporting passenger ferry service in the Dockside Pier Area. Their locations are indicated on Figure 3.6.

1. Passenger queue lines use the harbor side walk north of the pier, reducing its usable width to less then four feet (more problematic with cruise line tender queues lined up south of the pier, where there are more abutting uses and more pedestrian activity)
2. Unloading of passengers impede pedestrians walking along the harborside walk
3. Bicycles, whether or not queued for ferry, constrict flow of walk extending from pier to Circuit Avenue Extension
4. No shelter
5. No orientation or direction signs
6. Activity at southeast corner of harborside constricted by close placement of phones, bike racks and Dumpsters

Oak Bluffs Infrastructure Shortcomings
Harbor Terminals Surroundings

1. No horizontal or vertical separation between marked walkway and vehicles on Circuit Avenue Extension
2. Storm water puddles in marked walkway along Circuit Avenue Extension
3. Parked cars along Seaview Avenue Extension reduce sidewalk width to less than four feet
4. No direction or information signs for arriving passengers
5. Vehicular access can be difficult: to Circuit Avenue Extension only from westbound Oak Bluffs Avenue; prohibited to Seaview Avenue Extension during SSA debarking
6. No continuous demarcated walkway along north side of Lake Avenue
7. Irregular asphalt sidewalk along south side of Lake Avenue with numerous obstructions
8. Primary Lake Avenue crosswalk at southeast corner of harbor is doglegged
9. Two Lake Avenue crosswalks missing short connection from street edge to harborside walk

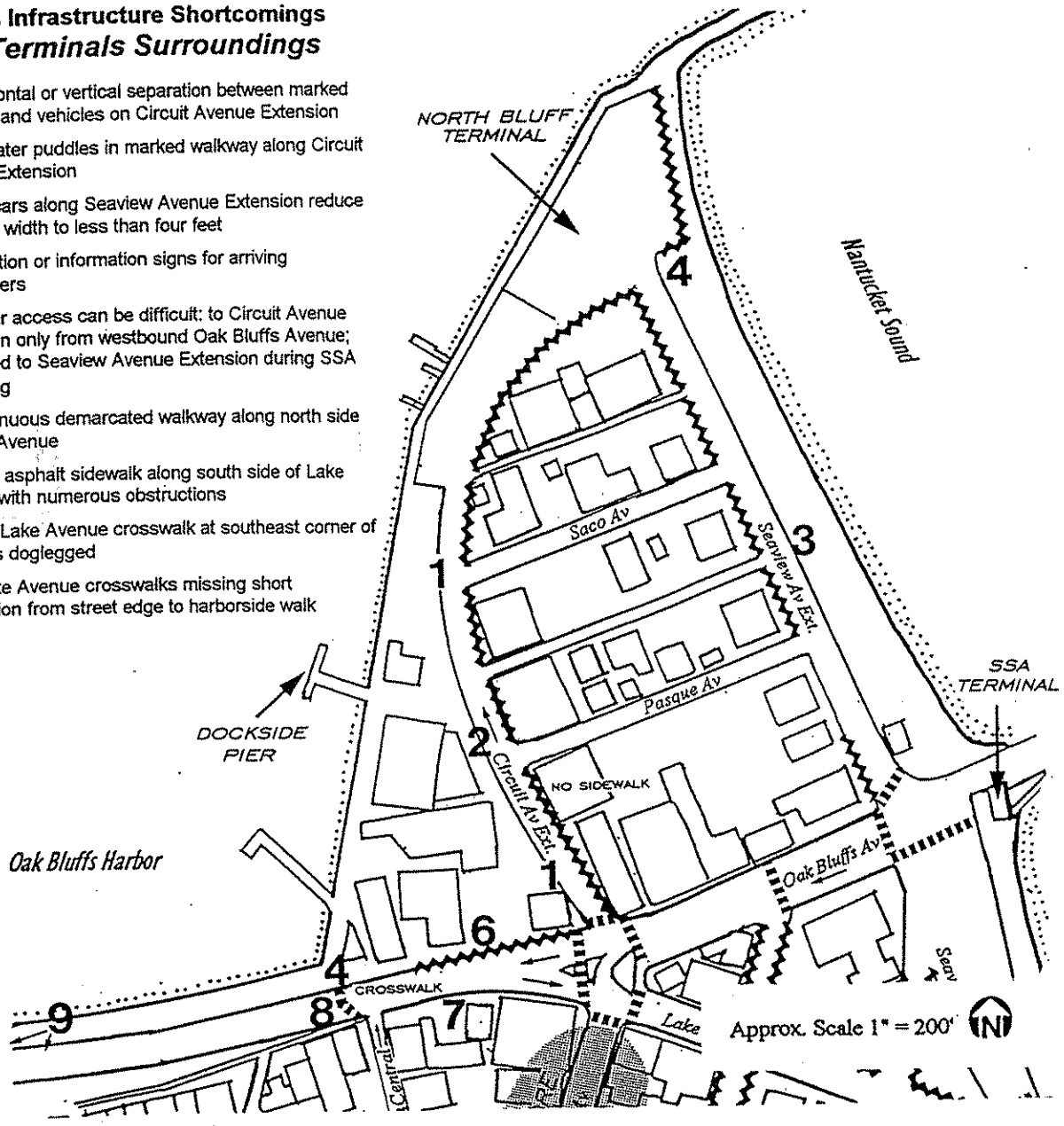


Figure 3.7

Harbor Terminals Surroundings

Infrastructure

Table 3-I is an inventory of the supporting infrastructure between the two harbor terminals and the confluence of activity at Circuit, Lake, and Oak Bluffs avenues (Figure 3.7). While a portion of this subarea is adjacent the SSA terminal, this area primarily supports the traffic associated with the two private ferries docking in the Oak Bluffs Harbor. The subarea is comprised of three street rights-of-way, each with distinct characteristics. Seaview Avenue Extension provides a two-way connection between North Bluff and the SSA terminal. Residences abutting the northern portion of the street. A few commercial uses occupy the southern block-face, only an isolated portion of which also has a sidewalk. Thirty-eight curbside parking spaces split among diagonal and parallel spaces extend along the east side of Seaview Avenue Extension. Next to the parking is a five-foot-wide sidewalk bordered by a split-rail fence, from which the land slopes sharply down to the sound.

The one-way Circuit Avenue Extension feeds auto traffic from the main crossroads of downtown towards North Bluff. While a few short streets link the extensions of Circuit and Seaview avenues, they are very narrow, dirt roads serving abutting residences and only occasionally used, especially by ferry patrons. Circuit Avenue Extension has a mixture of commercial and service uses principally aimed at tourists. Substantial portions of the street-front are open to provide vehicle access to support the abutting businesses, or are otherwise not oriented to pedestrians. There are also no sidewalks. The west side of the street has an eight-foot-wide pedestrian way is painted along the west side of the street, and extends from Oak Bluffs Avenue to the southern end of the North Bluff Terminal. A trash Dumpster sat next to the point where the walkway angled onto the North Bluff site and the harborside walkway.

The last portion of the subarea is Lake Avenue west of Circuit Avenue, including the fork with Oak Bluffs Avenue. The fork creates a wide expanse of roadway. A traffic island at the fork divides in two the crosswalk of this wide section. Four more, shorter crosswalks exist farther west on Lake Avenue. The streetscape between Circuit Avenue and the southeast corner of the harbor is bordered by commercial uses, but does not present a pedestrian friendly environment. The north side of Lake Avenue has just one, short segment of sidewalk along the westernmost building. This is linked to the harborside walkway by painted walkway detouring around private parking/delivery spaces and by garbage trash Dumpsters. Closer to Circuit Avenue, motor vehicles to turn off the roadway to service businesses and to use the gas station. Across the street, the pedestrian way is continuous, but is also interrupted by a curb cut, varies in width and delineation. West of Central Avenue, the southern sidewalk separates vertically and horizontally from the street edge, running in front of the cottages. The southern arm of the harborside walkway is also separated both vertically and horizontally from the north side of Lake Avenue, along which parallel parking is allowed. Three crosswalks span this segment of Lake Avenue; the main one is at the southeast corner of the harbor and—in the middle of the street—angles towards Central Avenue. To the west, the other two crosswalks are not connected to the harborside walk with steps or any pathway (at the end of one is a drainage grate and garbage Dumpster).

Circulation

All vehicular traffic in the peninsula north of Oak Bluffs Avenue must exit the area via Seaview Avenue Extension. Despite a panoramic water view, beach access, residences abutting the northern half, and a sidewalk running its entire length, Seaview Avenue Extension is automobile oriented. Nevertheless, auto traffic was not such that it discouraged people from walking along the west side of the street, in the direction of traffic, rather than use the sidewalk buffered by curbside parking on the opposite side. The sidewalk offering an elevated view of the water was used by only one in three pedestrians exiting the North Bluff terminal site up Seaview Avenue Extension—particularly if they were pushing strollers or pulling luggage. The sidewalk was used primarily by people loading into cars parked along the street, which often restricted others from passing. The split-rail fence prevents pedestrians from stepping around such obstructions. Proceeding up the hill, Seaview intersects with Oak Bluffs Avenue and the Authority's terminal entryway to the town. The block between Pasque and Oak Bluffs avenues experiences pedestrians from both North Bluff and the SSA terminal walk along the west street edge and cross Seaview Avenue Extension at multiple points. Southbound traffic on Seaview Avenue Extension backed up from the intersection with Oak Bluffs Avenue when the *Island Queen's* arrival overlapped that of the SSA. Even in such circumstances, all vehicles cleared the intersection within 15 minutes of the ferry's arrival at North Bluff.

The only traffic back ups observed on Circuit Avenue Extension were momentay, resulting from motorists picking up passengers at North Bluff blocking the street's path between the lower and upper parking lots of North Bluff. Vehicles must enter the street via Oak Bluffs Avenue and traffic is usually very light—between ferry arrivals, employees of one abutting business routinely tossed a football to one another in the street, stopping for the occasional vehicle. Ferry passengers were more likely to exit the North Bluff terminal along the northern end of Circuit Avenue Extension, where no pedestrian way exists, rather than use the harborside walkway and its connection to the street's pedestrian way. Private parking and service access requires vehicles to cross the Circuit Avenue Extension pedestrian way. Occasionally, parked vehicles extended over

Table 3-I

Port Area Infrastructure Supporting Passenger Ferry Service

Oak Bluffs - Harbor Terminals Surroundings

Element	Quantification
Pedestrian Way	Seaview Av Extended: E side - 5' concrete (reduced to <4' by overhang from DP); W side - 5.5' concrete extending S 1/2 block from Pasque Av Lake Av: S side, Circuit to Central - 5' to 13' irregular surfaced asphalt reduced at one point to 4' by utility pole (PP near Circuit); S side, W of Central - 4' asphalt separated vertically and horizontally from Lake Av; N side - short 3' brick segment connected to harborside walk by 4' marked edge of private, 4-car parking area Circuit Av Extended: W side, +8' wide marked roadway edge Pasque Av: S side, 5.5' concrete extending 80' from Seaview Saco Av: no walks
Crosswalks	Across S ends of Circuit/Seaview avenue extensions; across fork of Lake/Oak Bluffs avenues; 3 cross Lake Av along S harborside walk
Bicycle	Racks at SW corner of Lake and Circuit, and at SE corner of harbor
Vehicle Circulation	Lake Av primary road from Tisbury; traffic flows to North Bluff via both Seaview Av Ext and Circuit Av Ext (latter is one-way N-bound, accessable only from W-bound Oak Bluffs Av)
Pick-up/Drop-off	No space dedicated for ferry use; parking N side of Lake Av; 5 diagonal spaces on Circuit Av Ext; 38 spaces along E side of Seaview Av Ext
Transit	VTA ran on Lake Av and Circuit/Seaview extensions; stops are beyond area, at E end of Lake Av and N end of Seaview Av
Taxi	4 reserved spaces on S side Lake Av, W of Circuit
Tour Bus	Tickets at S end of Circuit Av Ext; bus at opposite end in North Bluff lot
Signage	"Welcome to Oak Bluffs" sign between Circuit Av Ext and harborside walk before S end of North Bluff parking lot near convergence of walkways
Information	At S edge of area, at Circuit Av
Telephones	At edges of area near SSA terminal and at SE corner of harbor
Seating	Some provided by abutters along Circuit Av Ext.
Shelter	Some commercial building awnings off public right-of-way
Rest Rooms	At edge of area, next to SSA terminal (another at SW corner of harbor)
Drinking Fountain	At edge of area, near Information Booth
Trash Cans	Principally at street corners; several Dumpsters between Lake Av and harborside walk
Lighting	Pedestrian-scale streetlamps along E side of Seaview Av Ext; cobra-head streetlights elsewhere
Amenities	Water view / beach access from Seaview Ext; views along harbor's S side
Miscellaneous	Concentration of bike, moped and auto rentals N and W of Circuit Av

the walkway. A more common obstruction occurred at the southern end near the intersection with Oak Bluffs Avenue where people queued for tour bus tickets. Stormwater puddled in the midsection of the walkway.

Any presence of ferry passengers along the segment of Lake Avenue between the harbor and Oak Bluffs Avenue was not distinguishable from the background level of pedestrian activity. This corresponds to the paucity of ferry passengers observed on the harborside walk south of Dockside Pier. The volume of all pedestrian activity along this segment of Lake Avenue appeared to be less than that on the eastern portion of Lake Avenue or on Oak Bluffs Avenue, but people frequently walked in the northern street edge of Lake Avenue. The short segment of sidewalk at the western end was so narrow or serpentine that pedestrians often chose instead to walk along the street, on the street-side of parked vehicles. Congestion of infrastructure at the southeast corner of the harborside is noted in the discussion of circulation in the Dockside Pier Area section of this study. Not only is the conspicuous placement of the trash Dumpsters a disincentive for pedestrians to use this corner, but refuse trucks emptied the Dumpsters in the early afternoon—a prime time for pedestrians to be walking about. On one occasion the truck blocked the primary crosswalk.

Infrastructure Shortcomings

Below are the shortcomings in the infrastructure supporting passenger ferry service in the Harbor Terminals Area. Their locations are indicated on Figure 3.7.

1. No horizontal or vertical separation between marked walkway and vehicles on Circuit Avenue Extension
2. Storm water puddles in marked walkway along Circuit Avenue Extension
3. Parked cars along Seaview Avenue Extension reduce sidewalk width to less than four feet
4. No direction or information signs for arriving passengers
5. Vehicular access can be difficult: to Circuit Avenue Extension only from westbound Oak Bluffs Avenue; prohibited to Seaview Avenue Extension during SSA debarking
6. No continuous demarcated walkway along north side of Lake Avenue
7. Irregular asphalt sidewalk along south side of Lake Avenue with numerous obstructions
8. Primary Lake Avenue crosswalk at southeast corner of harbor is doglegged
9. Two Lake Avenue crosswalks missing short connection from street edge to harborside walk

Town Plans

The Town of Oak Bluffs has several studies and plans affecting the study area but they focus more on the harbor than the SSA terminal area. Few address passenger ferry service in quantifiable terms. The Oak Bluffs Harbor Plan adopted in 1998 builds upon these prior documents to define an overall carrying capacity for vessels based on dockage and moorings, but not the frequency or size of ferry vessels. The plan's policy to retain the existing location and extent of berths for commercial fishing vessels, however, could limit the expansion of ferry service further along the harbor bulkhead where the *Island Queen* docks.

For decades, studies identified inadequate wastewater disposal as a factor limiting growth in downtown Oak Bluffs. This area generates 70 percent of the town's annual septage volume. The town began construction of a central sewer system in 2000 that will include the commercial center and be operational by 2001. The design capacity of the sewage treatment facility assumes a three percent annual growth rate in both commercial development and ferry passenger service over twenty years. Drawing attention to the fact that local development regulations do not limit commercial development to the design growth rate, the facility needs-analysis recommends the town adopt regulations to keep demand for use of the sewer within the design capacity.

The 1998 Oak Bluffs Master Plan suggests high community support for limiting additional development in the downtown area. Survey responses from year-round and seasonal residents showed 65 percent of the respondents opposed commercial growth at the harbor and 57 percent opposed to such growth in the downtown business area. Nevertheless, the master plan policy is to confine business growth to existing business districts, but to control development via an unspecified sewer allocation system. While not addressing sole the ferry terminal areas, the master plan also recommends increased lighting and placement of trash receptacles in the downtown business district.

Studies have identified public rest rooms as a infrastructure shortcoming since at least 1981, then the Oak Bluffs Harbor Study proposed rest rooms at three locations around the harbor perimeter. Since then, a bathroom and shower facility for sailors was constructed at the southwest corner of the harbor, away from the concentration of commercial and pedestrian activity. In 1996, rest rooms were proposed as part of extensive improvements at North Bluff, but were subsequently rejected as obstructing views of the harbor by abutting landowners. The 1998 harbor plan recommends a rest room facility on town land adjacent the southeast corner of the harbor. Away from the harbor, the old rest rooms next to the SSA terminal are antiquated and not handicapped accessible. A rest room facility was constructed in 1998 along Kennebec Avenue, about three blocks from the harbor's southeastern corner.

The town acknowledges the importance of visual connections to the harbor from surrounding lands in both the 1995 Open Space Plan and the harbor plan. In 1997, the planning board adopted harbor area design guidelines for use with the site plan review authority granted by the harbor's designation as a District of Critical Planning Concern. The harbor plan recommends infrastructure changes along the Lake Avenue border of the harbor to improve the appearance of the harbor area. Improvements include the burying of utilities, switching street parking to the south side of Lake Avenue, and landscaping along both sides of the street.

The harbor plan also recommends specific infrastructure changes to improve parking and traffic flow in the "Island Queen Area" (termed "North Bluff" in this study) to remedy existing congestion. Separation of vehicular through-traffic from waterfront traffic, improved waterfront pedestrian domain, bike racks and trash receptacles are delineated in the plan and included in a 1998 conceptual plan adopted by the selectmen. A few attempts to implement the conceptual plan, most recently in the spring of 2000, have stalled due to concerns that a structure would block views of the harbor, disagreement over parking space allocation and questions regarding the directional flow of automobile traffic on the streets in the peninsula.

While not a town plan or project, the current planning by the SSA for the renovation of its Oak Bluffs terminal facility is engaging ideas from the town and public. The town's master plan promotes locating staging areas over the water to relieve congestion. Project objectives identified by the SSA include lengthening the seasonal period in which the terminal can handle vessels and provide flexibility to accommodate future changes in vessel design and size. The redesign will also seek to eliminate conflicts between pedestrians and vehicles, coordinate traffic circulation with the surrounding area, and encourage connections with public transportation. Initial findings and alternatives were presented to the community early in 2000 and a local advisory committee has been established. Selection of an alternative and permitting are not foreseen to be completed for about two years.

Conclusions and Suggestions

Of the roughly 5,200 people estimated to have been ferried to Oak Bluffs on a typical sunny day in August 1999, about 4,500 of them were not transported with a motor vehicle. The non-vehicular arrivals at Oak Bluffs represented nearly 48 percent of the daily volume to the entire Island. While the passenger volume was remarkably evenly distributed among the three Oak Bluffs carriers and each carrier ran seven daily round trips, the impact of each carrier upon Oak Bluff varied. The *Martha's Vineyard* ran alternately by the SSA

has two to three times the capacity of the private vessels, which contributed substantially larger groups of passengers to downtown at one time than did the private carriers. Hy-Line's Nantucket route, accounting for more than one fifth of its volume, flowed opposite the direction of the other routes—most passengers departed in the morning and returned to Oak Bluffs later in the day. And the vehicles ferried by the SSA, while not the focus of this study, have an inescapable impact upon the ability of pedestrians to move about or to be picked up by cars, taxis or buses to exit downtown.

The opposing locations of the ferry terminals at the perimeter of downtown allows for multiple pedestrian routes for passengers to disperse from and assemble at the terminals. Downtown's development and infrastructure, however, generally direct pedestrians back to the central crossroads of the Circuit Avenue intersection with Lake and Oak Bluffs avenues, just as vehicles are also funneled to this intersection. In the very center of this activity is the small visitor information booth; strategically located from the standpoint of not being overlooked. The only other location for information or directions in the entire study area lies inside the small SSA terminal building.

With a few notable exceptions, most streets have a pedestrian way along at least one side, all of which are at least four feet wide. Several sections, often in front of businesses with vehicle access from the street, have no curb or pavement markings to delineate the pedestrian way. Most sidewalks are buffered from moving vehicles by curbside parking.

The extensive use of diagonal parking instead of parallel parking in downtown Oak Bluffs accommodates more vehicles than would parallel spaces, increasing the potential for cars picking up ferry passengers to locate a space. Diagonal parking also shortens the time for cars to park, which shortens back ups of trailing vehicles. But diagonal parking creates wider roadways for pedestrians to cross and lengthens the time motorists must yield for crossing pedestrians.

The harborside walkway is among the widest continuous pedestrian way in any of the port towns. It is also atypical in that it is not part of a street right-or-way. Nevertheless, the way's eight-foot width is not overly generous due to the numerous intrusions by seating on both sides, planters, and patrons of abutting businesses reducing the effective width. Regular use of half the width by Hy-Line passenger queue lines severely reduces the mobility for pedestrians on the shoreside half. As most passengers arrive to Dockside Pier via the brick walk, where the queue line begins, passengers also usually walk on the shoreside half in order to take their place at the end of the line. The imposition is especially acute when passengers awaiting cruise ship tenders are queued in the same manner south of Dockside Pier, where the effective width of the walkway is narrowed by street furnishings and abutting uses facing the walk and harbor.

Suggestions for Improving Port Area Infrastructure to Accommodate Passenger Ferry Service at Oak Bluffs

There are several actions to improve the infrastructure supporting ferry passengers that are common to all three of the Island's port towns. These are listed below and explained in the Combined section of this study. After that are several detailed suggestions specific to Oak Bluffs but listed in no particular order of priority.

Overall Suggestions

a. Circulation of this infrastructure capacity study to the towns and stakeholders for comment.

b. Each town should identify principal pedestrian routes in their village centers to which the ferry terminals would be linked, prioritizing the filling in of any missing links.

c. The towns, business communities and ferry carriers should consider a unified way-finding system to aid visitor circulation. Consistent symbols, colors and terminology would be presented to ferry users beginning onboard the vessels and with any mailed promotional information.

d. Conduct sample surveys from all ferry lines to update passenger profiles.

e. Each ferry vessel should provide orientation diagrams of the terminal and village center of its Vineyard port, showing major destinations and locations of additional information.

f. Explore the feasibility of a program complementary to that for drivers yielding to pedestrians at crosswalks: educate pedestrians of laws requiring use of crosswalks, post signs and conduct appropriate enforcement. This should be integrated with any relocations of or additions to the crosswalks in the villages (and, perhaps, the entire island).

Oak Bluffs Suggestions

a. Conduct a traffic circulation study of downtown as it affects land transportation modes supporting the three Oak Bluffs terminals.

b. Incorporate orientation signs identifying locations for information, major destinations, rest rooms and transportation connections at or adjacent each of the three terminals.

c. Provide an orientation map and standing area off the sidewalk at the southwest corner of Seaview and Oak Bluffs avenues.

d. Evaluate the building and land of the vacated Town Hall as an opportunity site in which a visitor information center might be incorporated as part of new development.

e. Reconfigure SSA use of Seaview Avenue frontage: widen the sidewalk and provide a more direct link from passenger ramp to primary crosswalk; provide better control of vehicular and pedestrian circulation by use of a curbed island that would also be a protected, midway stopping point for pedestrians crossing Seaview.

f. Enlarge the SSA terminal building in coordination with any supporting infrastructure that may be placed across Seaview Avenue from the terminal (see "c" and "d" above).

g. Replace the old rest room facilities at the northeast corner of Seaview and Oak Bluffs avenues to a different location.

h. Designate a pedestrian way leading from Oak Bluffs Avenue to rest rooms on Kennebec Avenue, using hours-restricted loading zones if necessary.

i. Hard-surface the staging area for bus passengers at the eastern end of Lake Avenue and provide additional seating.

j. Coordinate, if not consolidate, the multiple bus stop locations in the vicinity of the SSA terminal.

k. Widen the Seaview Avenue Extension sidewalk to eight feet or provide periodic "turn outs," either of which might also incorporate seating.

l. Improve North Bluff gateway with seating, shelter and planters along harbor and pedestrian-scaled lighting throughout. Create a pedestrian way from the harborside to Seaview Avenue Extension sidewalk, and relocate or screen the Dumpster at the pedestrian connection to Circuit Avenue Extension.

m. Extend the pedestrian way along Circuit Avenue Extension north to the North Bluff upper parking lot by continuing pavement markings along the east side of the street. At the south and north ends of this new segment, place crosswalks linking to existing pedestrian ways.

n. Create a continuous pedestrian way along the north side of Lake and Oak Bluffs avenues between Circuit Avenue Extension and the harbor by reducing the width of the roadway.

o. Improve pedestrian circulation at the southeast corner of the harbor by reducing congestion of furnishings and utilities, and reconfiguring or removing private parking to create a wider, more direct pedestrian way connecting to the north sidewalk of Lake Avenue.

p. Reduce roadway width along the south side of Lake Avenue to expand the sidewalk width between Circuit and Central avenues.

q. Increase the amount of bicycle parking at the south side of harbor, possibly in conjunction with town plans for improvements along Lake Avenue.

r. Straighten the doglegged crosswalk of Lake Avenue at the harbor's southeast corner, either diagonal or perpendicular to the street. Create a pedestrian landing at south end. If curbside parking is shifted to the south side along this road segment, create a neck-down to slow traffic entering downtown (a neck-down for the same purpose may also be desirable at the Lake Avenue crosswalk immediately east of Dukes County Road).

A major focus of the suggested traffic study would be to evaluate the consequences of allowing southbound traffic on Seaview Avenue from the controlled intersection at the SSA terminal. While the additional traffic movements at this intersection may lengthen the dispersal period for arriving passengers and vehicles, it would lessen vehicular activity in the more congested, uncontrolled intersections farther down Oak Bluffs Avenue and on Lake Avenue. Allowing southbound traffic exiting the terminal or crossing from Seaview Avenue Extension to proceed directly to Seaview Avenue removes these vehicles from having to make one to three additional turning movements and navigating five more intersections with crossing pedestrians.

Use of sidewalk bulb-outs, road neck-downs or, where appropriate, mid-street islands could help reduce the length of crosswalks of Seaview, Oak Bluffs and Lake Avenues. Some street edges have no pedestrian way but have diagonal parking. Changing to parallel parking or elimination of the spaces would provide room for new or expanded sidewalks, but would also reduce the number of parking spaces.

Completion and widening of walkways on both sides of Lake Avenue west of Circuit Avenue can be accomplished be borrowing from the wide road width. In front of Mad Martha's, extending the curbed sidewalk presently used for a patio will also serve to shorten the crosswalk distance of Oak Bluffs Avenue. At the other end of the block face, widen the short segment of narrow sidewalk in front of Nancy's by removing the single 15-minute curbside parking space. Connect the two sidewalk segments with pavement markings along the curbless span, south of the fueling station ramps.

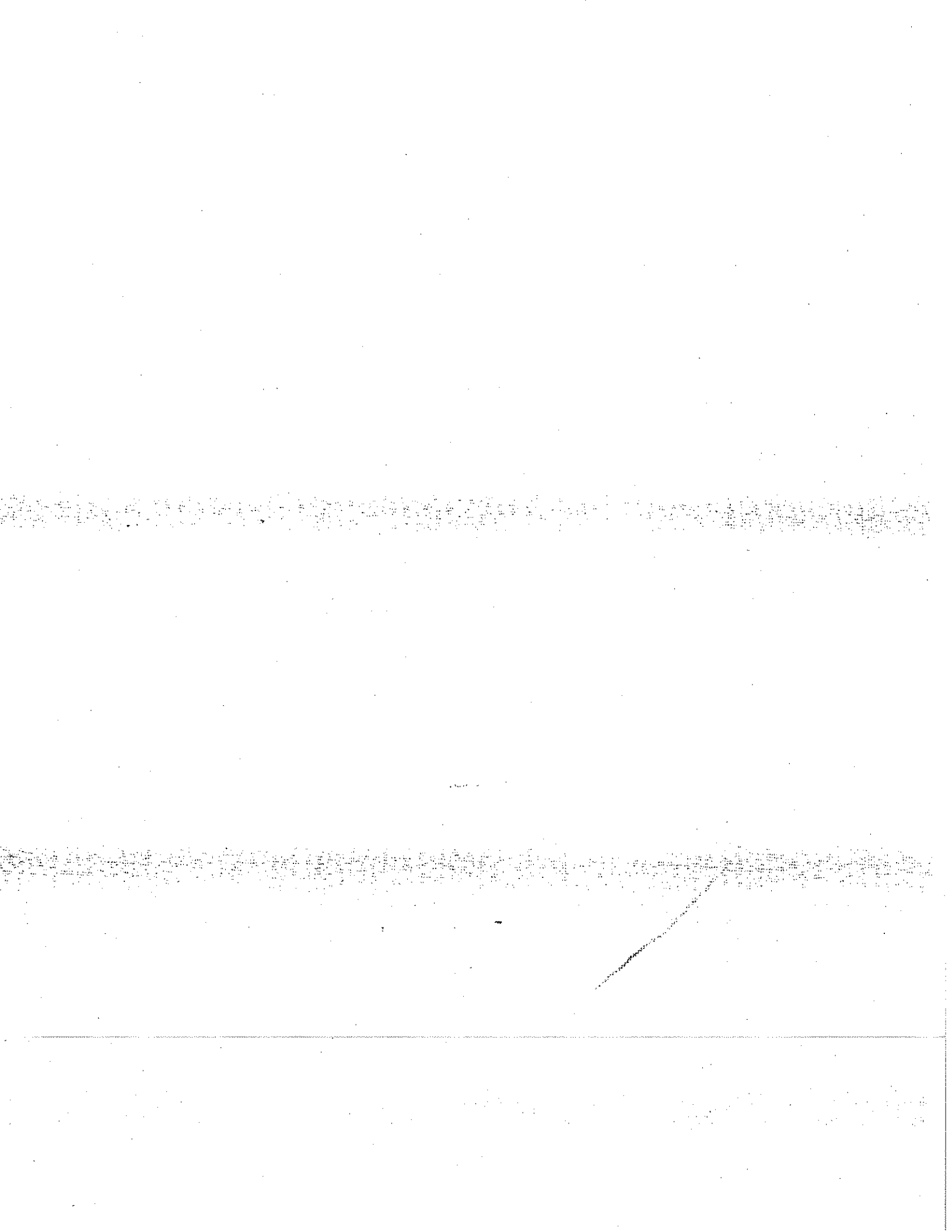
Direction signs and information at the perimeter terminals could prevent people from unnecessarily "following the crowd" to the center of activity and congestion at the Circuit Avenue intersection. Orientation of passengers at the terminals could also keep people to pedestrian ways, especially at the North Bluff terminal, where the majority of pedestrians cross the parking lot to Circuit Avenue Extension despite two connecting pedestrian ways to the south, from the harborside walkway.

A quick remedial step addressing the competition for space along the harborside walkway would be to reduce the passenger queue line width to three feet. While queued passengers may have luggage, strollers or shopping bags, they do not need to pass one another, so reducing the width of their line would not negatively effect passengers and would expand the "public" walk 25 percent or more. When possible, queue lines for tenders should extend north instead of south of the pier. Relegating all passenger queue lines to the north of Dockside Pier would be difficult since passengers can begin to form lines an hour before sailing time, which can overlap the sailing of another ferry or tender. Any future development that proposes to extend the active frontage northward should be evaluated to prevent duplicating the congestion that exists when passengers queue south of Dockside Pier.

Several suggestions address improvements to Lake Avenue west of Circuit Avenue. While this area was not observed to be used by concentrations of ferry passengers, infrastructure improvements could increase the importance of the harborside walkway in distributing or directing passengers of the harbor ferries. Similarly, improvements to North Bluff provide an opportunity to better showcase the water views and make the tip of

the peninsula a destination point for pedestrians, whether ferry passengers or not. Looked at in broader context, pedestrian circulation around the perimeter of North Bluff could link the harborside walkway and a widened, more accommodating sidewalk along Seaview Avenue Extension, resulting in an extensive, continuous waterfront walkway around all of downtown Oak Bluffs.

Finally, several concurring events provide the community a rare opportunity to reevaluate some of the fundamental "givens" of how downtown is ordered. The vacating of the Town Hall across from the SSA terminal, the introduction of community sewers to downtown and the present potential redevelopment of the SSA terminal are three significant changes that expand the options for a critical cornerstone of downtown Oak Bluffs. The Town, SSA and other stakeholders should consider whether new development at the prominent corner across from the SSA terminal could extend the active portion of the Oak Bluffs Avenue streetscape up from the Flying Horses and provide needed infrastructure to support ferry activity. Reconfiguration of the SSA terminal should attempt to benefit all users of downtown. This may not mean incorporation of visitor information or rest rooms in excess of SSA passenger needs at the terminal if those infrastructure items may be more effectively provided across Seaview Avenue or elsewhere. Complementary redevelopment of this intersection that reinforces the other downtown infrastructure to accommodate people will make for a more integrated downtown and an improved gateway to Oak Bluffs and the Island.



Edgartown Harbor

Synopsis

The expansive Edgartown Harbor lies between Edgartown and Chappaquiddick. It is highly popular with pleasure boaters in the summer. The commercial or public portion of downtown's waterfront rises from the narrow "inner harbor" across from Chappaquiddick Point. This span is plied by the small vessels of the Chappaquiddick Ferry. Downtown's historic buildings and tight, urban form provides an intimate, human scaled environment for pedestrians. This dense development pattern also limits the width of street rights-of-way, restricting the mobility of pedestrians as well as vehicles.

Despite the popularity of downtown Edgartown as one of the Island's most popular tourist destinations and its easy access to the picturesque Edgartown Harbor, only one off-Island ferry serves Edgartown. Licensed for 60 people, the ferry was the smallest in this study. Fewer than 250 passengers per typical peak day arrived in Edgartown in 1999—less than 2 percent of daily passengers to the Island.

The small number of ferry passengers befits the infrastructure constraints existing to support passenger ferry service at the downtown waterfront. The facilities at Memorial Wharf are shared with several other uses throughout the day, with none dedicated solely for ferry use. Though only a handful, cars picking up passengers often fill the maneuvering area of the wharf's parking lot. The street network precludes tour buses from serving the waterfront, an important mode to dispersing ferry passengers at the other port towns. Missing pedestrian ways require pedestrians to walk in the street. The very low volume and speed of vehicle traffic on Dock Street, and the background level of pedestrian activity not associated with the ferry, results in portions of the street becoming more a pedestrian domain than a vehicular one. However, the mix of pedestrians and vehicles varies along the length of Dock Street and throughout the day. No signs or markings inform either walkers or motorists of what to anticipate.

Despite the shortcomings of the existing infrastructure at the waterfront, the very low volume of ferry passengers, compared to the background level of congestion, made no disruption of consequence to the area. Activity associated with the ferry dispersed from the wharf within five to ten minutes of the ferry docking. By the time ferry passengers made it to Water Street, they were dispersed enough not to be noticeable amid the much higher background level of pedestrian activity in the commercial core of downtown.

Town plans to draw more downtown visitors to the waterfront with improved infrastructure might also accommodate more ferry passengers; it could also result in extending the heavier congestion of the commercial core to the waterfront, making it more difficult to expand ferry service. Whatever improvements are made along the waterfront, unless there is a fundamental difference in the mobility needs of the passengers to Edgartown, substantial expansion of ferry service at Edgartown will need to address the congestion and vehicle circulation patterns in the remainder of downtown that constrain access to and from the waterfront.

Overview of Harbor Area

Edgartown lies southeast of Vineyard Haven and Oak Bluffs. Edgartown Harbor extends south from Nantucket Sound between the main land mass of Edgartown and Chappaquiddick Island to Katama Bay. A fleet of commercial fishing vessels continues to dock in Edgartown Harbor year-round but their numbers are greatly surpassed by the summer volume of pleasure boats. The high visual quality of the historic village and easy access to downtown combine to make Edgartown Harbor a highly desired "destination port" for recreational boaters.

The expansive harbor narrows to less than 600 feet between Chappaquiddick Point and downtown Edgartown (Figure 4.1). It is at this constriction—the "inner harbor"—that the commercial and harbor dependent uses of Edgartown's downtown abut the waterfront. The narrow inner harbor is the docking point for the sole off-Island passenger ferry serving Edgartown. A unique activity that also occurs in the inner harbor is the small, "on demand," Chappaquiddick Ferry that runs year-round between downtown and Chappaquiddick Point,

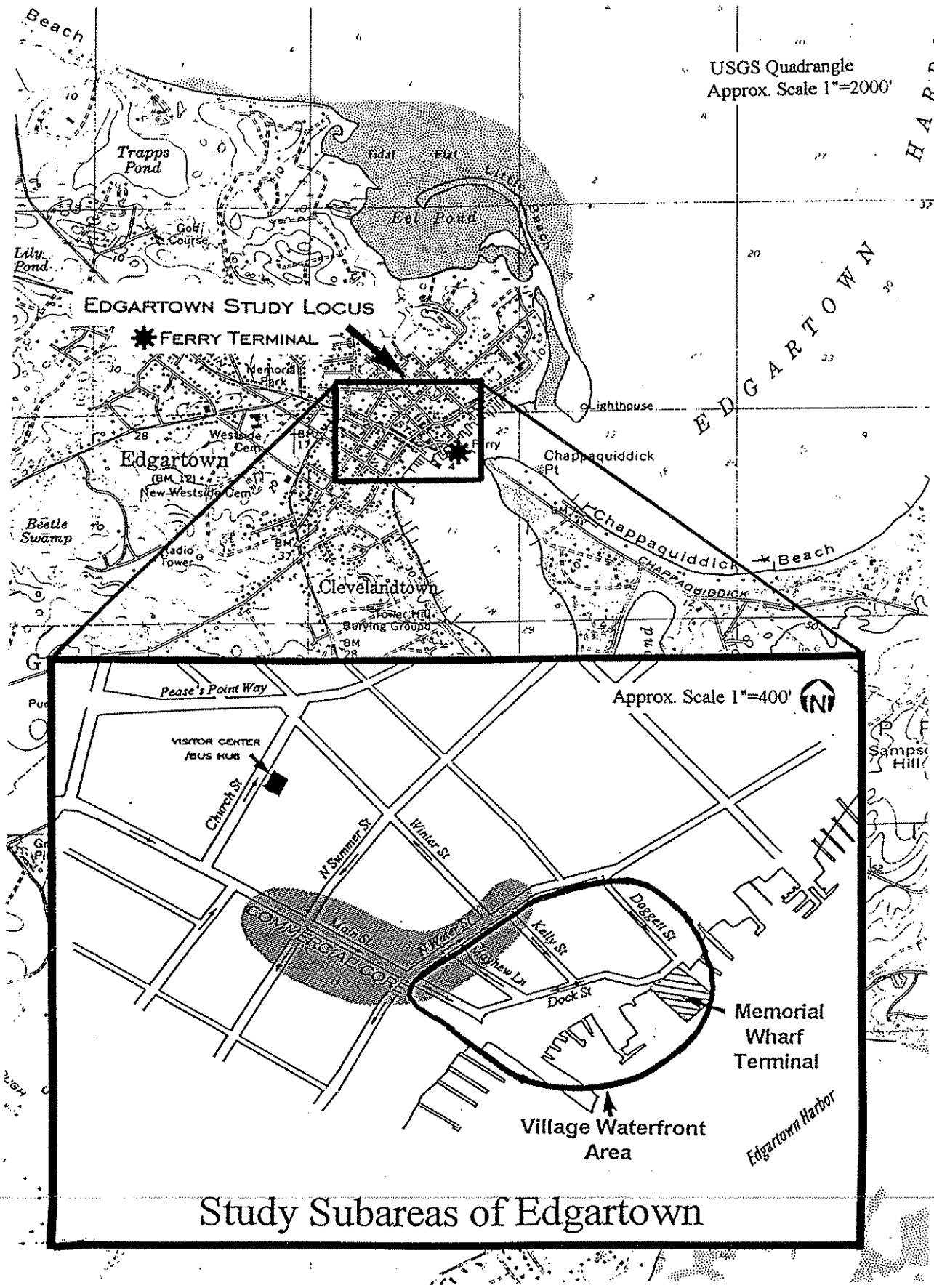

USGS Quadrangle
Approx. Scale 1"=2000'
EDGARTOWN STUDY LOCUS
FERRY TERMINAL
Trapps Pond
Eel Pond
Lily Pond
Golf Course
Memorial Park
Westside Cem.
Edgartown
New Westside Cem.
Beetle Swamp
Radio Tower
Clevelandtown
Tower Hill Burying Ground
Lighthouse
Chappaquiddick Pt
Chappaquiddick Beach
CHAPPAQUIDDICK
EDGARTOWN HARBOR
Pease's Point Way
Approx. Scale 1"=400'
VISITOR CENTER /BUS HUB
Church St.
N. Summer St.
Winter St.
Main St.
COMMERCIAL CORE
N. Water St.
Kelly St.
Doggett St.
Cathew Ln.
Dock St.
Memorial Wharf Terminal
Village Waterfront Area
Edgartown Harbor
Sampson Hill
Study Subareas of Edgartown

Figure 4.1

running perpendicular to the rest of the harbor traffic. The sole off-Island ferry serving Edgartown docks at Memorial Wharf. This small ferry from Falmouth accounted for less than 2 percent of all Island-bound ferry passengers on a typical peak day.

Downtown Edgartown extends west from the inner harbor (Figure 4.1 inset). It is recognized as a New England seaport village of high architectural integrity and is a principal destination area for visitors to the Island. Downtown is compact and pedestrian-scaled. Small shops line narrow, one-way streets in a rectangular street grid. Unlike the other two Island ports, the area surrounding the ferry terminal in Edgartown does not include a major road carrying through-traffic. The one- and two-block-wide commercial area extends three blocks from the waterfront to a visitor center. The highest concentration of commercial and pedestrian activity, the commercial core, occurs along Main Street and North Water Street. The pervasive congestion present in the commercial core is not a function of ferry service to Edgartown (the extent to which activity in Edgartown is a function of ferry service to Vineyard Haven or Oak Bluffs, which then travels over land to Edgartown, is not within the scope of this study).

To evaluate the infrastructure of downtown Edgartown that supports ferry traffic, this study divides downtown into two sections and concentrates on the waterfront edge of downtown immediately surrounding the ferry terminal, called the "village waterfront." While containing many retail establishments and intrinsic to downtown, the village waterfront is distinguished from the commercial core in several ways. The waterfront area is not as congested—with either cars or pedestrians—as the remainder of downtown. Streets in the waterfront area are less pedestrian oriented due to an absence of sidewalks or curbside parking. Parking lots create gaps in the street facade, reducing density of development and interrupting the streetscape.

Harbor Capacity

While this study's focus is on land-based infrastructure, the following considerations are provided as context to the discussion of the supporting infrastructure.

Memorial Wharf at the ends of Dock and Daggett streets is where the only off-inland ferry to Edgartown docks. Only a portion of the wharf is used by the ferry and only for several brief periods throughout the day. The 100-foot-long southeastern side of the wharf could physically accommodate a much larger vessel than the 60-foot Pied Piper now in use. The small capacity of the ferry allows it to exchange passengers quickly—docking for less than ten minutes at a time. This side of the wharf is also used for temporary berthing of large transient vessels and by boats using the wharf's sewage pump out facility. The 140-foot southwestern side of the wharf is deep water berthing for commercial fishing vessels. The Chappaquiddick Ferry operation prevents use of the shallower, northeastern side of Memorial Wharf.

Some 400 feet to the northeast of Memorial Wharf, the town also owns North Wharf. This wharf has the capability to dock ships in excess of 200 feet in length, but is an important docking facility serving pent-up demand for transient pleasure boats. Located at the end of Morse Street, North Wharf is a block beyond the commercial area of downtown, past a residential area. A privately owned pier exceeding 90 feet in length lies just west of Memorial Wharf and berths an excursion vessel.

Docking facilities exist to accommodate additional or larger ferries, but the demand for dockage by other watercraft and the congestion in the narrow inner harbor are waterside limitations for the prospect of expanded ferry service at the downtown waterfront. The high demand by recreational boaters—where there is a waiting list for available dockage—and the town's desire to retain commercial fishermen, the question of expanded ferry service to Edgartown may rest largely on what the community feels is the appropriate balance of water related uses and other recreational uses of the Memorial Wharf.

Ferry Carrier

Passenger ferry service in Edgartown Harbor has been provided seasonally since 1994 by the Falmouth Ferry Service with the *Pied Piper*. In 1999 the vessel ran five daily round trips originating from and returning to Falmouth, with one additional trip on Friday evenings. The *Pied Piper* is approximately 60 feet in length and is licensed by the SSA to carry 60 people. This is the smallest of the ferries considered in the study. The small capacity allows the boat to dock and cast off again within ten minutes, with total time in the Inner Harbor typically under twenty minutes. The peak daily sailing arrives at 11:00 a.m. and is reported to average 90 to 95 percent capacity with frequent sellouts. Excess demand for the Sunday evening return to Falmouth often necessitates the carrier to refer people to other Falmouth-bound ferries or booking them on the Monday morning sailings. Reported ridership figures for August 1999, averaged 178 people per day, which the study estimates to be 231 people during typical peak days, or between 64 and 77 percent of capacity. The estimated ridership represents just 2 percent of the combined daily ridership of the three port towns.

The carrier reports that a majority of the *Pied Piper's* passengers are day-trippers, with perhaps a fifth staying longer. Edgartown is the Vineyard destination for all passengers. There is a growing repeat clientele comprised of seasonal Vineyard residents—many on Chappaquiddick—which accounts for perhaps 20 percent of weekend business.

Memorial Wharf Terminal

Infrastructure

The Edgartown Memorial Wharf is a distinctly public space with multiple uses--not all of which involve accommodating watercraft. The wharf is controlled by the Edgartown Parks Commission. A special feature of the wharf is that it is sheltered by a roof structure but open on all four sides. This not only provides shelter from sun and rain, but allows for air movement and retains visual connection to the harbor. Stairs lead atop the roof to bench seating and a panoramic view of the harbor. Recreational fishermen—often kids and families—are a nearly constant presence fishing from the wharf. Fishermen frequently must make way for vessels docking at the wharf. Picnic tables and benches under the shelter are a popular spot to picnic, watch the activities on the wharf and in the harbor, or simply rest in the shade. Figure 4.2 shows the functional areas of the terminal. Table 4-A contains an inventory of infrastructure elements supporting passenger ferry service at Memorial Wharf. Several elements are highlighted below.

Attached to the shelter is a small office for the harbormaster (which was removed in early 2000, after this study's observations). A separate small building for the Chappy ferry operation lies on the other side of a twenty-car asphalt parking lot. One bicycle rack stood in a corner between the parking area and the wharf shelter. Midway through the summer observation period, the bike rack was relocated from an otherwise unused corner of the parking area. This made access to the bikes easier but removed one side of the rack from use and removed one parking space. A wooden planked walkway, varying from three to four feet wide, runs along the southwest side of the terminal site between the commercial fishing dockage and the terminal parking lot.

No restrooms or drinking fountains are available at the wharf (although a boy was observed drinking water from a water hose on the wharf). The sheltered area of Memorial Wharf is well lit and three pedestrian-scale street lamps line the wharf walkway to Dock Street. The stairs and parking area are less well lit. No maps or signs orient or guide visitors at Memorial Wharf. The only information available at the wharf are fliers for the *Pied Piper* and the occasional business leaflet stapled to the wharf's posts. A protected display case containing a map highlighting sea animals stood next to the harbormaster's office at an entrance to the shelter from the parking lot.

Circulation

About two-thirds of peak-time ferry passengers exited the terminal site by foot. Twenty percent of the *Pied Piper* passengers were picked up by waiting automobile. Sometimes passengers had parked bicycles at the

Table 4-A

Port Area Infrastructure Supporting Passenger Ferry Service
Edgartown - Memorial Wharf

Element	Quantification
Pedestrian Way	3' to 4.5' wooden-planked along commercial fishing dockage
Crosswalks	None
Bicycle	One bike rack
Vehicle Circulation	Large manuevering area in center of parking lot used as turn-around for Dock Street traffic
Pick-up/Drop-off	Parking for 19 cars (4 reserved), none dedicated for ferry use
Transit	VTA stop 500' (1.9 minutes) away on Mayhew Lane
Taxi	Stand for 3 taxis 450' (1.7 minutes) at SW end of Dock Street
Tour Bus	1,750' (6.6 minutes) away at Visitor Center
Signage	One protected message case at an entrance to shelter and one message board under shelter; no welcome, informational or directional signs or maps
Information	1,750' (6.6 minutes) away at Visitor Center
Telephone	500' (2 minutes) away at foot of Main St
Seating	4 picnic tables under roof; seating for 45 on 8" boards at waterside edge of shelter; one bench at commercial fishing dockage; rooftop benches for 55
Shelter	Approximately 2,800 sq. ft. under roof
Rest Rooms	1,750' (6.6 minutes) away at Visitor Center
Drinking Fountain	1,000' (3.8 minutes) away along Main Street (water hose exists at shelter)
Trash Cans	3 under the shelter and 1 at street-end of plank walk
Lighting	Cobra-head streetlighting of parking lot; 3 pedestrian-scaled lamps along plank walk; overhead lighting beneath the shelter
Amenities	Seating under shelter and atop roof afford view of harbor, shoreside and wharf activities; WWII memorial with plaque, landscape planting and flag pole
Miscellaneous	Multi-use facility and abuts Chappy Ferry

wharf and rode away from the terminal. No attempt was made to track ferry passengers beyond the terminal to determine if they availed themselves of the two parking lots, VTA bus stop, or the taxi stand, all of which lie two blocks away from the terminal. A single taxi dropped off passengers in half of the observations. Up to five bicycles were observed being carried aboard the ferry.

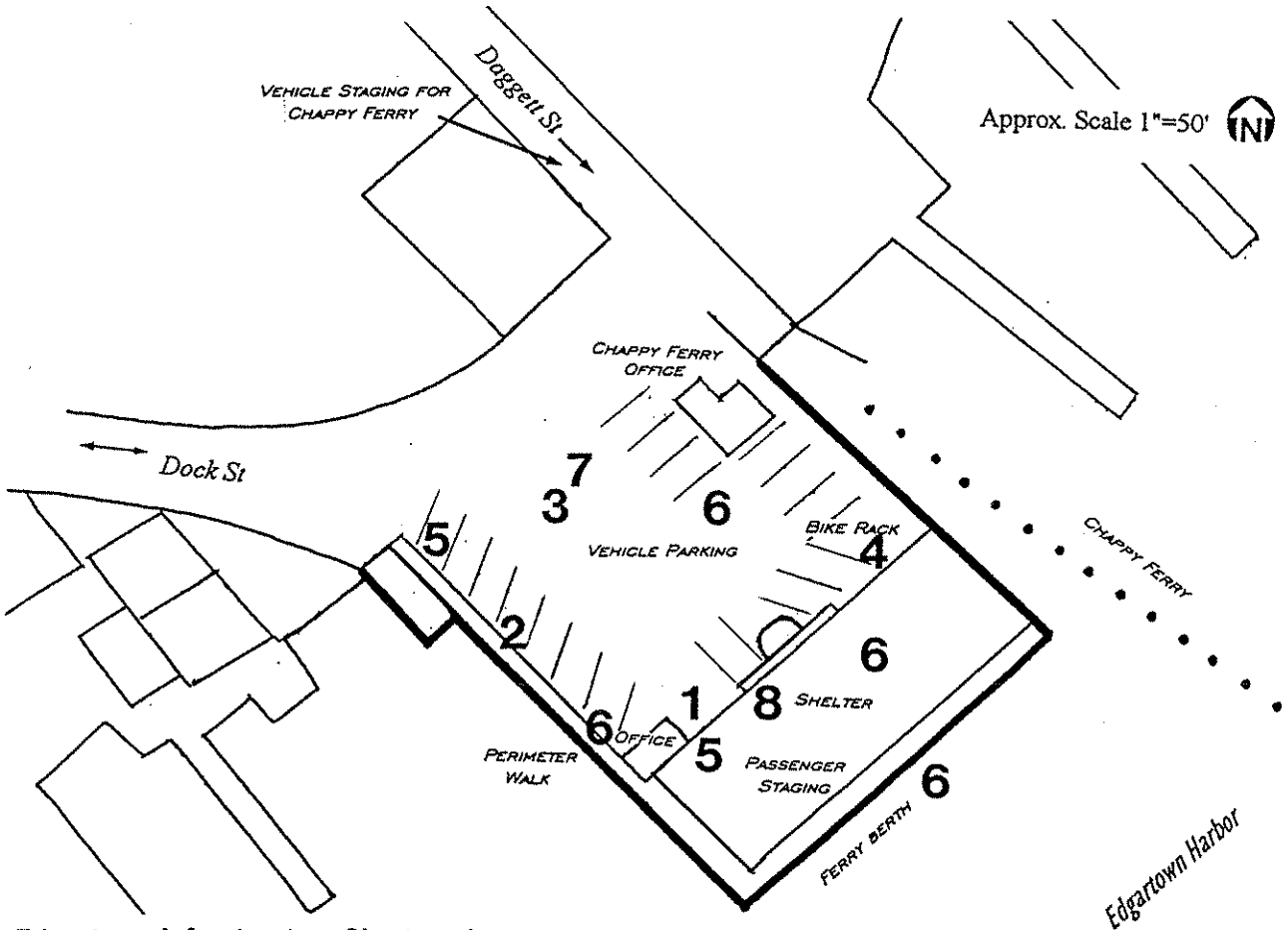
Virtually none of the passengers or other visitors to Memorial Wharf used the wood-planked walkway along the southwest side. Instead, they walked amidst the cars in the parking lot. This is possibly due to the location of large mechanical boxes near the ferry's berth, the presence of people along the perimeter either fishing or tending boats docked for pump out, or the absence of signs or other indication that the walkway lies ahead in that direction. The removal of the harbormaster's former office will improve visibility at this location and

provide an opportunity to better direct pedestrians to the walkway. The arched entries to the shelter also invite people to enter from the parking lot area rather than the walkway.

A parking space in front of the eastern entrance to the wharf structure makes for difficult access by people in wheelchairs. The same conflict is not supposed to exist at the western entrance where parking is prohibited. However, the space was repeatedly observed occupied by a parked or standing car.

Rarely were wharf parking spaces observed vacant for use by ferry traffic; few spaces turned over within the 60 to 90 minute observation periods. Due to the limited parking, up to seven cars were observed double parked for brief periods—filling the majority of vehicle maneuvering space in the center of the parking lot. Cars at the wharf were also occasionally observed picking up passengers from the Chappy ferry.

The one bicycle rack on site was always observed full. Often there were more bikes parked elsewhere on site than at the rack: beside the rack, along the wire fence next to the Chappy ferry, in the two corners of the



Edgartown Infrastructure Shortcomings

Edgartown Memorial Wharf

1. Structure design promotes pedestrian entry/exit through parking lot rather than along walkway
2. Narrow, wooden-planked walkway not conducive for small-wheeled apparatus
3. Cars dropping off/picking up passengers double park and fill maneuvering area
4. Parked bicycles overwhelm the rack and encroach on other areas of the site
5. No orientation or direction signs
6. High competition for facility by Chappy ferry users and by non-ferry uses
7. Small parking lot used as turn around for Dock Street traffic
8. No rest rooms

Figure 4.2

parking area next to the shelter, under the shelter, and under the stairways. The number of bicycles frequently out numbered the number of people at the wharf. Passengers of the Chappy ferry were observed using the rack. It appears that people use the rack for storing bicycles over several days. The corner of the parking lot next to the harbormaster's office was a popular spot and the only option for groups of cyclists to temporarily park their bicycles.

Infrastructure Shortcomings
The locations of the following infrastructure shortcomings at Memorial Wharf are illustrated on Figure 4.2.

1. Structure design promotes pedestrian entry/exit through parking lot rather than along walkway
2. Narrow, wooden-planked walkway not conducive for small-wheeled apparatus
3. Cars dropping off/picking up passengers double park and fill maneuvering area
4. Parked bicycles overwhelm the rack and encroach on other areas of the site
5. No orientation or direction signs
6. High competition for facility by Chappy ferry users and by non-ferry uses
7. Small parking lot used as turn around for Dock Street traffic
8. No rest rooms

Commercial Core
Information on the infrastructure of the commercial core of downtown is provided for comparison to the Village Waterfront rather than to evaluate its capacity to accommodate ferry passengers. Six hundred feet up the hill from the Memorial Wharf terminal, the central retail core of downtown is more uniformly dense than the waterfront area and served by a continuous, if not always sufficiently wide, pedestrian way. This commercial core is focused along the narrow, one-way streets of Main and North Water streets. The full-sized transit and tour buses are not allowed access in this area and are instead channeled to a primary bus stop at the visitor center at the edge of downtown on Church Street. The visitor center also provides the public restrooms for downtown. Sidewalks on both sides of Main Street generally exceed seix feet in width. On the north side of the street, many storefronts sit back from the curbside to increase the sidewalk widths to more than twelve feet in places. These wider sections allow more room for street furnishings along the curb and for people to window shop next to the buildings while still allowing people to pass. Curbside parking on the north side of Main Street provides additional buffering of pedestrians from traffic. Conversely, the Main Street's southern sidewalk is more uniformly wide but narrower and with no street furnishings or curbside parking buffer. North Water Street and Winter Street have narrower rights-of-way, slightly narrower sidewalks, and dense development on only one side of the street. The sole sidewalk along Winter Street is mostly four feet wide. Crowded sidewalks and slow moving, bumper-to-bumper traffic are the norm in the commercial core, regardless of ferry traffic from Memorial Wharf. Main Street is the principal road into and through the commercial core of downtown and also the only route by which vehicles can get to Memorial Wharf. A route bypassing Main Street is provided for vehicles boarding the Chappy ferry.

Village Waterfront
The portion of downtown Edgartown that drops from North Water Street to the harbor is distinct from the commercial core in several ways. The waterfront area has a more fragmented street edge (sections with no buildings), a less continuous sidewalk network, and broader range of land uses than the commercial core of downtown.

Table 4-B

Port Area Infrastructure Supporting Passenger Ferry Service
Edgartown - Village Waterfront Area

Element	Quantification
Pedestrian Way	Dock St: E side - only along mid-1/4, 5' wide brick on S side reduced to about 2' by utility poles; W side - 4' brick at S end; two segments of private concrete walk 4' wide or less Main St (E of Water streets): N side - 7' brick; S side - 4' to 5' brick reduced to less than 3' in two places by utility poles Mayhew Ln: N side - 4' concrete at E 50' Kelly St: N side - 3.5' concrete (parallel parking alongside) Daggett St: none
Crosswalks	Across Mayhew at Dock St
Bicycle	Rack in Mayhew right-of-way at N. Water and at foot of Main
Vehicle Circulation	2-way segment of Main St is principal access to waterfront; 2-way Dock St dead-ends at wharf; one-way Mayhew and Kelly connect Dock to and from, respectively, N. Water St; Daggett St reserved for Chappy Ferry boardings
Pick-up/Drop-off	9 curbside spaces on Kelly; 3 spaces at top of Mayhew were used by bike rack; 36-car lot between Mayhew/Kelly; 55-car lot (11 of 15 reserved spaces for commercial fishermen) at foot of Main; 2-hour limit at lots
Transit	VTA stop mid-block on Mayhew
Taxi	3-van taxi stand at foot of Main parking lot
Tour Bus	4 to 7 minutes away at Visitor Center
Signage	One sign identifying Shoreline Walk from Dock; no other signs provide information for pedestrians
Information	4 to 7 minutes away at Visitor Center
Telephone	Phone at foot of Main St
Seating	Bench seating for 50 along waterfront at foot of Main St; benches at other segments of Shoreline Walk and mid-block of Mayhew; low (<18") retaining walls at both ends of Dock St and mid-block of Mayhew are used for seating
Shelter	A few commercial building awnings
Rest Rooms	4 to 7 minutes away at Visitor Center
Drinking Fountain	2 to 4 minutes away along Main St (beyond waterfront area)
Trash Cans	Distributed throughout area
Lighting	Cobra-head streetlights; pedestrian-scaled lamps along Main, Mayhew and parking lots
Amenities	Whaling Memorial across from wharf; landscape plantings along Dock and Mayhew; water views of harbor; Shoreline Walk and seating

Infrastructure

Table 4-B contains an inventory of infrastructure elements supporting passenger ferry service in the Village Waterfront. Several elements are elaborated on below.

Main Street is the only street in the Village Waterfront with continuous sidewalks on both sides. Sidewalks exist only along segments of Dock Street, sometimes ending abruptly at the sides of buildings. Where they exist, sidewalks are often no wider than four or five feet, with utility poles reducing the width to less than three feet in places. Most of Mayhew Lane and a third of Dock Street have no sidewalk on either side, including the narrowest and curved segment of Dock Street extending from the wharf to almost Kelly Street. No pavement markings direct pedestrians between sidewalk segments.

Dock Street leads from Memorial Wharf and the Chappy ferry towards Main Street and the central downtown area. Although Dock Street physically connects to Daggett Street next to the Chappy ferry berth, only traffic boarding the Chappy ferry may use Daggett Street. Consequently, Dock Street has no through-traffic and functions as a dead end street, but for the periodic discharge of vehicles from the Chappy ferry.

Two off-street parking lots with 2-hour limits accommodate more than 90 cars off the southern end of Dock Street. The only curbside parking in the waterfront area is parallel parking along the north side of Kelly Street. No full-sized transit or tour buses are allowed through the commercial core or waterfront area. A transit stop for the smaller VTA buses and a taxi stand are located towards the southern end of Dock Street, a few hundred feet from the ferry terminal.

Seating, shelter, restrooms, and drinking fountains are amenities either absent or in short supply in the waterfront area. No signs guide people along the waterfront and further into town. Signs on Dock Street direct vehicles back up to Water Street for the Chappy ferry but no signs exist to the *Pied Piper* or Memorial Wharf. Lighting is provided by a mixture of standard "cobra-head" streetlights and pedestrian-scale street lamps. Their combined illumination is dim but significantly enhanced by spill lighting from individual abutting commercial properties. Portions of the Shoreline Walk, some of which have an irregular surface, are very dimly lit.

The Whaling Memorial is a small, well-maintained green space across Dock Street from the terminal that visually welcomes visitors. Surrounded by the characteristic Edgartown white picket fence, the memorial includes a memorable outdoor sculpture with a connection to Edgartown's past. Across the street, additional pieces of street sculpture with a nautical theme also add interest to the immediate area and help convey a sense of place.

Pedestrian Circulation

The absence of directional or informational signs leave pedestrians to their own devices. Frequently people were seen examining their maps, trying to orient themselves. It was not unusual for a few ferry passengers to initially attempt to exit Daggett Street—possibly because the art gallery at the corner is the first visible business from the wharf or because of the presence of pedestrians waiting for the Chappy ferry—then almost immediately turn around to go up Dock Street.

The fragmented, obstructed sidewalks of Dock Street leave no clear, continuous pedestrian way from Memorial Wharf to the streets connecting to the rest of downtown. Several buildings extend to the street edge of Dock Street, resulting in some instances where people step from doorways right onto the street. People with wheeled apparatus—whether strollers, wheelchairs or luggage—have difficulty navigating all of these sidewalks. Where sidewalks are truncated, there are no indicators to direct pedestrians along or across the street or to alert motorists. The storm sewer grates at the roadway edge can catch small wheels or feet and are avoided, forcing pedestrians further into the street. Consequently, the northern half of Dock Street often appears as a promenade, with people two or more abreast milling along the street, crossing the street at any

point, seeming only casually aware of the intermittent, slow-moving motor vehicles and bicycles. Nevertheless, the danger to pedestrians from moving vehicles is very low due to the slow speed of the vehicles, but vehicle numbers and speeds increase (and the number of pedestrians in the street decrease) towards the other end of Dock Street.

Mayhew Lane appeared to have more vehicular traffic than Dock Street north of Mayhew. Mayhew has just one short segment of sidewalk and pedestrians tend to stay to the north side of street. Bicycle racks on the final, steep ascent to North Water Street force pedestrians further towards the center of the road. Main Street has sidewalks on both sides but the southern one is narrow and obstructed by utility poles. Pedestrians are more apt to respect the heavier and faster road traffic on the village waterfront segment of Main Street and stay on the sidewalks.

Improvised seating is provided by the low retaining wall along the north edge of Dock Street in front of the Whaler's Memorial. Since there is no sidewalk or separation from vehicular traffic, this area can be uninviting for people to linger. People were less frequently observed sitting on the retaining wall of the traffic island at the other end of Dock Street. It, too, has no buffer from passing vehicles.

Edgartown Infrastructure Shortcomings

Village Waterfront Area

1. No continuous pedestrian way exists along Dock Street or Mayhew Lane
2. Most of the sidewalk segments along Dock Street are narrow or have obstructions forcing pedestrians onto the street
3. Most of the sidewalks have no horizontal separation from moving vehicles
4. Most of Dock Street usurped by pedestrians
5. Public rest rooms are at the opposite end of downtown
6. Tour bus service available at the opposite end of downtown
7. Dim lighting in places

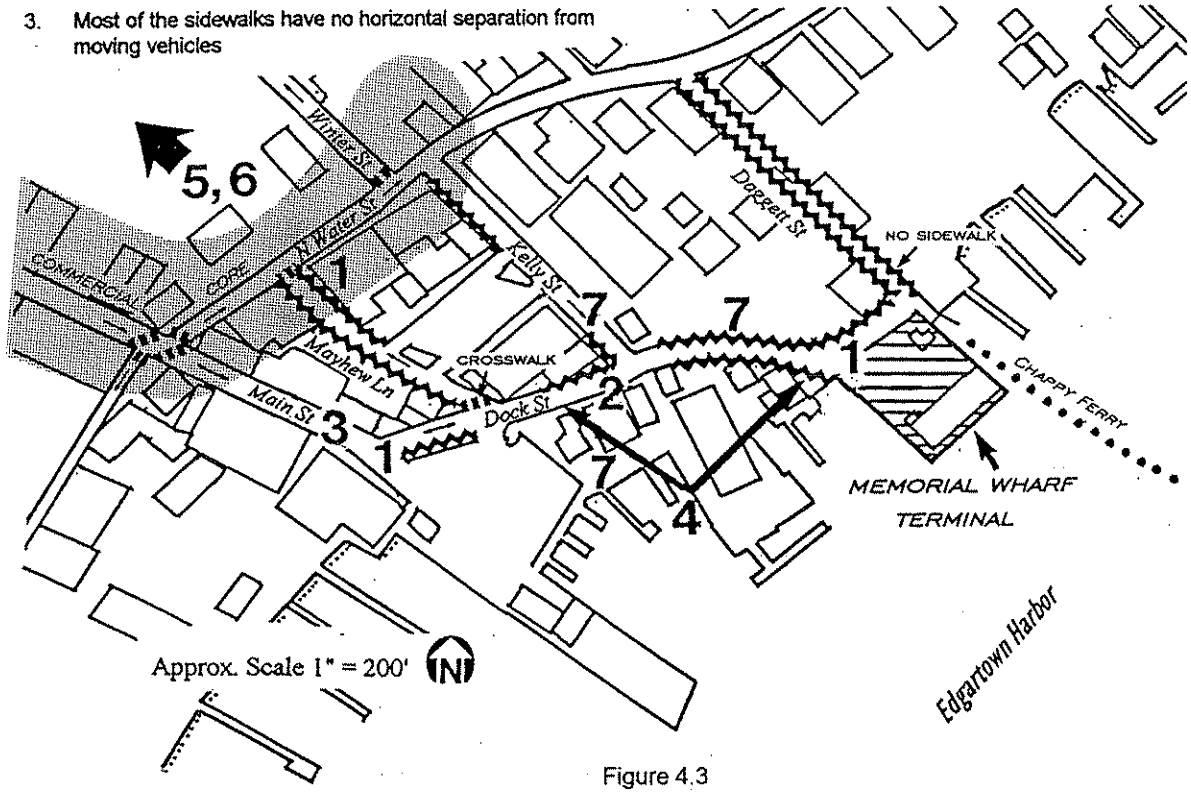


Figure 4.3

Vehicular Circulation

Departing the terminal, vehicles have the choice of exiting via Main to South Water Street, or via Mayhew Lane to the more active North Water Street. Traffic volume is lower throughout the Village Waterfront than at the commercial core. The southern end of the waterfront area, with its interconnecting streets and two

parking lots, experiences more vehicular activity than the wharf end. Vehicles travel comparatively fast coming downhill on Main Street towards Dock Street after being released from the very slow moving, one-way traffic west of Water Street. The Chappy ferry infuses Dock Street with a few cars, people and bicycles every few minutes. The street is frequently empty of automobiles but periodically becomes congested for brief periods, although never to the extent that exists in the commercial core. Dock Street congestion has more to do with use of the roadway by pedestrians sightseeing and shopping than with the number of vehicles or passengers associated with the *Pied Piper.*

Fierce competition exists for downtown parking spaces whether on-street or off-street. Vehicles routinely came to the end of Dock Street, saw the wharf's full parking lot, turned around, and left. As it is common for cars not associated with the ferry to cruise the street network in search of a parking space and turn around at the wharf's parking lot, and very few passengers were met by people who walked onto the terminal site, the percentage of vehicles observed turning around that were ferry related is assumed to be negligible.

Infrastructure Shortcomings

The locations of the following principal infrastructure shortcomings at the Village Waterfront subarea are illustrated on Figure 4.3.

1. No continuous pedestrian way exists along Dock Street and Mayhew Lane
2. Most of the sidewalk segments along Dock Street are narrow or have obstructions forcing pedestrians onto the street
3. Most of the sidewalks have no horizontal separation from moving vehicles
4. Most of Dock Street usurped by pedestrians
5. Public rest rooms are at the opposite end of downtown
6. Tour bus service available at the opposite end of downtown
7. Dim lighting in places

Town Plans

Several plans, policies and bylaws of Edgartown address issues of development, circulation, and image of its downtown, waterfront and harbor. These measures reflect the community's vision for downtown and provide insight to what the community in likely to consider appropriate activities and development. The most concise description of how the community views the downtown is found in the B-1 Business District covering downtown in the town's zoning bylaw: downtown is to be ". . . a compact pedestrian-oriented environment (with) a mixture of residential and business uses servicing Edgartown's year-round population and visitors." This reflects a determination to continue welcoming the tourists and seasonal residents in recognition of the diverse benefits they bring to the Island, while simultaneously keeping the downtown vital year-round for Islanders.

The most recent synthesis of town policy pertaining to the harbor and downtown is the 1997 Edgartown Harbor Plan. The harbor plan characterizes the area of downtown along Dock Street, adjacent the harbor, as being a unique part of Edgartown's downtown, calling it the "village waterfront." The village waterfront is the welcoming gateway to waterborne visitors to downtown—whether they be first-time visitors, seasonal residents or native Islanders. To maintain the vitality of the village waterfront, town policy regards as crucial a mixture of year-round and seasonal businesses and a combination of water dependent and non-water dependent uses. Use of the harbor and water's edge is restricted via Edgartown's Surface Water Zoning District to water-dependent uses. While ferry service is identified as a permitted use in the district, the absence of discussion in any of the town's planning documents of the need for, or impact of, ferry service

suggests that such service is not considered vital to downtown. In contrast, the harbor plan is very specific in identifying the "lack of dinghy tie-ups and transient dockage for quick turnaround visits . . . (for) . . . boaters who might otherwise use and enjoy the waterfront," and proceeds to recommend a remedy. No similar consideration is given ferry service (Congestion associated with the Chappy ferry is a continual issue, with some people advocating relocating it away from downtown, but no consensus or policy has yet emerged).

Beyond the types of uses that are appropriate for downtown and the waterfront, the community recognizes the importance of the visual component in defining a place. The 1987 Edgartown Historic District covers all of old downtown and promotes the protection of the extensive historic 18th and 19th century architecture that is the foundation of the town's physical character and appeal. Any new construction, demolition or alteration of structures along the waterfront for expanded ferry service would undergo scrutiny in this regard.

The harbor plan also addresses the water views available from downtown streets and sidewalks as instrumental connections to the water and the community's origins. In fact, the village waterfront is given the role of linking the Main Street area to the water. The plan ". . . envisions the foot of Main Street as the focus for improved pedestrian access and use. Foot traffic would be encouraged and drawn from Main Street to the waterfront." The plan's primary means to draw people to the waterfront is to retain and enhance the long water vistas down Main Street. Water views all along the downtown waterfront are identified in the harbor plan and protected by a prohibition on any construction that would intrude upon them. Exceptions can be made when the new structure would compensate for diminishing a vista by opening up another harbor view. The restriction can also be exempted when structures fill a needed public purpose, such as restroom facilities, or are needed to accommodate water dependent uses. Ferry service could conceivably fit into either of these exemption classes.

A means of physically linking the rest of downtown to the waterfront area is by improving the pedestrian way and the supporting facilities and furnishings. Edgartown plans call for increased public access to the waterfront edge to extend and improve the existing waterfront walkway. The harbor plan recommends providing "textural consistency"—specifically, brick walks—to bring cohesion to the waterfront's pedestrian environment. Public restroom facilities are recognized as a high priority need and proposed to be sited in an existing structure at the base of Main Street. North Wharf, which includes rest rooms, was purchased by the town after the harbor plan was developed services sailors but are not convenient for people in the Dock Street area. Trash receptacles and signage are also recommended by the plan. All of these measures to improve access along the waterfront and linkages to the rest of downtown would also improve accommodation of ferry service at the downtown waterfront.

A final method for increasing access to the waterfront recommended by the town is to encourage greater use of transit and minimize automobile use downtown. Increased ferry service to the Inner Harbor could be consistent with both of these objectives if demonstrated not to add to the existing automobile congestion downtown. As it is now, transit to and from the waterfront is limited by the street congestion in the commercial core.

Conclusions and Suggestions

The low volume of passengers transported to and from downtown Edgartown in 1999 by the *Pied Piper* is barely noticeable along the waterfront and is negligible in the context of the high background level of pedestrian and vehicular traffic present at the commercial core. Even at full capacity, the 60-passenger ferry drops off the equivalent of two VTA busloads of people every other hour (compared to more than two dozen transit buses and additional tour buses at the Edgartown Visitor Center over the same two-hour interval). Passenger dispersal time from Memorial Wharf is just five to ten minutes with little impact upon concurrent activities at the public facility. A number of circumstances suggest that the capacity of the existing infrastructure to channel significantly more ferry passengers is limited.

Appendix

Methodology

Carrier Capacity and Ridership

Calculations of the capacity of each ferry carrier were made by multiplying the reported vessel capacity by the number of its daily scheduled round-trips. This provided the potential daily loading of the island -- the number of passengers that could be brought to Martha's Vineyard and the number that could be transported off-island.

Ridership figures were estimated for heavy individual trips and for days in the peak July and August months to quantify the customary demand placed upon the port infrastructure. These "typical peak" figures were derived from reported August, 1999, ridership figures divided by the number of days in the month and multiplied by a differential factor of 1.3 to adjust for poor weather days and miscellaneous variations averaged into the monthly figures. Some private carriers provided estimates of daily averages or percentages of capacity (see accompanying table). These figures were converted to daily figures and increased by the differential factor (except for Fox Navigation, which provided trip-specific ridership estimates).

The differential factor was derived from comparing the SSA's average daily ridership figures for July and August with the peak daily ridership levels reported for those months. The study made use of the peak daily ridership level for the Oak Bluffs facility identified by the SSA for its redevelopment project for that facility. The study examined several days of ridership figures of the Vineyard Haven and Oak Bluffs facilities which, when compared to the daily average, revealed nearly identical differentials (respectively, 1.32 and 1.29). Lacking daily ridership data for the private carriers with which to make similar calculations, a differential factor of 1.3 was applied to the private ferry carriers as well. Therefore, the study assumes that the percent variation in the daily passenger ridership is virtually constant among all carriers to the island. More thorough examination of the Vineyard Haven daily ridership records and examination of the daily ridership levels of the private carriers could illuminate the variability in the daily ridership, the appropriateness of the differential factors and, consequently, the accuracy of the study's ridership estimates.

Daily Capacity and Ridership of Passenger Ferries to Martha's Vineyard -- August 1999

Carrier	Vessel	Vessel Capacity	# of Arrivals Wkday	# of Arrivals Wkend	Capacity Wkday	Capacity Wkend	Reported Ridership	Source*	Est. Peak Ridership	Derivation**	% of Capacity Wkday	% of Capacity Wkend	% of Port	% of Island
SSA	Martha's Vineyard	1387	3	3	4161	4161								
SSA	Islander	796	6	7	4776	5572								
SSA	Gay Head	142	3	3	426	426								
SSA	Governor	250	6	6	1500	1500								
Total SSA Terminal		2575	18	19	10863	11659	3945	M	5200	S	47.9%	44.6%	78.1%	43.0%
Fox Nav.	Sassacus***	264		2		528	396	T(75%)	396	---		75.0%		
Fox Nav.	Tatobam***	300		1		300	150	T(50%)	150	---		50.0%		
Total Pier 44 Terminal		564	0	3	0	828			546			65.9%	8.2%	4.5%
Cape Is. Expr.	Schamonchi	450 @	3	4	1920	2560	704	O(35%)	915	X	47.7%	35.8%		
Total Tisbury Wharf Terminal		450	3	4	1920	2560			915		47.7%	35.7%	13.7%	7.6%
Total Vineyard Haven Harbor		***3139***	***21***	***26***	***12783***	***15047***			***6661***		***52.1%***	***44.3%***	***100.0%***	***55.1%***
SSA	Martha's Vineyard	1387	4	4	5548	5548								
SSA	Gay Head	142	3	3	426	426								
Total SSA Terminal		1529	7	7	5974	5974	1781	M	2250	R	37.7%	37.7%	43.3%	18.6%
Island Queen	Island Queen	594	7	8	4158	4752	1100	D	1430	X	34.4%	30.1%		
Total OB Bulkhead		594	7	8	4158	4752			1430		34.4%	30.1%	27.5%	11.8%
Hy-Line (Hyan)	Various	485 @	4	4	1940	1940	890	M	1157	X	59.6%	59.6%		
Hy-Line (Nant)	Various	400 @	3	3	1200	1200	272	M	354	X	29.5%	29.5%		
Total Dockside Marina		885	7	7	3140	3140			1511		48.1%	48.1%	29.1%	12.5%
Combined OB Harbor		1479	14	15	7298	7892			2941		40.3%	37.3%	56.7%	24.3%
Total Oak Bluffs		***3008***	***21***	***22***	***13272***	***13866***			***5191***		***39.1%***	***37.4%***	***100.0%***	***43.0%***
Falmouth Ferry	Pied Piper	60 @	5	6	300	360	178	M	231	X	77.1%	64.3%	100.0%	1.9%
Total Edgartown Harbor		***60***	***5***	***6***	***300***	***360***			***231***		***77.0%***	***64.2%***	***100.0%***	***1.9%***
Total Vineyard		***6207***	***47***	***54***	***26355***	***29273***	---		***12083***		***45.8%***	***41.3%***	---	***100%***

@ Capacity restricted by license from SSA;

* Sources of reported ridership: M - average of reported monthly ridership records; T(#%) - percent estimate by carrier of peak individual trips; O(#%) - percent estimate by carrier of overall ridership; D - estimate from carrier of daily ridership

** Derivation of estimated peak daily ridership: R - from SSA review of daily records; S - sample of daily records; X - reported ridership multiplied by 1.3 defferential factor (see Methodology);

*** Operated an extended weekend schedule

Dispersal Mode Observations

Observations quantifying the dispersal mode from ferry terminals were made on the dates identified below. Due to the volume of activity present and the multiple entry/exit points, observations of the SSA terminals were only partially quantified.

Terminal	Date	Day	Time
Dockside	7-14-99	Wed	4:00p
Dockside	7-22-99	Fri	10:45
North Bluff	7-22-99	Fri	11:00
North Bluff	8-6-99	Fri	12:40p
OB SSA	7-14 -99	Wed	3:15p
OB SSA	8-5-99	Fri	12:45p
OB SSA	8-6-99	Sat	12:45p
OB SSA	8-20-99	Fri	12:45p
Memorial	7-20-99	Tue	11:00
Memorial	7-22-99	Thu	1:00p
Memorial	7-30-99	Fri	11:15

Terminal	Date	Day	Time
Pier 44	7-16-99	Fri	10:45
Pier 44	7-30-99	Fri	10:00p
Pier 44	9-10-99	Fri	10:00
VH SSA	7-16-99	Fri	3:30p
VH SSA	7-31-99	Sat	9:00
VH SSA	7-31-99	Sat	11:30
Tisbury Whf	7-16-99	Fri	10:30
Tisbury Whf	7-30-99	Fri	10:30p
Tisbury Whf	8-24-99	Tue	10:30

Observations quantifying the mode of passenger dispersal were made of most of the terminals serving private carriers. The number of passengers boarding vehicles was usually estimated as they exited the site (buses full, half-full; taxis averaged five passengers; automobiles averaged less than two passengers per vehicle) and converted to a number. Estimated ridership numbers from the private bus operations were higher than that observed. Public transit ridership logs were checked for the Tisbury Wharf and Vineyard Haven SSA terminals. Adjustments to the VTA route in Oak Bluffs precluded reliable numbers from being generated for the Oak Bluffs terminals. The nearest bus service to Edgartown Memorial Wharf was two blocks away and was not observed.

References

The following people provided information or offered their insights. Additional personnel stationed at some of the terminals also provided information valuable in the preparation of this study.

Name	Title	Affiliation
Alexander, Todd	Harbor Master	Town of Oak Bluffs
Balter, Reni	Executive Director	Oak Bluffs Association
Bardellis, Charles, Jr.	President	Island Queen
Blair, Charles I., Jr.	Harbor Master	Town of Edgartown
Charmichael, Michael	Projects Director	MassHighways, District 5
Davis, Robert	Assistant Treasurer	SSA
Duart, Peter	Terminal Manager (OB)	SSA
Ewell, Wes	Special Projects Manager	SSA
Folin, Peter	Executive Secretary	Town of Tisbury
Forns, Joseph	Pier 44 consultant	Applied Marine Ecology Lab
Gagny, Lynsey	4-year employee	Falmouth Ferry (Pied Piper)
Guest, Andrew	Transportation Planner	MVC
Lapiania, Fred	Public Works Superintendent	Town of Tisbury
Lasiner, John	Terminal Operations Mgr. (VH)	SSA
McCarthy, John	Chief	Tisbury Police Dept.
Mercier, Lawrence	Highway Superintendent	Town of Edgartown
Omerod, Sarah	Receptionist	Fox Navigation, Inc.
Packer, Ralph	Owner	Tisbury Wharf
Roberts, David	Sergeant	Oak Bluffs Police Department
Rose, Don, Jr	President	Dukes County Transportation
Sayers, Steven	General Counsel	SSA
Schellhammer, Judy	Infomation Specialist	MV Chamber of Commerce
Schroeder, Gus	Tour Manager	Island Transportation, Inc.
Scudder, R. Murray, Jr.	Vice President	Hy-Line Cruises
Silvia, Rodney	Sergeant	Tisbury Police Department
Taylor, Jo-Ann	Coastal Planner	MVC
Thompson, Janet	Owner	Cape-Island Express Lines, Inc.
Tobin, Bridgett	Terminal Manager (VH)	SSA
Valley, Maura	Administrative Secretary	Tisbury Board of Health
Wilber, John "Jay" M., III	Harbor Master	Town of Tisbury
	Sergeant	Edgartown Police Department

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