

Operations & Maritime LLC



Cruise Tourism & Traffic Congestion in Bar Harbor: Improving the Visitor & Resident Experience

A report commissioned by the Cruise Line Industry Association at the request of
the Bar Harbor Town Council

July 15th 2019

Summary

The purpose of the study is to provide a report to the Cruise Line International Association (CLIA) and the town of Bar Harbor (BH), ME, on courses of action and the potential impact of a traffic management change in BH. The report is intended to support the local government in achieving its objectives to sustainably manage cruise ship passenger visitation concurrent with continued increases in land-based visitors and to maximize the local benefits of tourism while minimizing the impact on residents.

The main objective is to evaluate the existing ground transportation operations on town-owned property and identify the parking stakeholders in the landscape surrounding the cruise ship tendering pier in Bar Harbor, ME. Recommendations are given to maximize the efficiency of operations supporting cruise ship passenger visits while addressing town congestion and maintaining the necessary safety and security compliances for cruise ship operations.

The report is based on a multi-method methodology following key field research methods of Van Maanen (1988)¹: First, a site survey was conducted December 18-20th, 2018, during which basic physical measurements were taken in line with Angrosino (2008)². Publicly available satellite imagery was accessed to illustrate problem areas and, when possible, was supplemented by on-site pictures of key areas. While on-site, following Rubin & Rubin (2005)³, semi-structured interviews were conducted with local industry stakeholders to obtain insights and explanations. Informal interviews with stakeholders were carried out when opportunities arose, as described in Flick (2008)⁴. Second, we partnered with a local landscape architect firm, LARK Studio, in order to draw some initial sketches for improved pedestrian flow and modal separation at key intersections. Third, we conducted an analysis of both publicly available data and cruise industry data on passenger traffic and its economic impact to assess the potential outcomes of various courses of action. Last, first-hand observations of operations during the 2019 cruise season in Bar Harbor, ME, were conducted May 12-16th, 2019, in order to validate out-of-season assumptions and to finalize the site survey.

The report includes sixteen recommendations to improve the visitor experience of Bar Harbor, minimize the impact on residents, and position Bar Harbor as a top tourism destination. While most of the recommendations could be implemented independently, taken together their combined effect would exceed the sum of their individual contributions, offering the most effective and beneficial approach.

It is important for a community like Bar Harbor to use this period of economic prosperity and growth to invest in its infrastructure and strengthen its position as a top tourism destination. Inevitable economic downturns will heighten competition for fewer tourism dollars spread more

¹ Van Maanen, J. (1988). *Tales of the field: On writing ethnography*. Chicago, IL: The University of Chicago Press.

² Angrosino, M. (2007). *Doing ethnographic and observational research*. Sage.

³ Rubin, H. J., & Rubin, I. S. (2005). *Qualitative interviewing: The art of hearing data*. Sage.

⁴ Flick, U. (2008). *Managing quality in qualitative research*. Sage.

widely among several desirable destinations, but for now the cruise industry is poised to continue its overall expansion, adding new ships faster than retiring them. The solid economic growth and low unemployment rate of the past decade have increased the demand for tourism, and as the baby boomers retire from the workforce, their increased leisure time will likely continue to fuel cruise demand. Despite favorable prospects, the cruise industry is not immune to another economic downturn and the concomitant pressure on proper yield management.

A softer demand and lower yield will trigger a reevaluation of ship assignments to determine how yield could be improved. The New England cruise market, no longer a niche operation, has matured to a level of mass appeal and affordability. Entering this market, therefore, means encountering a greater price sensibility from passengers. Currently, Bar Harbor benefits from receiving direct funding from a cruise passenger head tax. A recent federal judgment in Alaska ruled that while communities can levy a head tax, its allocation should be clearly connected to the people funding it⁵. Therefore, the town of Bar Harbor must explore multiple sources of funding to continue to improve the town's infrastructure.

Lastly, Bar Harbor must judiciously apply the financial resources it has collected and still collects from the cruise passengers to long-term structural improvements that will benefit cruise passengers, residents, and other visitors. Investment should be made in these prosperous times so that the town is well positioned to minimize the impact of the next economic downturn. Spending decisions must be informed by the general applicability of the "user pays" principle, as evidenced by the recent Alaska judgment. Bar Harbor must also carefully consider its total cost as a destination for cruise lines in fee increase decisions, since higher fees negatively affect the yield of a vessel deployed to a given market.

We believe that if the town can implement all the recommendations in this report, it would dramatically improve the Bar Harbor experience for the residents and visitors for years to come. However, failing to address the current issues at hand will diminish over time the attractiveness and reputation of Bar Harbor as a top tourism destination and return lower economic benefits to the community.

⁵ Cruise companies sue Alaska over passenger tax, retrieved on may20th 2019 from: <https://www.reuters.com/article/alaska-cruise-idUSN1827114120090918>

1. Objectives and scope

The purpose of the study is to provide a report to the Cruise Line International Association (CLIA) and the town of Bar Harbor (BH), ME, on courses of action and the potential impact of a traffic management change in BH. The report is intended to support the local government in achieving its objectives to sustainably manage cruise ship passenger visitation concurrent with increases in land-based visitors and to maximize the local benefits of tourism while minimizing the impact on residents.

The main objective is to evaluate the existing ground transportation operations on town-owned property and identify the parking stakeholders in the landscape surrounding the cruise ship tendering pier in Bar Harbor, ME. Recommendations are given to maximize the efficiency of operations supporting cruise ship passenger visits while addressing town congestion and maintaining the necessary safety and security compliances for the cruise ship operations.

We were specifically asked to perform the following six key functions:

1. Develop a set of options to alleviate or improve the congested areas surrounding the cruise ship tendering pier in Bar Harbor, ME, without significant disruption or additional costs to commercial tour vehicles serving cruise passengers, and without a negative impact on the service quality experienced by the cruise passengers.
2. Identify the parking and traffic flow of commercial ground transportation providers using currently available data and work with the cruise industry stakeholders to recommend options for the management and ongoing monitoring of users.
3. Recommend solutions for improved pedestrian flow to reduce congestion while maintaining the cruise visitor experience in the town of Bar Harbor, ME.
4. Assess other town-owned properties capable of alleviating congestion created by tourism and foster a sustainable relationship between the town of Bar Harbor, ME, and the cruise industry.
5. Evaluate the impact of the courses of action proposed on the tourism experience of cruise passengers and the resulting service quality.
6. Evaluate the overall impact of the courses of action on the accessibility and marketability of Bar Harbor, ME, as a cruise destination.

The analysis was conducted using currently available information, and no new traffic flow measurements (e.g., vehicle counting) were conducted as part of this study. LARK studio of Bar Harbor, ME, was contracted for the design and rendering of streetscape modifications. The report contains five main sections: Section 2 provides some background on the cruise industry and BH; Section 3 discusses the methodology for the study; Section 4 reports on key findings from our field visits; Section 5 outlines and explains all of our recommendations; Section 6 states the main conclusion and implications of this study.

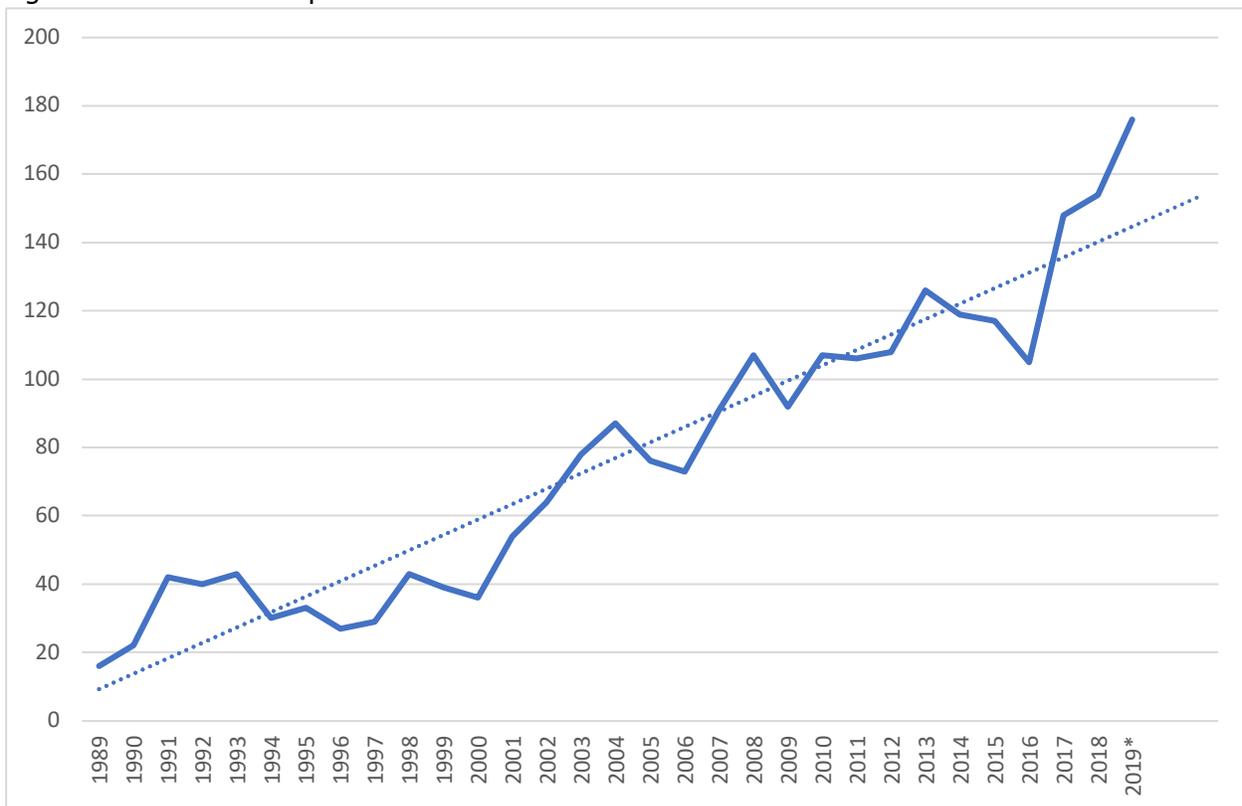
2. Background

In this section we briefly discuss important background information to better understand the context in which this study took place. First, we discuss Bar Harbor as a tourist destination, then the cruise industry, and finally the two ways a cruise ship can connect to shore.

2.1 Bar Harbor

Bar Harbor has been a highly prized seasonal destination for quite some time. During the gilded age, from 1880s to the early 20th century, Bar Harbor rivaled Newport, Rhode Island, as a summer retreat for the who's who in America at the time, including even some past presidents.⁶ Today, Bar Harbor remains a very popular summer destination for both land-based and sea-based tourism. Figure 1 shows the steady growth of sea-based tourism in Bar Harbor. As can be seen from the figure, traffic has increased steadily over the course of the last three decades. Just as the number of vessels and passengers calling into Bar Harbor has steadily increased, so has the land-based tourism. These numbers have been compounded by the current boom economy allowing for greater disposable income for tourism and leisure.

Figure 1. Bar Harbor ship visits



Source: Bar Harbor Harbormaster Office Statistics ⁷

⁶ Bar Harbor Historical Society retrieved May 15th 2019 from: <https://barharborhistorical.org/town-history/>

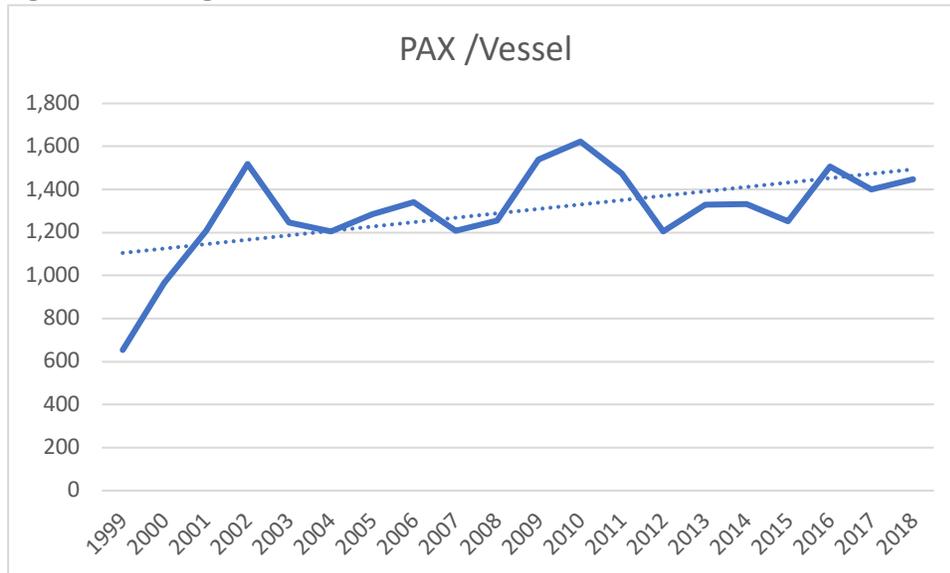
*2019 numbers are forecast based on current anchorage bookings.

⁷ 2019 Number is projected from the current booking information.

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Though the number of cruise ship visits has increased substantially, mainly due to the lengthening of the cruise season since Bar Harbor became a destination, the average passenger count per vessel call has been relatively stable for the past eighteen years, showing a very slight yearly increase. Figure 2 shows the average passenger (PAX) count per vessel calling in a given year.

Figure 2. Average PAX/Vessel



Source: Bar Harbor Harbormaster Statistics

Table 1 shows a more detailed description of the increase in demand using data provided by the Bar Harbor Harbormaster Office.

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Table 1. Bar Harbor cruise ship stats

Year	Ship Visits	Passengers	Foreign Arrivals
1989	16		
1990	22		
1991	42		
1992	40		
1993	43		
1994	30		
1995	33		
1996	27		
1997	29		
1998	43		
1999	39	25,485	
2000	36	34,750	
2001	54	65,175	
2002	64	97,190	
2003	78	97,150	
2004	87	104,750	
2005	76	97,579	
2006	73	98,000	
2007	91	109,836	
2008	107	134,172	39
2009	92	141,570	21
2010	107	173,656	31
2011	106	156,309	41
2012	108	130,203	28
2013	126	167,573	49
2014	119	158,602	46
2015	117	146,436	40
2016	105	158,093	36
2017	148	207,360	46
2018	154	222,728	50
2019⁸	176	254,546⁹	57

Source: Bar Harbor Harbormaster Office Statistics

⁸ Forecast numbers

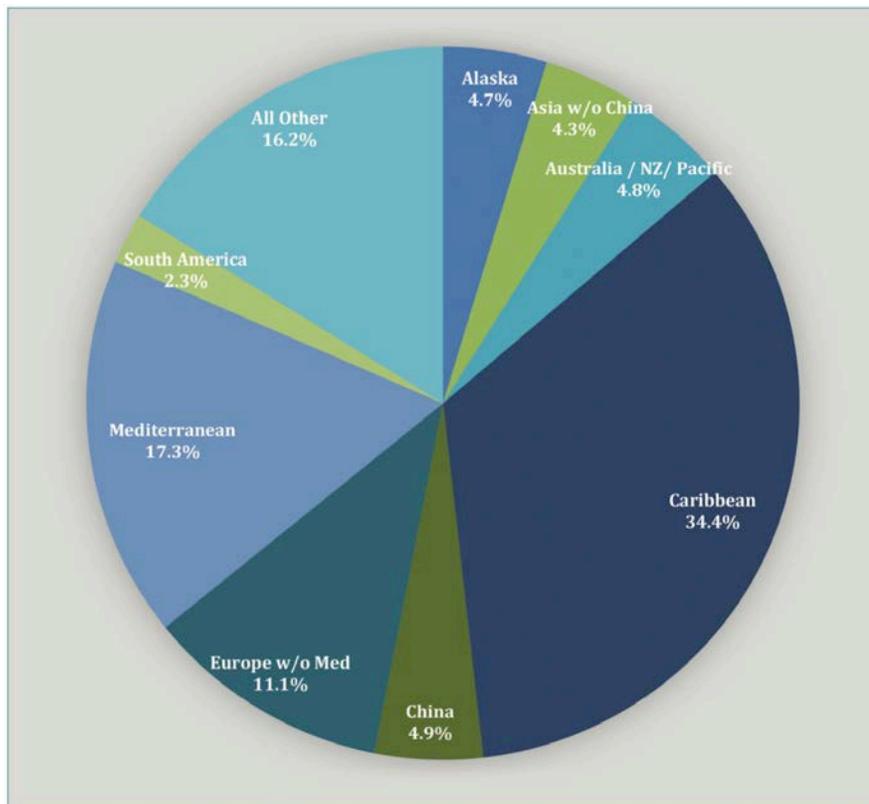
⁹ 2019 number is projected from the current bookings and used the 2018 ratio for passengers and foreign ports estimates.

This increase in the number of cruise tourists has contributed to a record number of visits to Acadia National Park in 2018, which directly contributed more than \$388 million to and overall generated more than \$520 million for the state economy, according to a National Park Service news release¹⁰.

2.2 Cruise Industry

The cruise industry caters to various population segments, each with its own taste for onboard experiences and preferred destinations. While the last two decades of the 20th century were dominated by a strong Caribbean deployment, a wide diversification of destinations has opened for passengers. These increased offerings are the result of both an expanding cruise ship fleet and the cruise industry's strong customer repeat rate. Repeat customers' desire to see different parts of the world generates cycles in destinations, from emerging to mature: in emerging and exotic destinations, smaller and typically higher-end vessels open a demand for the product; as the destination matures, it attracts larger vessels offering more berth capacity¹¹.

Figure 3. 2018 Deployed capacity by market



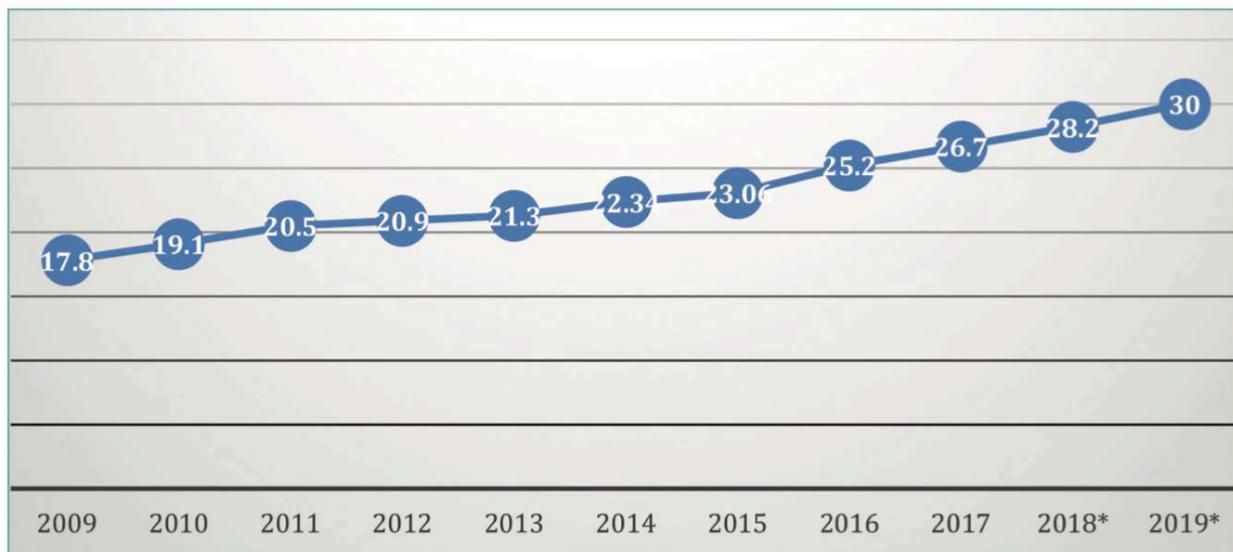
Source: FCCA 2019 Cruise Industry Overview

¹⁰ National Park Service (2019) Tourism in Maine to Acadia National Park, Retrieved June 1st 2019 from: <https://www.nps.gov/acad/learn/news/acadia-benefits-local-economy-in-2018.htm>

¹¹ Véronneau, S., & Roy, J. (2012). Cruise lines and passengers. In *The Blackwell Companion to Maritime Economics* (pp. 138-160). Wiley-Blackwell Publishing Oxford, UK.

According to the latest report by Business Research & Economic Advisors (BREA), *2018 Economic Contribution of Cruise Tourism to the Destination Economies*, cruise tourism generated \$3.36 billion in direct expenditures in the Caribbean, Mexico, and Central and South America region, up 6.3% compared to their last study in 2015. Furthermore, it finds that 78,954 jobs were attributable to the cruise industry, up 5.2% compared to the 2015 study. The total employee wage income was estimated at \$902.7 million. More importantly for cruise destinations, cruise tourism generated 25.2 million worldwide onshore visits by cruise passengers, and on average passengers spent \$101.52 per person, for a total of \$2.56 billion. Onboard crew members are also an important number to track, as they frequently go ashore to purchase basic necessities, dine at restaurants, and acquire other goods and services. Regarding crewmembers, the report found they accounted for 4.4 million onshore visits, with an average expenditure of \$60.44 per person, for a total of \$265.7 million. As Figure 4 shows, the global demand for ocean cruises has continued its steady climb for the past 10 years, with 2019 on track to see a record 30 million passengers.

Figure 4. Global ocean cruise passengers



Source: Florida-Caribbean Cruise Association (FCCA) 2019 Cruise Industry Overview¹²

¹² *2018 & 2019 were estimated by FCCA (Florida-Caribbean Cruise Association).

2.3 Tendering vs. Berthing

There are two main ways for cruise passengers to debark at a destination: port docking and tendering, i.e., using smaller ships to shuttle passengers to shore. Though turnaround ports (ports where passengers start and end their cruise) could execute turnarounds with tenders in emergency situations, doing so is not practicable for most cruise companies. Furthermore, given the logistics involved, it would be impossible to achieve a full turnaround within an 8-hour period on turnaround days¹³. For destinations, the choice between tendering and docking is typically determined by the local infrastructure's capacity to accept passenger ships and berthing availability. Some ports have no facilities for berthing; others have facilities to accommodate a base demand complemented in peak seasons by anchorage served by tenders.

From a purely nautical perspective, it is always easier for a ship to be docked to a pier: a ship at anchor requires more resources to execute tendering and might require engine assistance in inclement weather. From a holistic cruise operations perspective, however, docking is not always the best solution if the docks are far from a destination's main site or attractions. Having to board shuttle buses to access a town or a city center can dampen passengers' enthusiasm to explore. Still, tendering presents its own problems for passengers with limited mobility who might be burdened by or afraid of ship-to-boat-to-shore transfers. Furthermore, not all ships are fitted with tender boats in their original designs. In these instances, it is necessary to use shore-based tenders and even floating shipside platforms. Despite these challenges, cruise ship tendering has less impact on the local environment than building shoreside accommodations for a large number of tourists, which fundamentally alters the landscape.

¹³ Véronneau, S., & Roy, J. (2009). Global service supply chains: An empirical study of current practices and challenges of a cruise line corporation. *Tourism Management*, 30(1), 128-139

3. Approach and Methodology

The report is based on a multi-method methodology following key field research methods of Van Maanen (1988)¹⁴: First, a site survey was conducted December 18-20th, 2018, during which basic physical measurements were taken in line with Angrosino (2008)¹⁵. Publicly available satellite imagery was accessed to illustrate problem areas and, when possible, was supplemented by on-site pictures of key areas. While on-site, following Rubin & Rubin (2005)¹⁶, semi-structured interviews were conducted with local industry stakeholders to obtain insights and explanations. Informal interviews with stakeholders were carried out when opportunities arose, as described in Flick (2008)¹⁷. Second, we partnered with a local landscape architect firm, LARK Studio, in order to draw some initial sketches for improved pedestrian flow and modal separation at key intersections. Third, we conducted an analysis of both publicly available data and cruise industry data on passenger traffic and its economic impact. Last, first-hand observations of operations during the 2019 cruise season in Bar Harbor, ME, were conducted May 12-16th, 2019, in order to validate out-of-season assumptions and to finalize the site survey.

¹⁴ Van Maanen, J. (1988). *Tales of the field: On writing ethnography*. Chicago, IL: The University of Chicago Press.

¹⁵ Angrosino, M. (2007). *Doing ethnographic and observational research*. Sage.

¹⁶ Rubin, H. J., & Rubin, I. S. (2005). *Qualitative interviewing: The art of hearing data*. Sage.

¹⁷ Flick, U. (2008). *Managing quality in qualitative research*. Sage.

4. Findings

In this section, we include some of our findings from our field study in Bar Harbor. We discuss cruise operations, tourism in general, and other important considerations that surfaced during our study.

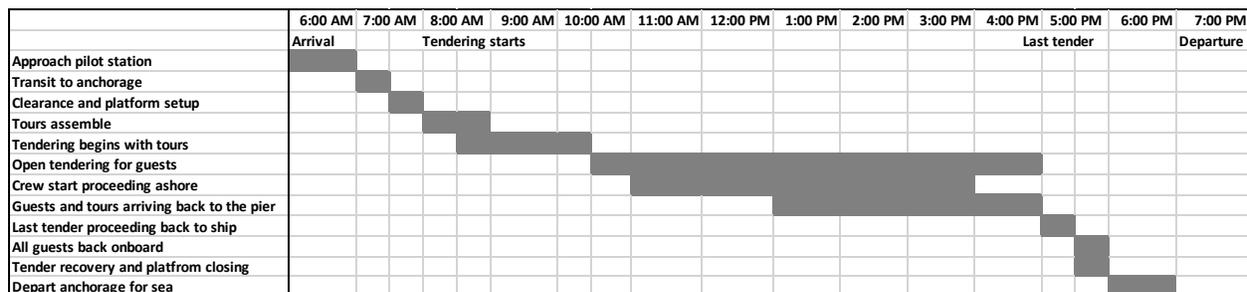
4.1 Tendering Operations in Bar Harbor

In order to understand some of the operational realities, we have included the example of a typical medium-sized cruise ship (2000-3000 passengers) calling into Bar Harbor for a full day. While the exact timeline might vary, most cruise ships follow this overall routine.

Table 2. *Approximate timeline for tendering*

0600	Approach pilot station and pick up pilot
0730	Ship at Anchor/Dynamic Positioning and setting up the tender operation/platforms
0730	Authorities onboard to clear the ship/start any immigration process
0800	Tour groups assemble in the theatre then proceed to immigration together
0830	Tenders begin to take tour groups ashore
1030	All tours should be ashore/open tendering begins
1130	Crew members generally proceed ashore when morning work is completed and the guest flow on tenders is reduced
1400	Guests, on their own schedule, begin to make their way back to the ship
1600	All tours should be back at the pier
1700	Last tender leaves the pier
1730	All passengers due back onboard time
1800	All tenders are recovered, tender platforms are closed, and the ship heaves anchor
1900	Pilot disembarks and the ship proceeds on its voyage to the next port

Figure 5. Medium cruise ship Gant chart on a typical full day



4.1.1 Pilotage

The first event of the day is around 0600, when the ship will approach the pilot station for Bar Harbor. Licensed pilots, who board the ship around 1.5-2 hours prior to the ship's official arrival time, provide the pilotage to the anchorage. The ship should be at the anchorage around 0730 for the operations to start on time. These pilots will also be onboard for the transit outbound,

typically a little faster than the approach at approximately 1 hour. Due to the high number of lobster traps in the area, a slow speed, about 10 knots, must be maintained.

4.1.2 Tender Platforms

At 0730, when the ship is at the anchorage, the tender platforms can be opened and the ship's tenders lowered to the water. Most ships have tender platforms that extend from the side of the ship and allow tender boats to dock alongside for loading and unloading passengers. To ensure safety, these platforms require significant time to rig and can be extended only when the ship has stopped moving. Stowing the platform must be completed before the ship starts moving. Rigging or stowing the platform takes around 15 minutes. Some ships have two or even three tender platforms to rig for the tenders. For the shoreside facilities, the tenders use floating docks. Under the current arrangement, tenders can dock on both sides of the platform. A dual tender docking system for each ship serviced is ideal, allowing a better flow of tenders and passengers.

Figure 6. Tenders at a cruise ship

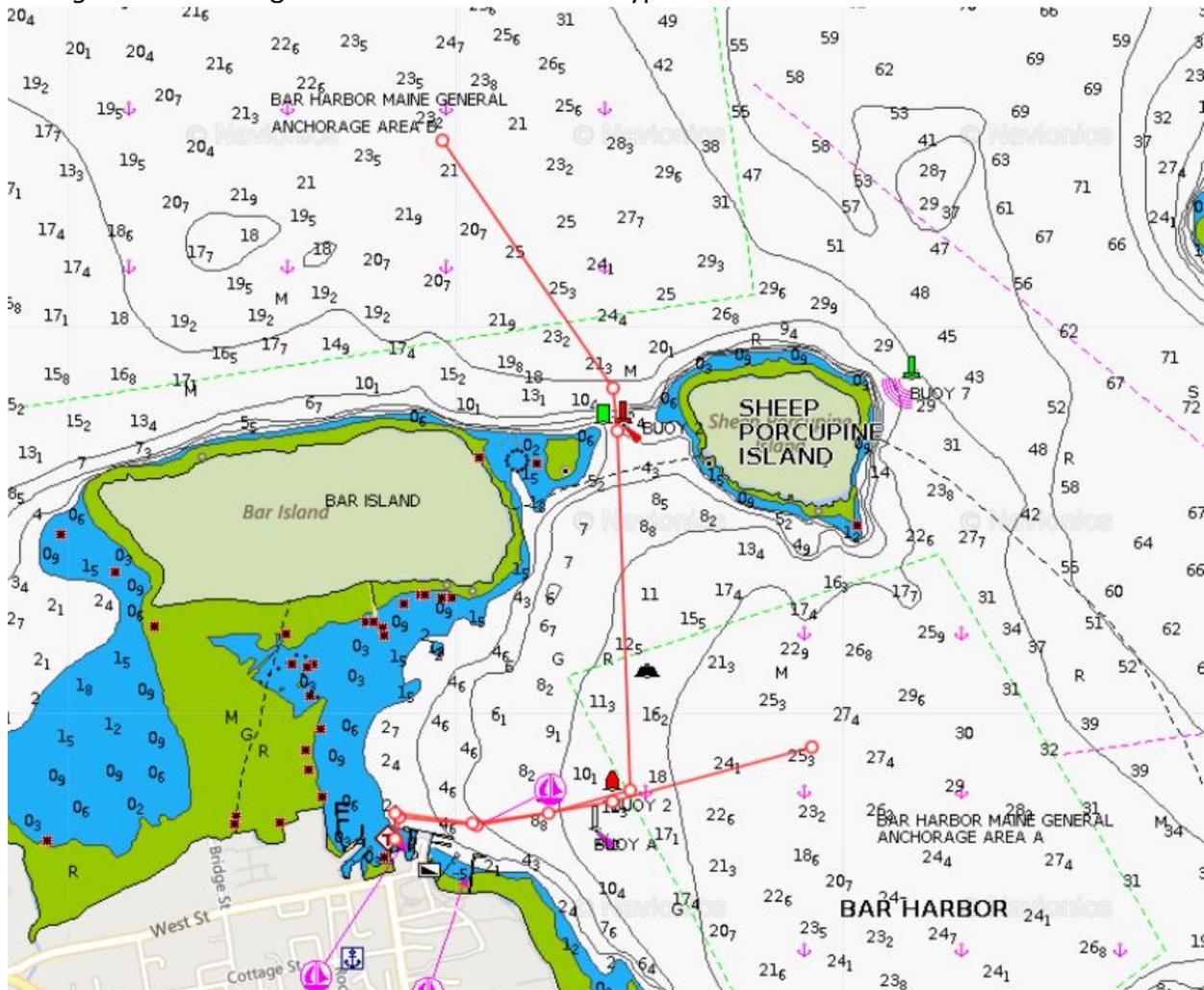


Source: Operations & Maritime LLC

4.1.3 Tender Operations

On most cruise ships, tenders double as lifeboats. As lifeboats, they are rated for 150 passengers (PAX), a number difficult to accommodate under the best conditions. For tendering, 120 PAX is the maximum, but in the interest of passenger comfort, a 100 PAX maximum is the norm for each tender. An important factor in the maximum number of passengers is the exponential nature of load time: while a small number of people can be loaded fairly easily, trying to push for 120 PAX yields a diseconomy as more time is spent loading and unloading than transiting. On very long transits, such as Anchorage B (shown in Figure 7.), it's sensible to aim for a high passenger count, while for relatively short transits, as from Anchorage A, running a low count is preferable. Lastly, if no top deck is rigged because of weather conditions, then the tender capacity is usually further reduced to 80-90 PAX. The loading of the tender at the ship takes around 10 minutes for 80-100 PAX. Unloading is slightly faster with no security checkpoint and longer when the return to the ship requires passing through security. The tender transit time from Anchorage A is around 10 minutes, which allows for reduced speed near channel buoys and moored craft.

Figure 7. Anchorage A & B in Bar Harbor with typical tender routes



Source: Own diagram based on historical ship anchorage location

Figure 8. Two cruise ships at anchorage A & B



Source: Bar Harbor Harbormaster Office

The tender unloading at the floating dock takes around five minutes, and the transit back to the ship another ten, for a full turnaround time of thirty-five minutes per tender from the ship to shore. If the ship is located at anchorage B or further out, then more time is needed.

4.1.4 Immigration

If immigration is required (based on the ship's last port of call), then the process will commence at around 0800 hrs. Depending on the cruise itinerary and the previous ports, an immigration inspection may be required for guests and/or the crew. If the ship is coming from Canada or Bermuda, for example, both guests and crew must go through this immigration process. Immigration inspection for the crew can affect the speed of shipside tender operations, but immigration for passengers is a much larger disruption: the guests cannot go ashore if they have not been cleared through immigration. Prioritizing and organizing tour groups to see immigration officers can delay normal operations as much as 1 hour.

4.1.5 Tours

At 0800 passengers assemble for their tours in a large onboard area, typically the ship's theatre. Ship-organized tours are given priority for disembarking the ship. The tours meet onboard, and all visitors board a tender at the same time for the transit to shore. The tour groups reconvene ashore to board the buses to start the tour. Sometimes a tour is spread over more than one tender, which requires buses to wait shoreside for the next tender. Executing this process as quickly as possible ensures delays are minimized. Tour groups then assemble ashore, usually with a leader/guide holding a lollipop indicating the tour number. A large area is required to reassemble tour groups exiting the tenders so that together they can board the buses to start the tour. The smaller the available area, the longer the gathering process and the more likely the tour will be delayed. After all tours have departed, the ship will allow passengers to go ashore via "open tendering," during which PAX can freely choose their tender time. This time window depends greatly on how many tours have been sold, but it usually begins around 1030 (2-3 hours after arrival).

Figure 9. Tenders in Bar Harbor



Source: Bar Harbor Harbormaster Office

4.1.6 Shore tenders

Shore tenders typically have similar or higher capacities than ship tenders but a much faster speed. They can complete a transit in about half the time of a ship tender. Medium-to-large cruise ships will employ shoreside tenders, if available, to assist with the tender operation, at least for part of the day. In some instances, very large 400 PAX shore tenders are used when a large vessel, such as Anthem of the Seas, calls in. While the bigger tender allows for a large number of people to be transferred together, it also means 600-800 passengers arrive at the town all at once.

4.1.7 Other considerations

Passengers in wheelchairs or mobility scooters can slow down the transfer process. At low tide, the pier ramp is long and steep, requiring more time and manpower to ensure safe transit and slowing down the loading or unloading of the tender. Also, as mentioned above, some of these passengers might elect to remain onboard if the journey seems daunting or port reviews note accessibility as a challenge.

Crew members usually start to go ashore at around 1130, when most have finished their morning duties and the guest flow in the tenders diminishes enough to allow room. Medium-sized cruise ships, with 700-1000 crew members, can expect 10% of the crew to go ashore on a typical day, the majority between the hours of 1100-1400. The last tenders will usually announce their leaving to the guests 30 minutes in advance of departure to prevent any guests late to the tender pier from delaying the ship.

Some ship tenders are fitted with radar, but most are not. So whether they will be deployed in conditions of poor visibility depends on company policy and the competency of the crew. Whatever the case, limited visibility slows down the operation. Loading and unloading the tender may take about the same time, but tender transit can take twice as long, owing to the slow speeds.

4.1.8 Security on the pier/line

To comply with security protocols, a security tent/kiosk is set up at the entrance to the tender pier. Here the line of passengers forms to board the tenders to return to the ship. When multiple tours return at similar times, a long line will form at the pier, hence ample room to accommodate the line is essential. Worse yet, when multiple ships compound the crowding, the overall perception of service quality is skewed. Adequate toilet facilities are also necessary, as the return journey can take some time at peak hours. For ships at Anchorage B, facilities must be capable of accommodating a large number of users.

All passengers reboarding the ship must pass through a metal detector, and all bags are inspected/X-rayed. Because most ships have only one screening station, the tenders can unload only at the rate they can be screened. Therefore, a smaller continuous flow of tenders utilizing the line semi-permanently is preferred to larger tenders creating surges. Usually, there is not enough room onboard to set up a second screening line. To circumvent this issue and expedite

operations, some companies elect to do some or all screening shoreside, where space is not at such a premium.

4.1.9 Required speeds to next port

The required speed to the next port of call is a main impetus for departing on time. Delays to departure increase the ship's required speed, which in most cases involves significant costs. Next ports of call from Bar Harbor are commonly Boston, Massachusetts; Portland, Maine; or Saint John, New Brunswick, Canada. The speed to these ports is usually in the 12-15 knot range, but delays can require increasing the speed to 17 knots, which may require firing an extra engine/generator just to recover lost time. Lastly, NOAA Right Whale voluntary speed restrictions, when observed, slow vessels down to 11 knots¹⁸, which puts further pressure on timely departures.

4.2 Cruise Tourism Impact on Bar Harbor Traffic

Bar Harbor is a destination port, not a turnaround port, for the cruise industry, hence passengers generate very little car traffic. The most visible vehicles associated with the passenger visits are the buses providing shoreside tours—mostly large motor coaches but also smaller minibus and sprinter-type vans. Private tours can also be arranged with local taxis and small operators of various types of passenger vehicles. There are other possible sources of vehicular traffic, though these are generally regarded as negligible. There is the potential traffic generated by the local population wishing to visit friends and relatives among PAX and crew calling into town. Though there are no clear records on these numbers, they are assumed to be minimal, falling under the day-tripper category. Traffic can be generated by downlining PAX who missed the ship at a previous port, or some PAX might need to end their cruise in Bar Harbor for personal or medical reasons, possibly generating scant vehicular traffic. Lastly, traffic can be generated by PAX or crew members needing some shoreside medical care. Again, these categories of movement are minimal and do not have a measurable impact on congestion during cruise ship visits.

4.3 Other Tourism Impacts to Bar Harbor Traffic

We visited Bar Harbor during the “soft” spring season of tourism, when ships called on Sunday and Thursday. Our timing afforded us the opportunity to see both a weekend day with potential weekender trips and a workweek day with the normal town activities. Though pedestrians overflowed the areas designated for them, spilling into the streets, no vehicular congestion was observable on May 12th or on May 15th because of the low count of both passengers and cars on the road. Ample parking was even available, suggesting that there is no heavy vehicular congestion on “soft” season cruise days and, when land-based tourism demand is soft, there is no vehicular congestion or lack of parking space in town.

¹⁸ NOAA, Reducing Ship Strikes to North Atlantic Right Whales, Retrieved May 25th 2019 from: <https://www.fisheries.noaa.gov/national/endangered-species-conservation/reducing-ship-strikes-north-atlantic-right-whales#seasonal-management-areas---northeast>

Increases in vehicular traffic and lack of parking are more likely due to land-based tourism, which has grown as the result of Bar Harbor's increased popularity as a tourism destination. Some unplanned growth is likely a product of the shift towards a "gig economy", with the rise of *Airbnb* altering the expected traffic patterns in town and around the island. This surge in growth came without a proper study of the impact on transportation. It is our understanding that the same unplanned approach occurred when new hotels of greater capacity were built.

It is also important to note that a new ferry service linking Bar Harbor to Yarmouth in Nova Scotia, Canada, is set to debut, and it is certain to negatively impact vehicular congestion. Whereas cruise passengers don't bring cars on their cruise, ferry passengers mostly do.

4.4 Acadia National Park Change in Transportation Plan

While the Acadia National Park transportation plan is outside the scope of this study, it is important to note two major changes that will affect the dynamics of cruise operations in downtown Bar Harbor. First, the park is implementing a new rule allowing only smaller buses in the park. Currently, a significant number of shoreside tours of the park are via full-sized motor coaches. The new rules come with some uncertainty as to the types of tours to be offered and the number of differently sized motor coaches to be accommodated in the downtown area. Second, another important change is in the tariff charge for tour buses, which will effectively double the retail price of the cheapest tour offered on large coaches. It is clear that this price increase will curb the demand for such tours, but unclear whether it will translate to more pedestrians in town, smaller buses offering the tours, substitute tours on large and small buses, or a reduced number of ships and passengers due to a new lower yield for the destination.

4.5 Previous Parking Study

According to a parking study released by Desman in 2015¹⁹, the entire town center of Bar Harbor is, as measured by number of parking spaces, operating at full capacity during the summer months. At the time, it was estimated that an additional 75 parking spaces would be required just to ease congestion downtown. The study assumed a natural annual growth rate of 2.0%, which would require an additional 10 parking spaces by 2020 and identified shortfalls related to the width of sidewalks and sections of Mount Desert Street, the rectification of which would translate into the loss of another 63 parking spaces. The study considered the parking spaces needed for displaced vehicles from existing residential areas as well as future developments (restaurants, retail outlets, theater). Overall, the study recommended the construction of a new garage with a capacity of 300 to 350 parking spaces. It also found that the lack of parking space increases the congestion on the street since vehicles are circling for spaces.

¹⁹ Desman Design Management, "Feasibility Study – Backyard Lot Parking Garage," Submitted to Cornell Knight, Town Manager, Bar Harbor, October 20, 2015.

4.5 New Ferry Terminal

The ferry terminal was acquired by BH from Maine DOT on January 31st, 2019, at the cost of \$3.5M²⁰, adding new dimensions to the overall traffic and available space for parking. While no studies were conducted to evaluate the exact percentage of traffic increase, it can be assumed that nearly 100% of the vehicles will take the road out of Mount Desert Island, some of which will undoubtedly elect to come to the town. The terminal land was transferred by the state of Maine to the town of Bar Harbor with a number of conditions for its future use, all mainly related to maintaining the property as a maritime nexus. The town just signed a lease with Bay Ferries allowing them to relocate ferry operations from Portland to Bar Harbor and continue to connect Yarmouth, Nova Scotia, to Maine. Bay Ferries reported to the town of Bar Harbor that it expects to ferry 24,000 vehicles, including 40 buses, and a total of 60,000 passengers. The signed deal will see the town receiving \$264K CDN per year for the lease of part of the terminal land²¹, which translates to roughly \$3.20 USD per ferry passenger, plus a per unit fees of \$2 per passenger, \$3 per vehicle and \$20 per bus²². If the forecast holds true every year that would translate to roughly \$392K in gross revenue for the town. In contrast with the town current head tax of \$4.46 per cruise passenger, which generated gross revenues of \$919,293 for FY 2018, \$1,022,506 for FY 2019²³, and forecasted revenues of \$1,133,840 for FY 2020.

The new ferry traffic will exacerbate the congestion on the only road out of Mount Desert Island and increase in-town traffic. To prevent excessive traffic in town, incoming ferry passengers heading for Bar Harbor should be urged to leave their vehicles at the ferry terminal and either walk or take a shuttle to the town. Their doing so will help to alleviate the heavy flow of vehicles onto the main road and further traffic in town. Overall, from the information currently available, it is hard to understand the decision of the town—aside from the objective of preserving a maritime nexus—to allow thousands of vehicles through this transportation mode for the modest rent they will generate.

²⁰ Pritchard, Becky Bay Ferry Leased Inked ,Retrieved March 10 2019 from:
<https://www.mdislander.com/uncategorized/bay-ferries-lease-inked>

²¹ Pritchard, Becky Bay Ferry Leased Inked Retrieved March 10 2019 from:
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²² Pritchard, Becky, Cat Makes Quick Visit Retrieved June 26th from: <https://www.mdislander.com/maine-news/lacking-cbp-permits-for-bar-harbor-terminal-bay-ferries-cancels-more-reservations>

²³ Bar Harbor FY 2019 Budget retrieved June 30th from:
<http://www.barharbormaine.gov/DocumentCenter/View/2997/Cruise-ship--Parking-20190124?bidId=>

5. Recommendations

In this section, we discuss our key recommendations to improve the visitor experience of Bar Harbor, minimize the impact on residents, and position Bar Harbor as a top tourism destination. While most of the recommendations could be implemented independently, taken together their combined effect would exceed the sum of their individual contributions, offering the most effective and beneficial approach.

5.1 Maritime Security & Pedestrian Safety

The first recommendation is to improve the maritime security posture of the waterfront area. Currently, there are no security measures to prevent vehicular incidents. Last summer, on July 7th, 2018, at approximately 0945, during peak pedestrian activity near Agamont Park, a driver drove on a pedestrian-filled sidewalk to bypass a blocked-off street. The driver claimed confusion, not evil intentions or road rage²⁴. Still, the event does point to the vulnerability of all pedestrians given the current ad hoc and “soft” arrangements on cruise days. Design recommendations are provided in following subsections to address specific vulnerabilities. As will be evident, a number of maritime security issues need to be mitigated.

Secondly, whether a vehicle driver has nefarious intentions or merely loses control due to mechanical failure or any other reason, pedestrian safety needs to be improved through a better modal separation between vehicular and pedestrian traffic. The current sidewalks, pedestrian crossings, location for tendering, and the transfer to ground transportation need to be revised. In this day of active vehicular attacks, pedestrian safety and maritime security, as related to streetscaping, are intricately linked. In Bar Harbor, the geographies of Main Street, a steep hill downward to a pedestrian area, and that of West Street, a straight line into a dense cruise passenger area, are particularly vulnerable to incidents involving pedestrians and vehicles. Specific actionable recommendations are given in subsections below, but it should be noted that overall pedestrian safety is currently lacking.

5.2 Crossing Guards and Police Presence

Currently, there is one police officer assigned to ensure both law and order and traffic compliance at the West and Main Street intersection, a particularly challenging corner for only one person. While specific streetscaping designs could help achieve modal separation at that corner, a greater officer presence is much needed in the dense traffic areas. The addition of public safety officers, like the current staff in the traffic division, acting as crossing guards and directing pedestrian and vehicular traffic would optimize traffic fluidity and allow for better control of pedestrians, thereby increasing their safety while crossing. Similar measures were enacted with success in other cruise ports, such as Juneau, Alaska, which faced similar modal separation challenges. The recommended safety officers, though not law enforcement, should have radios to quickly reach their law enforcement colleagues for support when needed. Their exact number would vary depending on the number of pedestrians and vehicles and should be at the discretion of the police chief. It appears that at minimum one officer would be needed at Main and West Streets,

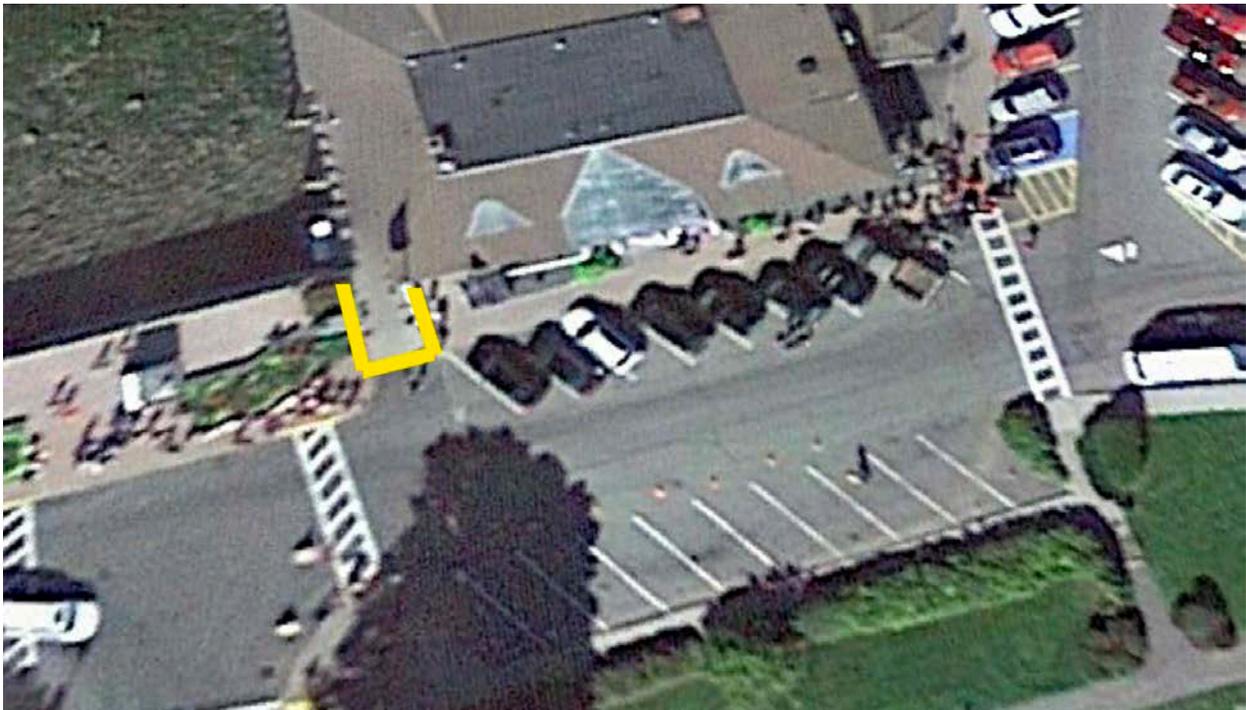
²⁴ For more information see: Bar Harbor Police incident 18BH-3363.

one at Newport Drive and Main, and one to close off traffic on Agamont Lane. If tenders continue to arrive at the Ocean Property location on West and Rodick Street, then a safety officer will likely be needed there. Other areas in town might also benefit from officers in peak season, when vehicular and pedestrian traffic reaches its height. Their number, therefore, could vary from three to five. The current officer assigned on a cruise ship day should be free to roam the area and assist the safety officers overseeing the pedestrian crossing and the restricted zones.

5.3 Tendering Arrival Location

Some of the problems of modal separation and overall passenger experience would be solved by moving the tendering to the main town pier to provide the appropriate space for passenger arrival and connection with tours. Currently, the main tendering wharf is located on private property whose inadequate landing space and poor safety and security measures for passengers force pedestrians to spill into the street. Furthermore, the current second location, near the corner of West and Rodick, does not have the public space to accommodate the tour buses nor the passengers exiting the private property. While some risks can be mitigated by changing the intersection configuration at West and Main, the main town pier is better suited to receive thousands of passengers in an hour, as its location would not force passengers straight into one of the busiest town intersections nor impede traffic on West Street. As Figure 10 shows, the current main landing area for passengers is the small space highlighted in yellow below the landing area. Relocating all tender arrivals to the town pier and creating a proper arrival zone there would greatly improve both the traffic situation and pedestrian safety and security.

Figure 10. Current main landing point for passengers



Source: Own Graphic Using Google Earth Satellite Imagery

Figure 11 shows that the area is quickly overwhelmed when tenders carrying passengers arrive. It becomes clear, even on a light cruise day with fewer than 2000 PAX, that the area can neither contain nor ensure the safety of the passengers.

Figure 11. Passengers arrive in the morning and overflow



Source: Bar Harbor Police Department

5.4 Tour Pickup Location

The location of the pickup area for tour passengers must not impede regular town traffic. For tour groups waiting to board a bus, there are currently no safe spaces to congregate without blocking either the streets or sidewalks. West and Main Streets should not be used for any pickup or drop-off that impedes vehicular traffic. If private operators intend to use public space, a permit process should be setup to ensure an evaluation of the impact of the proposed operation on the town's other priorities. Figures 12 and 13 show the impact of buses stopping in an area not designed for them and impeding normal traffic: congestion and therefore a diminished visitor experience. The West Street and Rodick Street area for receiving tenders should service only very small ships, as the area cannot accommodate a large number of tour buses, nor can it absorb large numbers of passengers without interfering with traffic. Tour sign-in and grouping should be completed off the main sidewalk used by non-tour pedestrians to proceed from the waterfront to the town area.

Figure 12. Bus impeding two-way traffic on West Street



Source: Bar Harbor Police Department

Figure 13. Bus impeding two-way traffic on West Street



Source: Bar Harbor Police Department

5.5 Newport Drive to West Street

To improve traffic flow and pedestrian safety, the loop created by Agamont Lane to the pier and then to West Street should be limited to one-way traffic only. As is, most vehicles already proceed as if the loop is one-way. Codifying this pattern will allow room for a pedestrian zone on cruise ship days and a redesign of the pedestrian crosswalk for optimal flow and separation from vehicular traffic. If the pier were to remain a parking lot, then a one-way should be created only on West Street between Agamont Lane and Main Street, as shown in Figure 14a, to allow cars using the parking facility to egress through Agamont lane without going through the pedestrian safe zone. This one-way will also facilitate flow at the intersection of West and Main Streets.

Figure 14a. One way northward on Agamont Lane towards the pier



Figure 14B. One way westward on part of West Street



5.6 Three-Way Stop at West and Main Street

At the best of times, the current intersection at West and Main Street is confusing for out-of-town vehicular traffic, and it is even worse on a cruise day. To improve road safety for both vehicles and pedestrians, a three-way stop should be permanently installed to eventually allow for a more coherent traffic pattern and safer crossing situations for pedestrians.

5.7 Harborview Park at Main and West Streets

Another recommendation is to properly landscape the park to accommodate pedestrian traffic and increase safety and security. Though just redone in 2018, the park fails to promote proper flow, it endangers pedestrians, exposing them to runaway vehicles, and it does not complement the town's overall aesthetic. Therefore, to improve pedestrian safety and security and to reduce cross-modal incursions, the park needs to be fully redesigned as soon as practicable.

Figure 15. Pedestrians lack properly sized crosswalks and a proper modal separation



Source: Bar Harbor Police Department

Figure 16. Pedestrian traffic overflowing onto the street



Source: Bar Harbor Police Department

Figure 17. Pedestrian traffic overflowing onto the street



Source: Bar Harbor Police Department

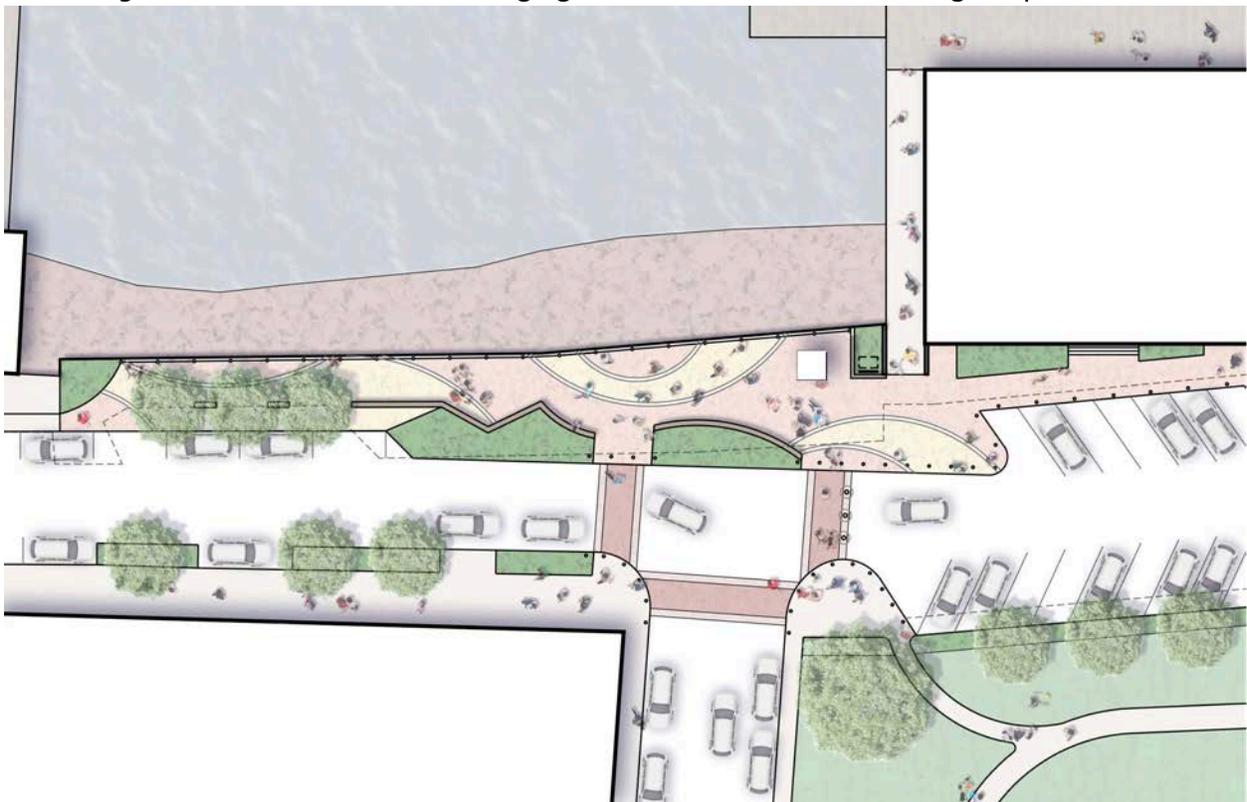
5.7.1 Harborview Park LARK Design Vision

The Harborview Park utilizes a combination of planters and bollards to help protect the large groups of visitors moving through the space. These features provide an ample degree of physical and visual separation between pedestrians and vehicular traffic. Open hardscape space enables small events to take place in the park. Plentiful, lush plant beds help soften the fields of paving, and views from Agamont Park and surrounding businesses overlooking Harborview Park are improved. The space provides seating for those admiring the ocean, resting from walking about town, or waiting for their cruise ship.

Bollards help illuminate and extend park hours for the use of the space. The bollards can also be utilized by the Bar Harbor Police Department for controlling pedestrian and crowd movement during large events or cruise ship days. The removal of two parking spaces near One West Street greatly increases the space available for pedestrians accessing the park, helping alleviate ongoing congestion problems in the area.

Colored, paved crosswalks provide a clear distinction between pedestrian and vehicular space. In the western portion of the park, head-in parking is changed to parallel parking (with just one space removed), following the adjacent parking conditions. The benches, bollards, and street trees complement the existing streetscape on West Street, and match future streetscape upgrades planned for downtown Bar Harbor.

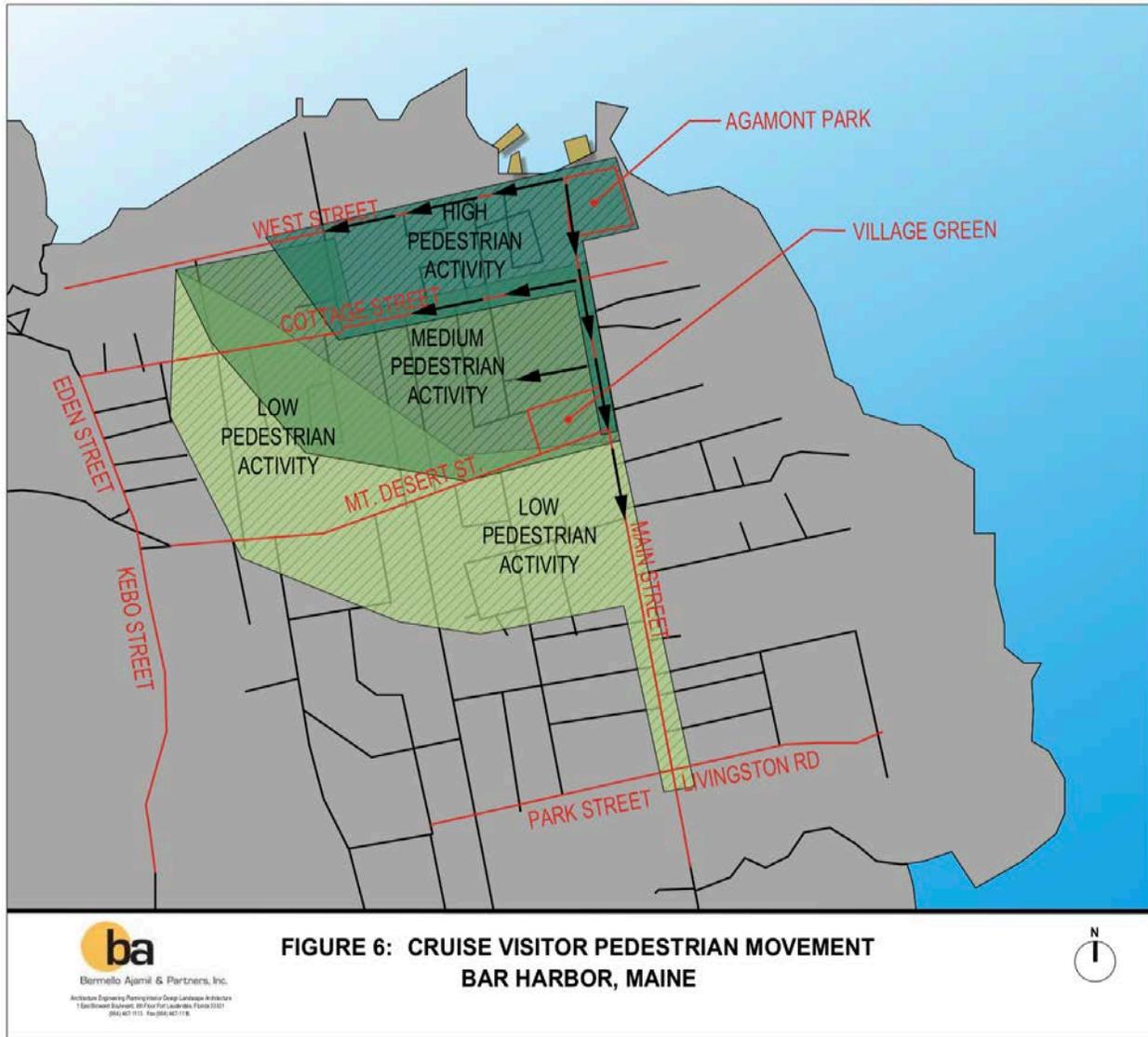
Figure 18. Harborview Park changing the intersection and widening the plaza



5.8 The Town Pier

The town pier is designed to be a working pier for fishermen and other maritime activities requiring a maritime nexus. However, it is currently used mostly as a waterfront parking lot for a variety of vehicles, a very poor use of prime waterfront real estate. Despite the acknowledged dearth of parking in the downtown area, designating this space as a parking lot actually exacerbates congestion because vehicles must cross the densest area of town to reach it (see Figure 19). Given its prominent location, it is a go-to choice for day trippers seeking parking. On non-cruise days, this means many vehicles are circling the parking lot for a space; on a cruise day, all this jockeying creates a pedestrian safety challenge, as outlined above. Furthermore, fishermen depending on this pier as a working pier struggle to find parking at the peak of the season. We therefore recommend returning the pier to its true vocation: a working pier and maritime nexus. The only parking available should be thirty-five spots for the fishermen and official vehicles and up to five scenic spaces reserved for residents to park short term and enjoy the vista from their cars. Public parking should be completely removed to improve vehicle fluidity, modal separation, and pedestrian safety on both cruise and non-cruise days. Solutions to compensate for the loss of the forty-three parking spaces is discussed in following recommendations. The overall space should be redesigned to provide both flexible green space for residents and visitors to enjoy the waterfront and a better landing area for visitors arriving by either cruise ship tenders or private boats. Finally, the green area would serve as a great vista point and an area for cruise passengers going on tour to check-in and group prior to boarding their bus.

Figure 19: Cruise Visitor Pedestrian Movement



Source: Town of Bar Harbor Cruise Tourism Destination Management Plan, Bermello Ajamil & Partners Inc. May 2007²⁵

²⁵ Town of Bar Harbor Cruise Tourism Destination Management Plan retrieved on May 20th 2019 from: <https://www.barharmormaine.gov/DocumentCenter/View/641/Cruise-Ship-Management-Study?bidId=>

5.8.1 LARK Design Vision for the Pier Park

Pier Park offers a vibrant and welcoming space for Bar Harbor visitors and residents alike. Sweeping views and softscape features allow visitors to weave around drifting beds of planting reminiscent of the Porcupine Islands in Frenchman Bay so that tender passengers and boaters who have just sailed through these islands will disembark on Bar Harbor pier into an aesthetic culmination of this experience. Liberal use of plantings soften and enhance the views from Agamont Park to the Harbor. The park offers flexible space, providing ample room for events, tents, or stages. Outdoor dining areas and seating areas provide views of the ocean. Generous walkways allow large groups of people to easily move through the space. Bollards, shade trees, and crosswalks help separate pedestrians from vehicular traffic and parking. While the park decreases the existing hardscape, parking space is allocated to the west of the park with handicap accessible spaces, fisherman spaces, and resident waterfront parking. The northern tip of the pier is maintained for the working waterfront as well.

Figure 20. Proposed design of a working fisherman's pier and park



5.9 Staging Area on Cruise Days

We recommend blocking off the areas around Agamont Park to create a pedestrian safe zone, one accessible to only authorized vehicles, such as registered fishermen, city vehicles, and permitted tours and organizations with a business purpose in that area. Vehicles permitted to enter the area should be at the discretion of the Bar Harbor police chief, who could adjudicate the operational need vs. the safety and security needs. We recommend that traffic be blocked at West and Main from entering the pedestrian zone as well as at the Agamont Lane entrance at the corner of Newport Drive.

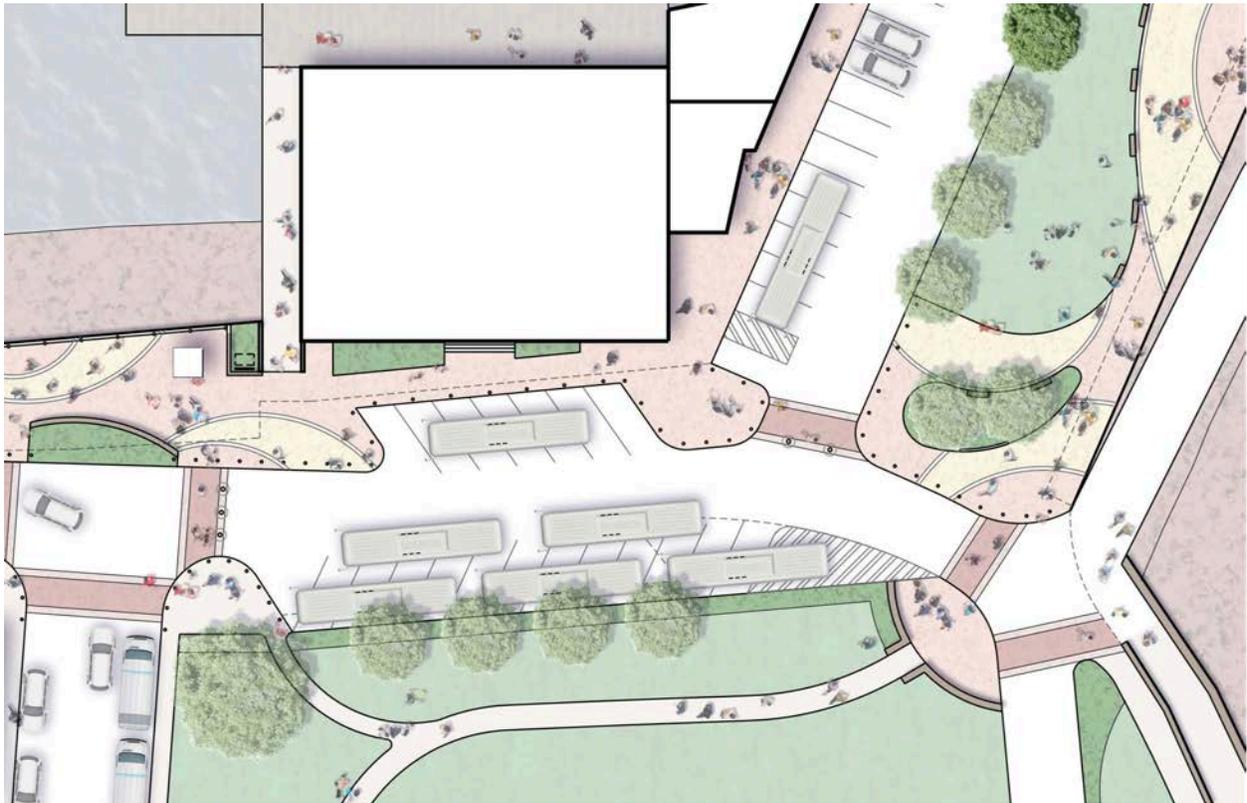
5.10 Tour Bus Operations

The land tour side of the cruise operations is an important part of the visitor experience. Cruise passengers want a smooth transfer from the ship to the tender to the buses. Since tours cannot always be aligned with tenders, it is important that buses for tours leaving at a similar time be allowed to stage nearby. That being said, there is no reason for buses to arrive 2-3 hours before cruise passengers arrive. Buses should arrive no more than 1-hour prior to the scheduled tour time. On busy days, when 10-14 coaches can depart within an hour, the advance time might need to be reduced to 30-45 minutes to accommodate the space. To minimize nuisance, maintain the cruise visitor experience, and allow for optimum traffic flow, buses should stage by the town pier on West Street north of Agamont Park with consideration to minimize visual and auditive impact. A chief complaint of nearby hotel guests is that the air brakes of parking buses are quite noisy in the early hours of the morning. The staging of buses beyond the 1-hour threshold and off-hour parking should be at the new ferry terminal.

5.10.1 Bus Loading Zone LARK Design Vision

In Figure 21, the Bus Loading Zone area converts an existing two-way road to one-way, creating a simpler traffic pattern for this highly used and congested area. By reassigning a slight portion of the existing Agamont Park and sidewalk to hardscape, three additional parking spaces are gained, which can accommodate an additional bus parking space when required. The width of the sidewalk in front of One West Street is expanded, opening up an easier flow of pedestrian traffic headed to shops, hotels, the pier, or the shore path. The removal of a couple of parking spaces at One West Street provides ample queuing space for cruise ship passengers to more safely use this space. These few parking spaces are made up for in the expansion at Agamont Park. Retractable bollards also improve safety at this intersection by preventing wrong-way traffic down the one-way drive, especially at the busiest time of year when pedestrians are continuously crossing the intersection. Increased planting along the bottom of the hill of Agamont Park will help screen the parking and bus traffic in this location, directing views to the harbor and Frenchman Bay.

Figure 21. Bus loading zone



5.11 Small Tour Operators and Operational Vehicles

While large coaches receive much attention for their size and visibility, the cruise operations and small land-tour operators also need smaller vehicles to be accommodated. It is important to designate an area suitable for these vehicles to pickup and drop-off and one that can serve as a standby for operationally needed vehicles, such as those on government or other essential business. The area seemingly best suited would be the east side of Main Street running along Agamont Park. An alternate solution would be to allow these vehicles near the pier, space permitting and if the size of the ships and PAX count on any given day allow. The Bar Harbor chief of police should determine which tour operators to permit there for drop-off and pickup and which vehicles can park there for official business purposes. Lastly, since conditions and number of vehicles can vary, the exact number of available spots would need to be adjudicated by the police department.

5.12 Create the Bar Harbor Port Authority

Currently, authority over decisions on a variety of matters is unclear and scattered across different stakeholders. There needs to be a central port authority mandated to foster economic development for the town and a central planning authority dedicated to assessing impact on overall city operations. The current situation is not optimal: a private entity and the city share the decision-making role. The decision power resides more with the private entity, which is creating suboptimal conditions for the town-owned space, such as parks, streets, and sidewalks, which are prioritized after the private receiving dock area and their private operational constraints. Furthermore, the private entity optimizes its operational needs without regard for the impact they could have on public spaces down the line. Creating a central Bar Harbor Port Authority would allow for better coordination, master planning long-term development, and access to various grant-funding mechanisms that could be used for a coordinated and coherent development plan.

5.13 Create a visitor parking area at the Ferry Terminal

Creating a visitor parking area at the Ferry Terminal, either free or less than the cost of parking downtown, would encourage drivers to walk, bike, or take a free shuttle into town. The operating cost of the shuttle should be offset by the parking revenue from prime parking areas in town and annual parking permits. These measures would reduce the number of vehicles entering the town center, circling for parking, and exacerbating the overall congestion problem.

5.14 Seasonal Parking at Connor Emerson School

One of the tasks of this study was to consider other town-owned property available to alleviate traffic on cruise ship days. Aside from the new ferry terminal, there is the ballpark area and Connor Emerson School. The ballpark location is not conducive to alternate use, especially in the summertime during peak park usage. The school, however, is located at the end of Cottage Street, well positioned for parking when the school is out for the summer. Therefore, a recommendation is to make official use of the Connor Emerson School ground for parking with a central meter station during the two months school is out, which coincide with peak tourism season. To be clear, the suggestion is not to create any new parking space nor to expand the currently paved area. There are already enough spaces to make a difference during peak cruise time, when the school is out of session. A parking station could be added with clear signage indicating when the lot is open or closed for the season. The exact number of spaces available for seasonal reassignment should be determined through a discussion between the town and the school administration. Profits generated from the two months of parking could be shared with the school to enhance their current budget. Lastly, the school department is currently deciding what to do with the aging school. One plan is to relocate the school closer to the high school. If such a plan were realized, the old grounds to the school should be converted to a year-round parking lot. Given its location at the end of cottage street and its proximity to the town entrance, it is the best possible location for out-of-town visitor parking within a short walking distance to the core downtown area.

5.15 Parking Capacity Signage

With the new automated parking management system just acquired by the town of Bar Harbor, it is possible to see in real time how many spaces are currently paid for. Therefore, the percentage of potentially vacant spots should be put on a connected digital sign well before the ferry terminal parking to encourage people to park at the terminal or somewhere further out of the core downtown area. While the number of potentially available paid spaces does not represent all the parking available in town, it would act as a good proxy for how congested the town is and encourage people to park before proceeding to the town center.

5.16 Coordinating Delivery Vehicles to Off-Peak Hours

Various delivery trucks, for either re-supplying fuel or re-stocking the restaurants nearby, should not use the pier during periods of significant activities. The various stakeholders must work out a schedule to avoid adding unnecessary vehicles and traffic during periods of high pedestrian activity. Therefore, it is recommended that the chief of police determine which vehicles must be present during high pedestrian counts, without creating congestion or endangering pedestrian safety. Each stakeholder must work to make common sense adjustments to ensure a smooth operation for all.

6. Conclusion and Implications

It is important for a community like Bar Harbor to use this period of economic prosperity and growth to invest in its infrastructure and strengthen its position as a top tourism destination. Inevitable economic downturns will heighten competition for fewer tourism dollars spread more widely among several desirable destinations, but for now the cruise industry is poised to continue its overall expansion, adding new ships faster than retiring them. The solid economic growth and low unemployment rate of the past decade have increased the demand for tourism, and as the baby boomers retire from the workforce, their increased leisure time will likely continue to fuel land-based tourism and cruise demand. Despite favorable prospects, the cruise industry is not immune to another economic downturn and the concomitant pressure on proper yield management.

How ships are assigned to various markets depends on the characteristics of the market's demand. The demographics of the passengers seeking cruises in a given area will largely dictate the size and amenities of vessels. Vessels should be considered moveable high-value assets for generating shareholder profits. To this end, cruise companies will evaluate the yield achievable by a ship assignment in a given market. As cost rises for a given itinerary, the cruise company can either increase the price of the ticket or generate less profit for the vessel. Who absorbs the cost increase depends largely on the elasticity of demand for specific itineraries within certain demographics. The general perception of some cruise destinations is that demand for them is inelastic and strong. However, historical increases in cost of other destinations has shown otherwise. Since no cruise itinerary has ever been inelastic in demand, it is safe to assume that a cost increase would be partly absorbed by both the company and its customers in some fraction, and that this increase in cost would result in decreased passenger spending in other categories, a lower demand, and a lower vessel yield.

This softer demand and lower yield will trigger a re-evaluation of the ship assignment to determine how yield could be improved. Such a dynamic was evident when the state of Alaska passed a ballot initiative to start charging a head tax of \$50 per passenger coming to Alaska²⁶, resulting in a costly lawsuit for the state. While \$50 might seem small compared to a cabin price of \$1000 per passenger, it represents a loss of 5%. Following the increase in cost for the itinerary, the actual demand for cruises and lower yield for vessels prompted a shuffling of cruise vessels toward higher yield destinations. The following year saw a decline of 17% in passenger traffic, which only started to rebound once the fee was lowered²⁷. Recently, the city of Amsterdam decided to install a passenger head tax of 8 Euro per passenger, which prompted cruise lines to relocate some of their ports of call²⁸. It is hard to argue that Amsterdam is not a key destination as part of a European cruise, and yet operators calculated that the tax would not make for a competitive product. The New England cruise market, no longer a niche operation, has matured

²⁶ Cruise companies sue Alaska over passenger tax, retrieved May 20th 2019 from: <https://www.reuters.com/article/alaska-cruise-idUSN1827114120090918>

²⁷ CLIA Alaska, retrieved on May 20th 2019 from: <http://www.cliaalaska.org/economy/alaska-cruise-history/>

²⁸ Cruise lines ditch Amsterdam after passengers targeted by new taxes, retrieved May 20th 2019 from <https://www.telegraph.co.uk/travel/cruises/news/how-new-tourist-taxes-are-targeting-cruise-passengers/>

to a level of mass appeal and affordability. Entering this market, therefore, means encountering a greater price sensibility from passengers.

According to the “user pays” principle, those who use a service should pay for it. However, just how this principle is applied varies by degree depending on the situation, country, and context. For example, users pay only a fraction of the cost of public transit in North America. In transportation, users usually cover some of the cost through tariffs and improvement fees. This is the case for airports in Canada, where passengers are expected to cover the cost of major investments in infrastructure through airport improvement fees, which can be as high as \$35 for every flight out of an airport.

As for cruise ships, the situation varies widely according to the attractiveness and capacity of the port of call. Royal Caribbean Cruise Limited Vice Chairman, Adam Goldstein, in a cruise magazine article²⁹, was quoted as saying: “Regarding the specifics as to who pays who and how much, this is just market forces at play. These evolve over time as ports gain or lose stature in the industry.”

Other ports in the New England cruise market provide revealing examples of expenditures, such as those north of the border, in Canada. In 2018, the port of Montreal invested more than CAD \$78 million in a new cruise ship terminal. The project was financed by the Provincial government (\$20 million), the city of Montreal (\$15 million), and the port of Montreal (\$43 million)³⁰. Recently, the port of Quebec has also announced the construction of a second cruise terminal funded by the Provincial government (\$15 million), the port of Quebec (\$10 million), and the city of Quebec (\$5 million) for a total of CAD \$30 million³¹. Those two projects, funded solely by public money, are expected to generate a positive return from the increased number of tourists they will attract to those two cities.

One avenue that Bar Harbor should explore in improving its infrastructure is to apply for federal grant programs. Last year, a Maine grant program available for working pier and waterfront improvement could have been tapped to improve the downtown waterfront area. Other grant money, earmarked for maritime security, is available to make infrastructure improvements that enhance the maritime security posture. Currently, Bar Harbor benefits from receiving direct funding from the cruise passenger head tax. The recent federal judgment in Alaska ruled that while communities can levy a head tax, its allocation should be clearly connected to the people funding it.³² Therefore, it would be wise to explore multiple sources of funding to continue to improve the town’s infrastructure. Continuing to increase a tax specifically targeting the cruise passengers will lower passenger expenditure, vessel yield, and overall attractiveness of Bar Harbor as a destination.

²⁹ “Port fees – Who Pays Who?”, Cruise Insight, Spring 2012, p. 18-25.

³⁰ <https://www.port-montreal.com/en/terminal-ship-en.html>

³¹ <https://www.cruiseindustrynews.com/cruise-news/19488-quebec-announces-plan-to-build-new-cruise-terminal.html>

³² Cruise companies sue Alaska over passenger tax, retrieved on may20th 2019 from : <https://www.reuters.com/article/alaska-cruise-idUSN1827114120090918>

Lastly, Bar Harbor must judiciously apply the financial resources it has collected and still collects from the cruise passengers to long-term structural improvements that will benefit cruise passengers, residents, and other visitors. Investment should be made in these prosperous times so that the town is well positioned to minimize the impact of the next economic downturn. Spending decisions must be informed by the general applicability of the “user pays” principle, as evidenced by the recent Alaska judgment. Bar Harbor must also carefully consider its total cost as a destination for cruise lines in fee increase decisions, since higher fees negatively affect the yield of a vessel deployed to a given market.

It is of utmost importance that Bar Harbor improve safety and security measures for the visitors and residents. Improving the waterfront streetscape, traffic flow, modal separation, and pedestrian safety measures, and rescuing the working pier from its de facto parking lot status are the key recommendations. We believe that implementing all the recommendations in this report would dramatically improve the Bar Harbor experience for the residents and visitors, whereas failing to address these pressing issues will over time diminish the attractiveness and reputation of Bar Harbor as a top tourism destination.

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8. Annex - Lark Streetscape

8.1 Overarching design vision

Park, pier, and pedestrian improvements would benefit the greater Bar Harbor community. Improved and expanded parking spaces provide cleaner environments and dedicate more space to people than to cars. Safety is greatly improved by having clear pedestrian spaces and by protecting those spaces where needed with aesthetically pleasing structures or amenities. The working waterfront space would be maintained, continuing this traditional use unimpeded while welcoming cruise ship passengers first encountering Bar Harbor. The overarching goals of the proposed Pier Park, Harborview Park, and Bus Loading Zone are to increase pedestrian safety, enhance the overall aesthetics, organize and improve vehicular activity, improve viewsheds, increase the programming function of spaces, maintain a working water front, and draw design inspiration from the rich native landscape of the Harbor and its adjacent islands.

8.2 The Pier Park

Pier Park offers a vibrant and welcoming space for Bar Harbor visitors and residents alike. Sweeping views and softscape features allow visitors to weave around drifting beds of planting reminiscent of the Porcupine Islands in Frenchman Bay so that tender passengers and boaters who have just sailed through these islands will disembark on Bar Harbor pier into an aesthetic culmination of this experience. Liberal use of plantings soften and enhance the views from Agamont Park to the Harbor. The park offers flexible space, providing ample room for events, tents, or stages. Outdoor dining areas and seating areas provide views of the ocean. Generous walkways allow large groups of people to easily move through the space. Bollards, shade trees, and crosswalks help separate pedestrians from vehicular traffic and parking. While the park decreases the existing hardscape, parking space is allocated to the west of the park with handicap accessible spaces, fisherman spaces, and resident waterfront parking. The northern tip of the pier is maintained for the working waterfront as well.

8.3 Bus Loading Zone

The Bus Loading Zone area converts an existing two-way road to one-way, creating a simpler traffic pattern for this high-traffic, congested area. By reassigning a slight portion of the existing Agamont Park and sidewalk to hardscape, three additional parking spaces are gained, which can accommodate an additional bus parking space when required. The width of the sidewalk in front of One West Street is expanded, allowing an easier flow of pedestrian traffic headed to shops, hotels, the pier, or the shore path. The removal of a couple of parking spaces at One West Street provides ample queuing space for cruise ship passengers to more safely use this space. These few parking spaces are made up for in the expansion at Agamont Park. Retractable bollards also improve safety at this intersection by preventing wrong-way traffic down the one-way drive, especially at the busiest time of year when pedestrians are continuously crossing the intersection. Increased planting along the bottom of the hill of Agamont Park will help screen the parking and bus traffic in this location, directing views to the harbor and Frenchman Bay.

8.4 Harborview Park

The Harborview Park utilizes a combination of planters and bollards to help protect the large groups of visitors moving through the space. These features provide an ample degree of physical and visual separation between pedestrians and vehicular traffic. Open hardscape space enables small events to take place in the park. Plentiful, lush plant beds help soften the fields of paving, and views from Agamont Park and surrounding businesses overlooking Harborview Park are improved. The space provides seating for those admiring the ocean, resting from walking about town, or waiting for their cruise ship. Bollards help illuminate and extend park hours for the use of the space. The bollards can also be utilized by the Bar Harbor Police Department for controlling pedestrian and crowd movement during large events or cruise ship days. The removal of two parking spaces near One West Street greatly increases the space available for pedestrians accessing the park, helping alleviate ongoing congestion problems in the area. Colored, paved crosswalks provide a clear distinction between pedestrian and vehicular space. In the western portion of the park, head-in parking is changed to parallel parking (with just one space removed), following the adjacent parking conditions. The benches, bollards, and street trees complement the existing streetscape on West Street and match future streetscape upgrades planned for downtown Bar Harbor.

Figure 21. Combination of all modifications on non-cruise days

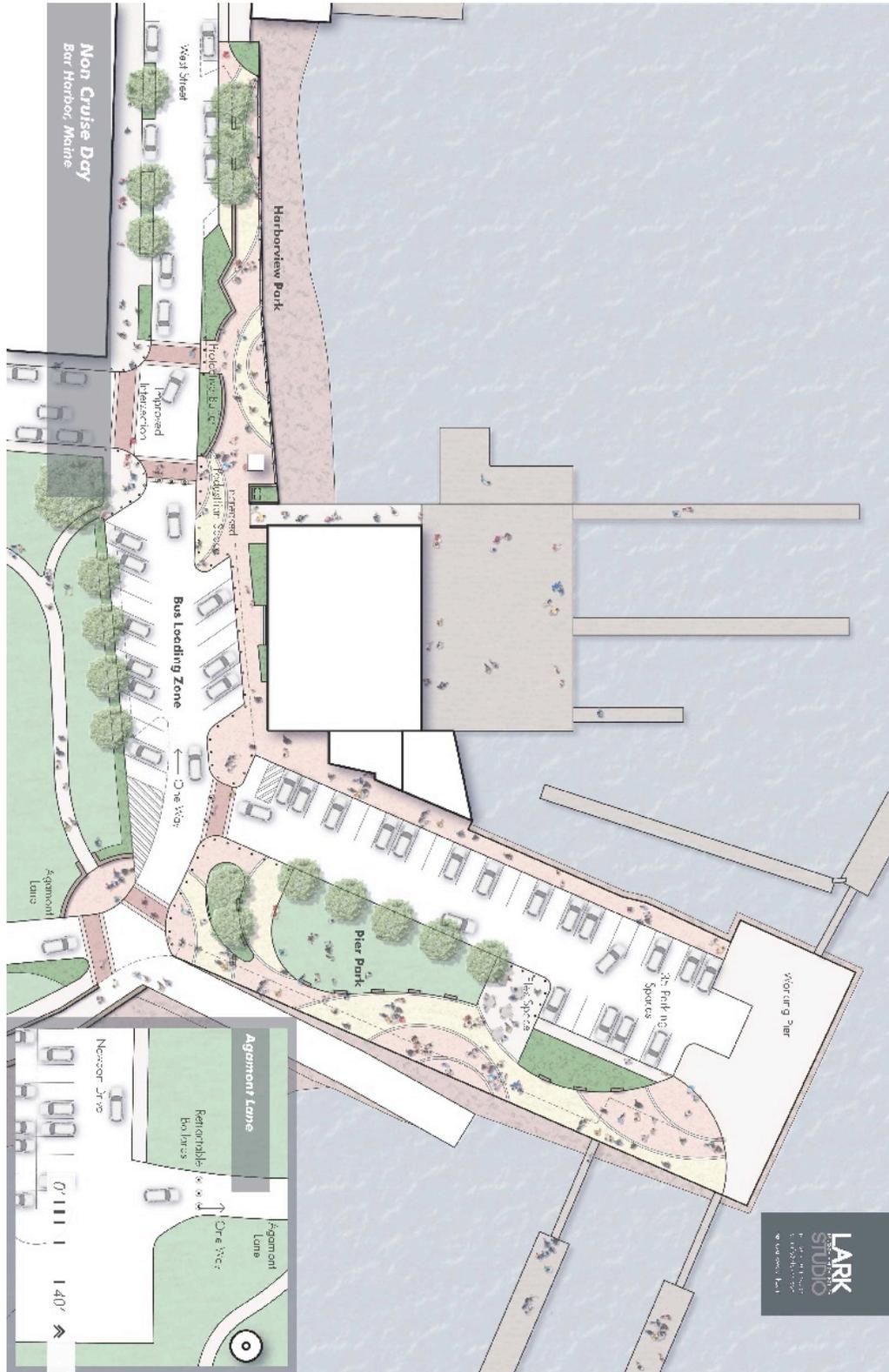


Figure 22. Combination of all modifications on cruise ship days with current-sized buses

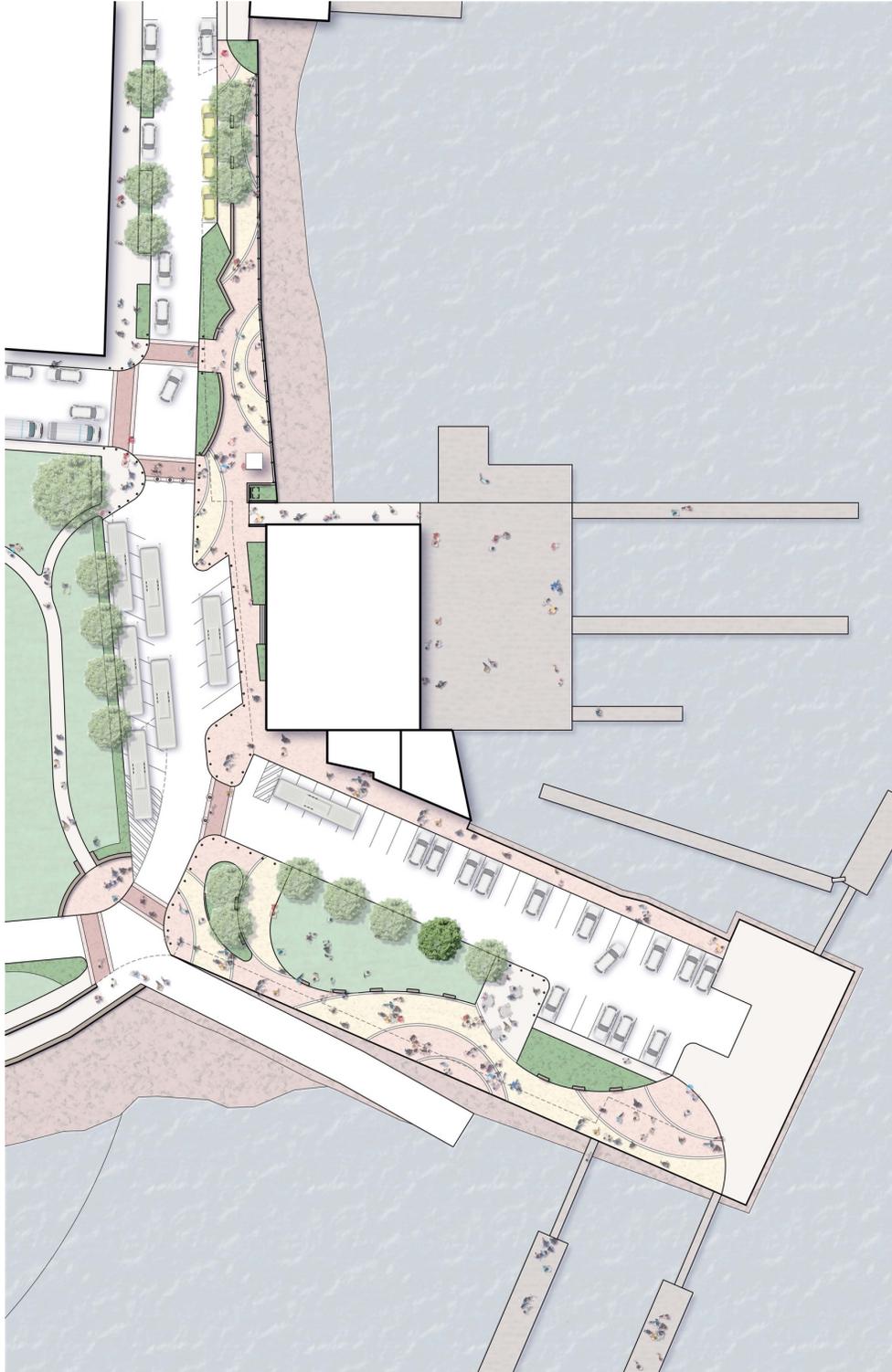


Figure 23. Combination of all modifications on cruise ship days with new Acadia Park sized buses

