

Existing Parking and Traffic Condition Assessment

For the Isle of Palms Marina

Isle of Palms, South Carolina

Prepared by: Applied Technology & Management, Inc.
941 Houston Northcutt Boulevard, Suite 201
Mount Pleasant, South Carolina 29464
(843) 414-1040

www.appliedtm.com

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Executive Summary

As part of a broad scope of services related to redevelopment master planning for the Isle of Palms Marina, Applied Technology and Management, Inc. (ATM) conducted a parking and traffic assessment for the subject site.

While ATM is generally familiar with the parking and traffic situation at the site through past staff experience and interviews with the marina operator, the team conducted onsite observations of the traffic and parking situation during Labor Day weekend in September 2015. Key observations during this weekend included:

- No clear circulation path for vehicles through facility
- Safety of traffic flow through boat ramp area is a concern
 - Vehicles, including a tour bus, belonging to non-ramp users were traversing the ramp area
 - No clear drop off point for ramp users (families and children)
 - No clear tie down area for boats leaving ramp
- Pedestrians walking through facility in roadway areas
- Some trailer parking spaces within marina site available
- Several automobile spaces within marina site available
- Several golf carts parked onsite
- One truck/trailer and several cars noted on the shoulder of 41st Avenue

In addition, ATM is aware of several other parking and traffic issues that affect the site, including:

- Congestion at the launch ramp during weekends and holidays
 - Congestion is exacerbated by presence of fuel pumps and tight ramp approach area
- Street and shoulder parking along 41st Avenue and Waterway Boulevard, particularly boat trailers
- Kayak congestion at the boat ramp
- Limited parking onsite for multiple site uses

Numerous uses or activities on the project site require parking or create traffic flow, including:

- Marina wetslips
- Marina dry storage
- 3-lane boat ramp
- Restaurant
- Tidal Wave Watersports
- Coastal Expeditions kayak rentals/tours
- Marina store
- Fuel station
- Various charter vessels moored at the marina, including Barrier Island Eco Tours

Each of these uses has specific parking requirements per the Isle of Palms Code of Ordinances or other codes/guidelines. The total parking requirements on the site include 60-150 trailer parking spaces to properly serve the three lane boat ramp and 228 car parking spaces to serve the other site uses.

Currently the site offers 44 trailer parking spaces and 161 car parking spaces. This represents an apparent deficiency of spaces. ATM feels this is misleading, however, as multiple shared use parking areas on the site exist and certain aspects of the calculation of required parking spaces are conservative.

It is our opinion, however, that the current traffic flow and parking arrangement result in physical parking and traffic inefficiencies that lead to overflow onto nearby streets (41st Avenue and Waterway Boulevard). In any case, it is our opinion that not enough boat trailer parking spaces exist on the site to properly accommodate the three lane boat ramp.

In addition to creating a master-planned traffic and parking arrangement on the site, ATM has identified several potential alternatives to increase parking capacity at and for the Isle of Palms Marina, including:

- Shared use parking
- “Park Under” drystack parking
- Improved/managed shoulder parking
- Designated golf cart parking
- Offsite parking arrangements
- Shuttle service
- Structured parking
- Reduction in the number of site uses

ATM does not recommend structured parking or a reduction in site uses at this time, but a combination of the other alternatives to achieve improved parking capacity and safe traffic flow through the site.

Pedestrian access to all site uses must be carefully considered in any site redevelopment plan to ensure visitor safety and to help eliminate congestion. Further, stormwater management, ADA access, and appropriate parking control/enforcement considerations must be made in any redevelopment plans for the site.

It is ATM’s opinion that a clean and clear traffic and parking plan for the site will improve site efficiency substantially. Specific solutions for parking and traffic flow will be presented/included with redevelopment master plan alternatives.

Introduction

As part of a broad scope of services related to redevelopment master planning for the Isle of Palms Marina, Applied Technology and Management, Inc. (ATM) conducted a parking and traffic assessment for the subject site. Parking conflicts and difficult traffic flow are well known challenges at the site. As the popularity of the marina site (and businesses located there) has grown, the parking and traffic situations at the site have deteriorated. This assessment aims to identify the various uses onsite, review the traffic and parking situation, and identify potential solutions for integration into site redevelopment planning efforts.

Site Observations

While ATM is generally familiar with the parking and traffic situation at the site through past staff experience and interviews with the marina operator, the team conducted onsite observations of the traffic and parking situation during Labor Day weekend in September 2015. Key observations during this weekend included:

- No clear circulation path for vehicles through facility
- Safety of traffic flow through boat ramp area is a concern
 - Vehicles, including a tour bus, belonging to non-ramp users were traversing the ramp area
 - No clear drop off point for ramp users (families and children)
 - No clear tie down area for boats leaving ramp
- Pedestrians walking through facility in roadway areas
- Some trailer parking spaces within marina site available
- Several automobile spaces within marina site available
- Several golf carts parked onsite
- One truck/trailer and several cars noted on the shoulder of 41st Avenue

Several of these observations and concerns were noted during project stakeholder meetings and from input received through the project website. In addition, ATM is aware of several other parking and traffic issues that affect the site, including:

- Congestion at the launch ramp during weekends and holidays
 - Congestion is exacerbated by presence of fuel pumps and tight ramp approach area
- Street and shoulder parking along 41st Avenue and Waterway Boulevard, particularly boat trailers
- Kayak congestion at the boat ramp
- Limited parking onsite for multiple site uses

The following photos were taken over the July 4th weekend of 2015 and depict some of the parking and traffic congestion at the subject site. Note the multiple uses in congested areas, including ramp approach, kayak/paddleboard usage, golf cart parking, and pedestrians in the high-traffic boat ramp area. In addition, the weekend fuel delivery occurred during prime operations hours (mid-day).



Congestion at Ramp Approach



Fuel Pump Congestion



Shoulder Parking Along 41st Avenue

Parking Demand Components

Numerous uses or activities on the project site require parking or create traffic flow, including:

- Marina wetslips
- Marina dry storage
- 3-lane boat ramp
- Restaurant
- Tidal Wave Watersports
- Coastal Expeditions kayak rentals/tours
- Marina store
- Fuel station
- Various charter vessels moored at the marina, including Barrier Island Eco Tours

The marina site and all of these uses are accessed via 41st Avenue, an improved/paved 2-lane road.

Activity at the subject site peaks during the summer boating season (Memorial Day through Labor Day), but can affect weekends throughout the year if the weather is suitable for boating activity.

Specific parking requirements for each of these uses are examined in a subsequent section of this report.

Traffic Components

The various activities on the subject site not only create demand for parking, but also influence traffic flow to and within the property. The following is a brief summary of the various traffic components on the site that the ATM team identified.

- Boat ramp traffic is filtered through the site and passes immediately adjacent to the marina store and upland fuel pumps. A 2-lane ramp approach is provided, separated by a small island and electric transformer. This arrangement causes congestion at the launch ramp area. Boat ramp parking is located generally in the center of the site.
- Regular car traffic is routed into the site in a similar fashion to boat ramp traffic. Some parking is provided adjacent to the marina store and on the south side of the property. Traffic circulation to the restaurant and watersports dock is unclear and many cars visiting the site end up traversing through the boat ramp area. This causes added congestion at the site.
- Tour and charter boat traffic is generally routed directly toward the marina store and the waterfront along Morgan Creek. The current traffic flow produces generally swift and easy access to this area of the site.
- A variety of large trucks service the various businesses on the subject site. These include provisioning trucks that service the marina store and restaurant, fuel tankers that supply gas and diesel fuel to the underground storage tanks, and garbage and recycling trucks that service the marina and restaurant.
 - The provisioning trucks that service the marina store have generally easy access to the store, but no clear parking or staging area. This does not seem to present substantial conflicts because there is a fair amount of drive space and turnaround area adjacent to the marina store.
 - The fuel delivery trucks access the underground storage tanks immediately adjacent to the upland fuel pump. Access to these tanks is adequate for small tanker trucks, except when providing deliveries during weekends or other busy periods, when boat ramp congestion can hamper traffic flow in this area of the site.
 - Garbage and recycling trucks access dumpsters immediately behind Morgan Creek Grill and on the south side of the site adjacent to the upland boat storage area. Access to these areas for garbage vehicles is good, although the screening of both dumpster areas is poor, particularly that of Morgan Creek Grill.
- Golf cart traffic has increased substantially in recent years. Many golf carts visit the marina facility. This traffic is generally confined to daylight hours and includes marina store patrons, restaurant patrons, and the local public who enjoy watching marina and boat ramp operations in the afternoon and evening. Recently, the Morgan Creek Grill established a more formal area for golf carts to park, relocating a traditional golf cart parking area on the north side of the boat ramp. Overall, however, very few designated golf cart parking spaces are provided on the site and the carts tend to park in vehicle spaces or in smaller, undesignated areas.
- Pedestrian traffic to the site occurs frequently. Cyclists and exercise walkers frequently include the marina site as a waypoint, but there is virtually no sidewalk or designated walking area within

the facility. This generally does not present a problem on weekdays and during off-peak use times, but can add to facility congestion and create safety issues during busier periods.

In addition, pedestrian access from parking areas to the waterfront is critical. Currently, there are few defined walking lanes from parking areas to the marina store, the docks, the boat ramp, and the restaurant. This causes pedestrians to cross over vehicle transit lanes and contributes to overall site congestion. Specifically, pedestrian access to the boat ramp staging docks can become somewhat dangerous during busy weekends and other periods of high boat ramp use. Kayak launching and the operations of the Coastal Expeditions at the boat ramp also can contribute to pedestrian gathering/congestion at the boat ramp.

Parking Requirements

Each of the main site components have specific or recommended parking requirements to help ensure functional and efficient operation. A summary of these requirements is presented in the following table.

Feature	Size	Required/Recommended Parking Spaces	Code/Guideline
Boat Ramp	3 Lane	60-150 (trailer)	SOBA/SCDNR
Marina	~55 slips	19	OCRM
Restaurant	325 Seats	82	IOP
	60 Employees	20	IOP
Marina Store	3856 SF	16	IOP
	7 Employees	7	IOP
Tidal Wave Watersports	200 SF Dock Hut	3	IOP
	20 Employees	20	IOP
Barrier Island Eco Tours	2 40-ft. Boats	3	IOP
	8 Employees	8	IOP
Coastal Expeditions	225 SF Hut	3	IOP
	2 Employees	2	IOP
Charter Vessels	11 Boats	33	IOP
	12 Employees	12	IOP
Total "Requirements"			
	Trailer Spaces	60-150	
	Standard Spaces	228	

Table 1 – Site Parking “Requirements”

The required or recommended parking spaces for each site component come from a variety of sources, including the States Organization for Boating Access (SOBA), South Carolina Department of Natural Resources (SCDNR), the South Carolina Department of Health and Environmental Control (SCDHEC), Ocean and Coastal Resource Management (OCRM), and the Isle of Palms Code of Ordinances. It is noted, however, that some of the uses on the subject site are unique and may not specifically fit into a well-defined use or use category with regard to parking. This makes the determination of the appropriate number of parking spaces to adequately serve the site somewhat subjective. Further, parking management techniques are often applied to waterfront developments that can reduce the overall need for dedicated parking spaces through shared use and other management strategies.

A brief examination of each site use, applicable parking standard, and calculation of required/recommended parking spaces is provided below.

- Boat Ramp – SOBA provides guidelines for the design of boat ramps and boat launching facilities. SCDNR also has published guidelines for the design of boat launching facilities. Both entities

recommend 20 to 30 trailer parking spaces per boat ramp lane for ramps with high turnover and 30 to 50 parking spaces per boat ramp lane for ramps with low turnover.

Therefore, the need for 60 (minimum for high turnover boat ramp site) to 150 (maximum for low turnover site) is suggested by these guidelines.

The classification of the turnover at the site is certainly subjective, but no fewer than 60 trailer spaces should be provided to properly accommodate the existing 3-lane boat ramp.

- The marina facility at the subject site provides berthing for approximately 55 vessels. OCRM requires at least one parking space for every three boat slips and generally analyzes parking during marina permit application reviews. OCRM parking requirements for the subject marina would total approximately 19 car parking spaces.
- The Morgan Creek Grill offers up to 325 seats, according to restaurant management and has up to 60 staff working onsite during the peak summer season. The Isle of Palms Code of Ordinances indicates that one parking space must be provided for every four restaurant seats, and one space for every three employees must also be provided. This equates to 82 patron parking spaces and 20 employee spaces.
- ATM interprets that the marina store may be classified as a “Retail business not otherwise specifically mentioned” as per the Isle of Palms Code of Ordinances. Parking requirements for this type of business include one space for each 250 square feet of gross retail floorspace not used for storage, three spaces minimum. In addition, one space per employee must be provided. The store has approximately 3,856 such square feet of space. This equates to 16 spaces for the structure and seven parking spaces for employees (number of employees provided by B. Berrigan).
- Tidal Wave Watersports, Barrier Island Eco Tours, Coastal Expeditions, and fishing charter vessels businesses operate on the subject site and are difficult to classify. No clear classification of these businesses is found in the Isle of Palms’ Code of Ordinances, therefore, ATM calculated the total parking requirements for each business using the same use category as the marina store. No traditional retail space exists for these businesses. The number of employees was provided during interviews with the operators: one captain for each inshore charter vessel and one captain plus one mate for a single larger charter vessel.

Site redevelopment will consider the above-described parking requirements and guidelines. The addition of vertical drystack storage at the site will add another factor to the overall traffic parking program at the site. OCRM requires one parking space for every three dry storage spaces to properly accommodate drystack storage. Drystack storage may well curtail the demand for trailer parking, however, as additional boat storage opportunities will be provided for trailer-sized vessels. Parking for other amenities such as parks and other public amenities will need to be considered as well.

Current Parking Availability and Usage

ATM analyzed existing parking at the subject site using visual observations, aerial imagery, and other information provided by the City (including tenant lease data). The following is a summary of ATM’s visual observations.

Parking Type	Number	Comments
Dedicated Trailer	32	Full size trailer parking
Shared Use Trailer	11	Compact trailer parking/shared with restaurant
DNR Trailer	1	For Law Enforcement Use
Standard Car	68	
Dedicated Restaurant Car	43	Lease terms suggest 33 dedicated car parking spaces
Watersports Car	15	Lease terms suggest 10 car parking spaces (8 parton, 2 empl.)
Shared Use Cars	35	Shared at discretion of marina manager
Boat Parking (Dry Storage)	31-32	Dedicated lot for boat/trailer storage
Total	Trailer Spaces	44
	Standard Spaces	161
	Boat Dry Storage	31-32

Table 2 – Site Parking Availability

In addition to information provided in the table, please refer to the Appendix for a figure depicting the existing parking areas and traffic flow at the subject site.

When compared to the totals presented in Table 1, Site Parking “Requirements,” there appears to be a deficient number of both trailer and car parking spaces on the subject site. Specifically, there appears to be a lack of at least 16 trailer parking spaces to serve the 3-lane boat ramp at a minimum level and 67 fewer car parking spaces than recommended or required to serve the remainder of the activities on the subject site.

ATM believes this direct calculation and comparison is conservative, however. This is especially the case with regard to the standard car parking spaces:

- The restaurant is primarily an evening/dinner time attraction at the site. This is typically when marina and boat ramp traffic decrease significantly. As such, there are 11 boat trailer parking spaces on the site that are designated for restaurant parking after 5 pm. This provides up to 22 additional parking spaces for restaurant patrons. Additionally, there are 35 “Shared Use” car parking spaces that are also available to restaurant patrons and staff, especially in the evenings. These additional parking spaces and shared use spaces decrease the need for full-time dedicated parking on the site by up to 57 spaces.

- Per discussions with restaurant operators, daytime use/staffing is approximately 50% of peak evening levels.
- Tidal Wave Watersports' lease indicates that they shall be provided eight parking spaces for patron parking and two employee parking spaces. This is less than what ATM calculated using an interpretation of the City's Parking Code (13 spaces).
- Using the City's Parking Code to calculate the number of required spaces for the charter vessels that call the subject site their home port, ATM determined the "need" for 45 parking spaces to accommodate this use. Marina industry design guidelines, including the popular *Layout and Design Guidelines for Marina Berthing Facilities* published by the California State Parks Division of Boating and Waterways, suggest two car parking spaces per commercial vessel. ATM believes that this is a more practical method to calculate required charter spaces at the subject marina.

Further, the charter slips are included in the overall slip total for the marina. Utilizing the aforementioned OCRM requirement for parking spaces compared to slips (1:3), this equates to about four marina parking spaces.

By applying both of these factors to the charter slip parking need, this reduces the "requirement" for 21 car parking spaces.

This analysis suggests a *surplus* of standard car parking on the subject site (about 145 car parking spaces required; 161 car parking spaces provided). This represents somewhat of an idealized scenario and, while the shared use parking arrangements at the subject site certainly are effective, the poor layout and circulation patterns on the site and frequent on-shoulder parking along 41st Avenue suggest that physical parking at the site is not as efficient as it potentially could be.

Regarding boat ramp trailer parking, it is ATM's opinion that the amount and arrangement of provided parking is inadequate. This certainly contributes to the trailer parking on 41st Avenue and Waterway Boulevard and general congestion on the site during summertime weekends and holidays. Both standard car parking and trailer parking should be given high priority in any site redevelopment plan.

Alternatives to Increase Parking Capacity

Redevelopment of the project site to include a master-planned traffic flow and parking arrangement will certainly aid in increasing the actual and practical parking capacity at the site. However, the addition of drystack storage, park/open space, etc., may impact the available area for parking. With this in mind a few potential alternatives for increasing parking capacity are suggested.

Shared Use

The concept of shared use parking spaces has been discussed previously and is currently used as a parking management tool at the subject site. In addition, shared use parking is a common concept on other urban marina and waterfront developments. In downtown Charleston, for instance, the Seabreeze Marina shares a parking area with an onsite office building. Marina usage and parking demands peak during the weekends while the offices are closed. Shared use of parking areas results in a functional parking plan for this site.

If it becomes necessary based on final redevelopment plan concepts, shared use parking should be considered at the subject site, particularly to properly accommodate restaurant staff and patrons.

Drystack

The development of vertical drystack storage will require the demonstration of one parking space for every three racks. A 150-rack structure will require 50 parking spaces. The footprint of a 150-rack drystack facility will be large and the addition of 50 parking spaces to properly service this facility could present a challenge at the subject site.

With this in mind, the concept of drystack storage with the first level reserved for vehicular parking should be considered. This “park-under” area would be accessed from the outside edge of the drystack building and would require access, but could reduce the overall parking footprint required on the site.

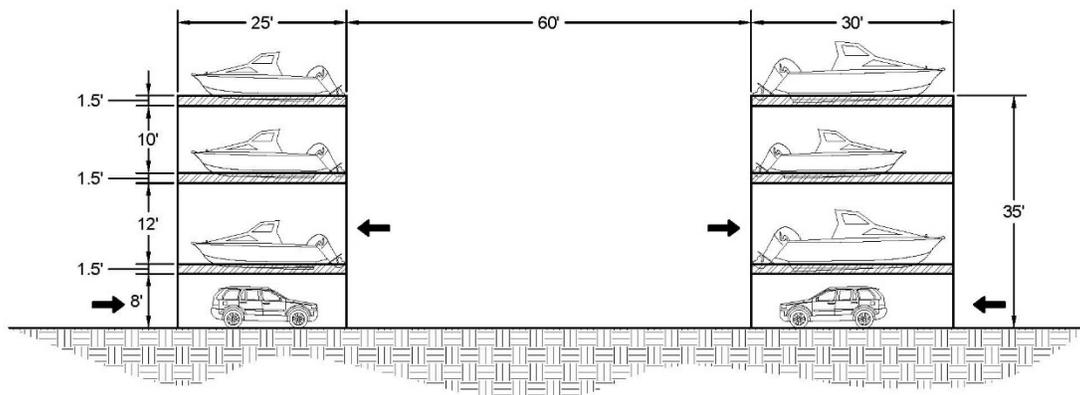


Image 1 – Potential “park-under” drystack arrangement.

Shoulder

Shoulder parking currently occurs on 41st Avenue and Waterway Boulevard near the marina during busy weekends each spring and summer. Further, ATM understands that the restaurant employees frequently park along the shoulder of 41st Avenue during their shifts. While shoulder parking along 41st and Waterway provides additional parking for the site, there are numerous detrimental effects that accompany this practice, including congestion along the roadways (particularly when trailers are not pulled all the way off the road) and damage to the unimproved/unstabilized shoulder areas (tire ruts, etc.). The practice is also aesthetically unpleasing and jeopardizes the safety of the pedestrians who park along the shoulder and walk in the roadway to and from the site.

It is ATM's opinion that shoulder parking be curtailed to the extent practical, particularly along Waterway Boulevard. Some overflow shoulder parking should be considered immediately adjacent to the subject site, however. This should be carefully planned and the shoulder area properly improved and stabilized to ensure safe parking and pedestrian travel routes to the site.

Golf Cart

With the rise in the popularity of golf carts, increased golf cart parking should be implemented onsite. These vehicles, properly licensed to operate on public roads, provide an efficient and fun transportation alternative that require less space to park. Consideration of including golf cart parking spaces in the overall parking scheme for the subject site should be given careful consideration.

Offsite

Two facilities with large parking areas are immediately adjacent to the subject site: Dewees Marina and the Wild Dunes Yacht Harbor. It was observed that often the parking spaces at these facilities are minimally occupied. Therefore, the potential to acquire access to one or both of these facilities to increase parking capacity at the Isle of Palms Marina is apparent.

ATM contacted Mr. Kim Knight of the Dewees Property Owners Association (POA) to broach the possibility of this subject. An offsite parking use scenario was suggested, perhaps just for Isle of Palms Marina employees or other employees working at the Isle of Palms Marina site. There would be no free, open public access.

Mr. Knight indicated that he discussed the issue with the Dewees POA board and mentioned that parking is a major issue at the Dewees Marina site as well. However, the board is open to discussing the issue further with the City once redevelopment plans for the Isle of Palms Marina site become more refined and actual parking needs become clear.

Through conversations with the City of Isle of Palms, ATM understands that the parking spaces observed in the Wild Dunes Yacht Harbor lot are actually owned and controlled by the individual slip holders of the Wild Dunes Yacht Harbor. Considering this, it is ATM's opinion that the development of a shared parking arrangement for this parking area would be difficult. This, however, may be researched further once specific parking needs for the subject site become clear.

Other Solutions

Other solutions to increasing the actual or effective parking at the site may include shuttle service, structured parking, or a reduction in the number of uses on the site.

Shuttle service may provide effective transport for visitors to the site from the Front Beach area or Wild Dunes and may help reduce the overall amount of vehicular traffic to the subject site. The marina, the City, or a third party may operate the shuttle. Careful consideration of economics and effective promotion of this service would be essential to success.

Structured parking could certainly help to alleviate the need for vehicular parking at the subject site. While this would not be compatible with trailer parking, it is likely that a parking garage could be located on the subject site. The costs for such a solution would be high and the aesthetic impact could be substantial. Shielding has become a common practice to hide parking garages, however, and has been recently implemented in Mount Pleasant at The Boulevard apartment complex on Coleman Boulevard and at The Standard apartment complex on James Island.

Another solution to resolving concerns about parking capacity at the subject site may be to reduce the number of uses on the site. As highlighted previously, there are numerous businesses operating on this relatively small site. Eliminating one or more of these businesses would reduce vehicular traffic to each by patrons and employees.

ATM does not suggest a reduction in uses on the subject site, however. Based on the study thus far, the mix and diversity of businesses on the site help define the site and all add something to the overall appeal of the marina. Certain aspects of certain businesses may need to be adjusted to properly accommodate site redevelopment, however. This may include, for instance, removal of the upland boat trailer storage area if vertical drystack storage is developed.

Long-Term Traffic Flows to the Site

The Isle of Palms Marina site is accessed via 41st Avenue, a paved 2-lane road that is in good condition, but runs through a residential area. This road provides adequate access to the site currently and should continue to do so since it is not anticipated that the visitation to the site will increase substantially or will require service by more or larger trucks or other vehicles.

In fact, the redevelopment of the marina should help reduce traffic on 41st Avenue as well as on Waterway Boulevard. Specifically, if vertical drystack storage is developed, it will provide an extremely attractive alternative for many trailer boaters on Isle of Palms and beyond. Coupled with the necessary reduction in trailer parking spaces (due to overall site spatial constraints and car parking needs), the amount of trailer boaters visiting the site will be reduced.

Similarly, in a redevelopment scenario where vertical drystack storage is not implemented, it is anticipated that new and carefully planned onsite trailer parking will be developed. It is ATM's strong recommendation this trailer parking be much more closely monitored and controlled to eliminate overflow onto 41st Avenue and Waterway Boulevard. Such parking monitoring and enforcement on and adjacent to the site by the City of Isle of Palms will help alleviate traffic to the marina over the long run.

Pedestrian Access Considerations

Pedestrian access to the various uses and businesses at the subject site is critical to maintain a safe and effective traffic flow and a positive experience for site visitors. Key areas of pedestrian access include:

- Restaurant – Include safe access from parking area to the restaurant
- Marina – Include safe access for marina users (slip holders, charter clients, tour groups, transient boaters, and Tidal Wave Watersports clients). This should include safe and easy drop-off and loading areas adjacent to each main dock access point.
- Boat Ramp – Safe access for boaters to and from staging docks, including safe vessel make-ready (unloading) and tie-down area to ensure boaters and their families (children) are not in an active roadway.
- Store – Adequate and proximate access for store patrons, including short-term parking and direct access. Also, direct access for walkers and cyclists from offsite to the store.
- Drystack – If the drystack is implemented, a safe and convenient patron drop-off area will be essential. Routing ALL pedestrian access around drystack launch/retrieval/forklift operation areas is critical.

Providing an improved, safer, and more enjoyable experience for pedestrians at the subject site whether they are users of onsite facilities or merely passing through in an effort to approach and experience the waterfront is a key consideration in site redevelopment planning. Enhancing shoreline treatments (e.g. boardwalks and greenspace) will enhance the experience for pedestrians and all marina site visitors.

Regulatory/Engineering Feasibility

The proposed improvements at the Isle of Palms Marina site will have to comply with local regulatory standards. These may include parking requirements as per the Isle of Palms Code of Ordinances and parking requirements set forth by OCRM with regard to marina and drystack development. These factors and requirements have been discussed in previous sections of this report and will help guide site redevelopment planning.

Shoulder parking improvements will need to be coordinated with the South Carolina Department of Transportation and, if any impacts to the ditch along 41st Avenue are contemplated, OCRM as well.

Additionally, OCRM will require a thorough stormwater management plan for any major marina redevelopment. This plan should be developed in conjunction with final site planning to support the required regulatory permit application(s) for marina redevelopment or drystack construction.

The proposed redevelopment must also fully comply with the American's with Disabilities Act (ADA). Appropriate accessible routes from parking areas to the various site uses must be considered, appropriate location and number of handicapped parking spaces provided, and other factors must be contemplated. Accessible routes to each different marina use must also be provided (e.g., boat ramp, fuel dock, Intracoastal Dock, etc.). The boat slips (docks) themselves must also comply with ADA guidelines for clearance and maneuverability. ADA compliance will be considered in site redevelopment planning and should be studied more closely during final site planning and engineering design.

Parking control on the site is a key topic that has not been covered in this report, but relates to both regulatory and engineering factors. Parking control and enforcement is a major issue that has been brought forth by the current marina manager. The lack of viable monitoring and enforcement regarding parking on the subject site adds to the congestion on the property. A redeveloped site must carefully consider parking control and implement an effective strategy to ensure proper use of site parking.

While a gate system would certainly facilitate control of parking on the subject site, numerous stakeholders also said public access to the site is a key area of concern with regard to site redevelopment. Considering this and input from City representatives regarding the negative aspects of gate control, ATM recommends that a pay-and-display system be considered for the subject site.

Utilizing a remote/bollard pay-and-display system will also help remedy the current parking pass sales and collection method. Currently, users are required to buy daily parking passes for the boat ramp or other parking spaces at the marina store or at the fuel hut on the marina docks. Utilizing a pay-and-display system also reduces labor costs related to parking pass sales. Bollards may be located in each parking area, including the trailer parking area.

A sticker system may be used to identify marina tenants, employees, etc. Selected spaces may be designated for short-term use (e.g. marina store, drop-off areas, etc.). The restaurant may also have an

area of designated spaces and all or some parking onsite may be designated as free after a certain time (e.g. 5 or 6 p.m.).

Under this scenario, careful and consistent enforcement must be included to ensure compliance and to deter misuse. The onus of enforcement would likely fall on the City, but could provide the City tangible financial benefits in terms of citation revenue.

Summary/Conclusions

Parking at the subject site was noted to be the foremost area of concern among project stakeholders. With this in mind, reviewing parking and associated traffic flow problems at the site is one of the key thrusts of this redevelopment study. The information presented in this assessment is intended to provide an objective review of existing parking and traffic conditions at and adjacent to the site as well as to outline considerations to include in site redevelopment planning efforts.

The multiple site uses and businesses, including: marina wet slips, boat ramp, restaurant, watersports dock, and numerous tour and charter businesses, create substantial demand for parking from a variety of user groups. Properly accommodating these groups presents a challenge on this small site. The addition of drystack storage increases this challenge.

Each user group must not only be properly accommodated by design guideline, but vehicular traffic flow and user (pedestrian) safety and access must also be considered. Drop-off areas for selected user groups and truck access must be taken into account in redevelopment plans to ensure functionality and efficiency at the project site. The concept of shared use parking and offsite solutions may be necessary to properly accommodate all users.

In addition, ADA access, stormwater management, and parking control solutions will have to be considered before implementing any improvements to the parking and traffic flow pattern at the site.

All of these areas will be considered during the creation of redevelopment master plan concepts. Additional analysis of parking and traffic within and immediately adjacent to the site will be included with each master plan concept that will be developed under a separate task of ATM's overall study.

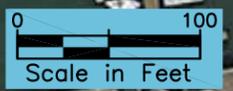
It is ATM's opinion that a clean and clear traffic and parking plan for the site will improve site efficiency substantially. Further, this will enable the variety of users who visit the Isle of Palms Marina site greater enjoyment and an enhanced visitation experience.

Appendix A

Existing Parking and Traffic Flow Figure

LEGEND

- CAR
- TRAILER
- RESTAURANT
- BOAT STORAGE
- DNR
- GOLF CARTS
- WATERSPORTS
- SHARED USE CARS
- SHARED USE TRAILERS
- 17 PARKING SPACES
- TRAFFIC FLOW



JOB NO: 15-2843	CHECKED BY: KGM
DATE: 01-22-2016	DRAWN BY: WFH
SCALE: 1"=100'	SHEET NO: 1

REVISIONS

ISLE OF PALMS MARINA
EXISTING PARKING AND TRAFFIC FLOW

ATM
APPLIED TECHNOLOGY & MANAGEMENT
941 Houston Northcutt Boulevard
Mt. Pleasant, SC 29164
(843) 414-1040
Certificate of Authorization #00359