envision
the future

Sullivan's Island Commercial District Planning Charrette

Version 5.0

“it is remarkable that any buildings on Sullivan’s Island have survived the vicissitudes of time. Fire, bombardment, tornadoes, erosion, and hurricanes have all taken their toll, but Sullivan’s Island shows us, in house after house and street after street, pictures of its own life through close to 200 years. These are things that we should not lightly lose, but, unless we look out for them they can vanish little by little through thoughtlessness, ignorance, or want of a little care until the island becomes just another hum-drum, highly commercialized beach resort.”

Images of America SULLIVAN’S ISLAND

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Acknowledgements

The Design Team would like to thank the Town of Sullivan's Island residents and business owners for a lively, interactive, and always interesting charrette process. We feel strongly in the value of public participation and we hope many of you can see the fruits of your input reflected in the design decisions made. We would also like to thank the Church of the Holy Cross for the gracious use of their wonderful facilities during the course of the entire charrette. We would especially like to thank their Facilities Manager, Hal Rose who made sure we had everything we needed at the exact moment we needed it. Hal rocks!

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Appendix: KHA Traffic Study

The Design Team felt very strongly that the design solutions put forward should be implementable – something easily within the Town’s grasp. Design theory is important, but only if that theory is based in reality. It was also important to not recommend actions that were cosmetic or superficial only and lacked real depth or substance. The Team promised the Town not to hand out “band-aid” solutions, that are more akin to “white washing” when a “structural” change is needed.

Good planning is not a “band-aid”. Good planning is inclusive in its process and thorough in its execution. Good planning provides creative but pragmatic solutions. Real solutions are not only embraced by the citizens of the community but are in fact derived from a participatory process with the public. The solution is of the community, not dictated to it.

The design recommendations are implementable and achievable; some immediately and some incrementally. They are all capable of becoming real and bringing about positive change.

The Team thanks the citizens of Sullivan’s Island, particularly the business owners and the homeowners located near the commercial district for their involvement in and contributions to the process.

Overall Study Area

Overall Study Area

Introduction & Process

The purpose of this project, stated simply, was to achieve some level of balance between land uses that are sometimes in conflict, specifically commercial and residential uses. The conflict arises mainly from the fact that so many people who frequent the commercial area must park in residential areas. The fact remains, however, that Sullivan's Island is not a resort and it is not a subdivision. It is a Town and must accommodate all the uses that comprise a Town; from homes and businesses, schools and churches, and offices and restaurants. Sometimes, when differing uses rub up against each other some friction can occur. It is the task of the Design Team to find ways to reduce that friction.

It must also be noted that Sullivan's Island exhibits some traits that are considered very desirable in the field of urban design. The area is walkable, although the lack of consistent sidewalks makes it less so than the optimum. Most of the architecture, has good street presence in terms of appropriate height, massing, and scale. The streets themselves have a good human scale, and for the most part, are not too wide. On-street parking is used in many areas and serves as a traffic calming measure.

It is no surprise that the island is a popular place to live, as is reflected by real estate values, which are among the highest in the area.

Kick Off Meeting

The Design Team, worked with the Town to employ a public design process that centered on a week-long charrette. The week commenced with a public kick off meeting on Tuesday, October 3. There were over 50 people in attendance.

Bill Eubanks, with the urban edge studio, made a presentation that focused on the ideas of quality of life and the qualities that make a livable, sustainable community. The public responded to four questions posed by the Design Team. The results of that exercise are on the following pages.

Public Response

What one thing do you love most about Sullivan's Island?

- youthful and alive
- calm, safe environment
- the character and characters of the island and its historic nature
- laid back atmosphere
- porches; walking at night in streets; great restaurants
- small town feel
- boardwalks to beach; bike paths
- beach
- small town feel including scale of buildings - beach feeling
- its unique history and relaxed atmosphere
- the sound of the ocean
- history
- access to beach and open spaces; bicycle lanes everywhere
- breeze and views
- space
- quiet, peacefulness
- can ride bikes with kids; live with windows open and porches
- residential island
- the beachfront
- open spaces between small houses/shops
- the beach and people
- lifestyles, open spaces
- close relationship of houses and porches to the streets
- the community

What one thing do you dislike most about Sullivan's Island?

- waiting for the bridge
- the frenzy of the commercial district
- the increase in size and value of houses - traffic
- parking
- lack of buffer between businesses and residents; trash at dumpsters
- Mc mansions
- new town hall
- sandspurs; lack of alternative energy
- the "rental rule" - by 24 hours
- exterior lighting - too much on some - intrusive
- summer traffic and crowds
- the party scene
- hurricanes
- litter on the beach; condition of streets - trash picked up
- large houses and buildings
- over landscaping - we are not kiawah
- noise and congestion
- delivery trucks; speeding cars in residential neighborhoods on i'on ave.
- noisy bars - drinking outdoors after 10pm
- the traffic / the crowds
- bar scene after 10 pm
- big office buildings (new on middle street) and huge houses
- crowds during the weekends and holidays
- loud drunks at 1:45 am

Public Response

What one thing would you change if you had a magic wand?

- close-minded, old-thinking locals
- eliminate “outside” eating and drinking in the commercial area
- I would turn back time, but it would take more than a wand
- more parking
- fewer people
- less late night drinking in commercial district
- more green space
- rewrite the split-zone ordinance to divide
- better parks; public landscaping; more fountains and sitting areas
- the “rental rule” - by 24 hours
- the large new building on middle st. - too big, too high, too close
- sidewalks; consolidate town hall
- bring back “old fort moultrie in the forties”
- more places to eat and shop
- large houses and buildings
- pass a law: anything you take to the beach you take home with you
- remove late night noise and crowds and traffic
- not a drinking destination; dumpsters/cleanliness behind restaurants
- eliminate outdoor bars
- the appearance of middle street
- get rid of over-sized houses
- the police. they are really hard on islanders
- we don’t want s.i. to be a drinking destination

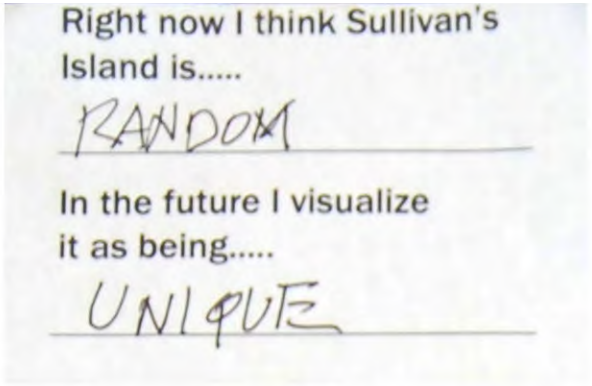
What one thing would you never allow to be changed by anyone?

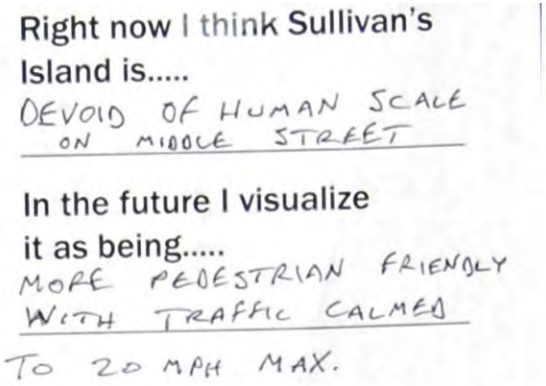
- freedom for everyone to enjoy our paradise
- subdivision of lots
- the bridge - the historic structures
- sense of community
- ability to sleep with windows open; to run with dog
- land and green spaces
- dogs on the beach and public access
- beach
- historic feeling and open spaces
- public beaches; single family residents
- recognize that the commercial district is used & enjoyed by vast majority of residents & needs to be nurtured
- community association of people and businesses
- single family residential 1/2 acre
- no impact!
- expanded business
- unleashed dogs on the beach
- dog should always be allowed on beach off leash at some time
- the beachfront
- subdivision of lots
- quality of life
- feeling of community with focus on residential, single family
- increase density

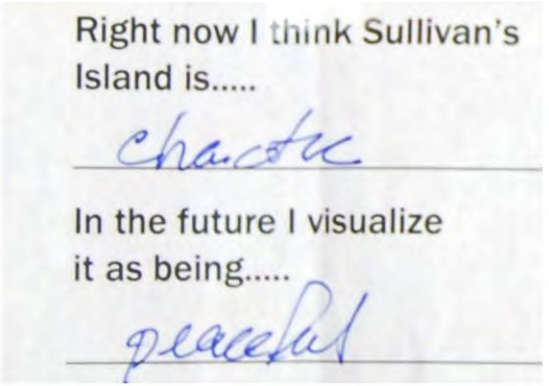
Public Response

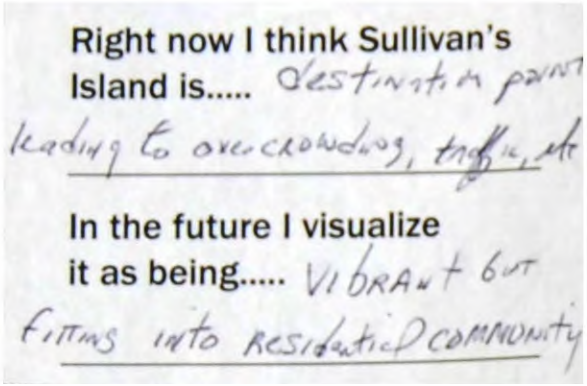
Snapshot of Public Perception

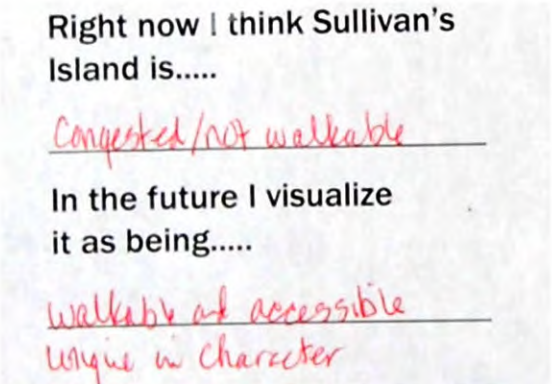
The citizens also participated in a "snapshot of public perception" where they were asked to identify in a few words what they think Sullivan's Island is like now and how they would want it to be in the future. See some of the responses to that exercise below:

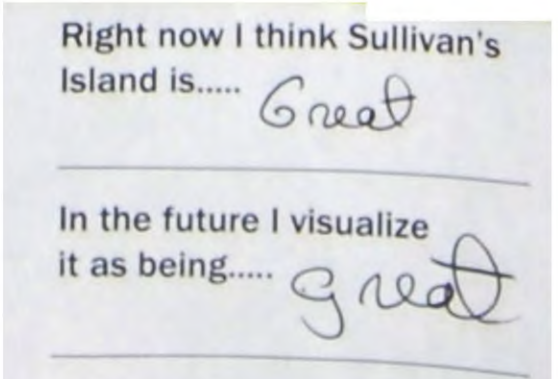












Site Walk

On Friday morning, the Design Team gathered with a large group of citizens to walk the project site. The Design Team divided into three pairs, and each pair took a group of citizens to walk the site and begin a dialogue of issues, concerns, and opportunities. This was a valuable experience as the Team saw first-hand some of the problems that existed in the commercial area. Some of these problems included noise, litter, trash, access issues, and traffic and parking issues.

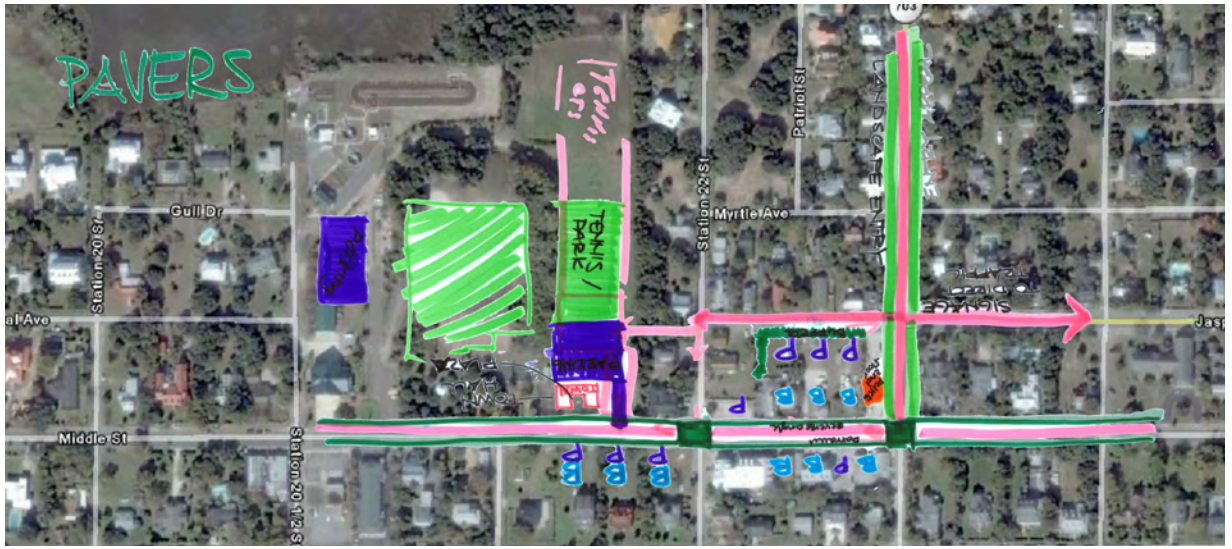
"show me your city, and i will tell you the cultural aims of its population."

-eliel saarinen

Group One

Public Workshop

That afternoon the Team held a Public Workshop that was attended by approximately 25 people. The public participated in a goal setting session and then worked on design concepts in four facilitated groups. A spokesperson for each group presented their concepts back to the whole group. The concept sketches and goal statements of each team are shown on the next three pages. The final goal and mission statement follow, which was crafted by a citizen, Susan Romaine and was welcomed and adopted by the Team.



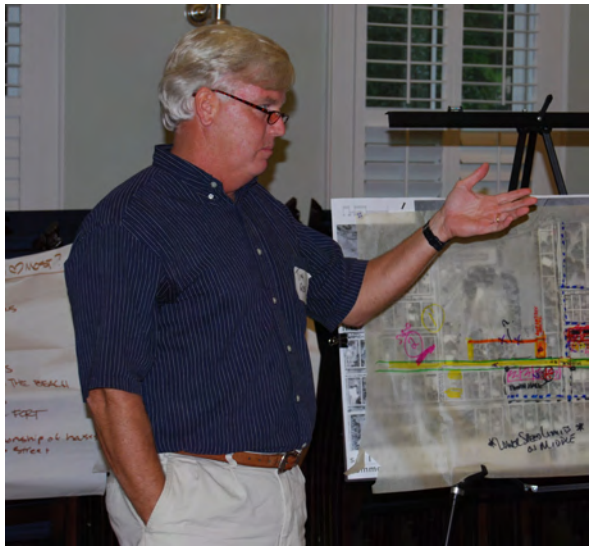
Group One Goal Statement:

"To design a comprehensive plan that allows for positive integration between quaint residential communities and vibrant healthy commercial needs."

Group Two Goal Statement:
"Create a balance between the commercial and residential districts to maintain a fun, peaceful quality of life, including a vibrant commercial district and a safe environment for locals and visitors alike."

Group Three

Group Three Goal Statement:
"Establish a balance between a vital business district and our residential community, ensuring a safe welcoming quality of life for residents and visitors while maintaining the character of the island."



Group Four Goal Statement:
"The commercial district master plan will allow residents, businesses, and visitors to peacefully coexist in a pedestrian friendly, sustainable, and economically viable manner; representative of the Sullivan's Island community."

Mission Statement

Final Mission Statement:

Preserve the quality of life by achieving balance between the need for a thriving pedestrian-oriented commercial district and the need to retain the character of our predominantly residential beach community.

Final Goal Statement:

Develop a master plan that promotes sustainable commercial activity while protecting the safety of residents and visitors, minimizing the impact of that activity on the surrounding residential neighborhoods and retaining the vernacular of island architecture.

Stakeholder Meetings

The Design Team held four stakeholder meetings. These four stakeholder groups were Residents, Business Owners, some key Town Staff members, and Planning Commission.

Residents

The time spent with citizens who reside adjacent to the commercial area focused largely on problems, some of which are common and some of which are infrequent or isolated. This session was less focused on design solutions. However, this group was very passionate about the problems. Some of the issues that this group raised included: parking in the yards of residents, late night noise in the commercial area, the negative effects of trash such as smell and rats, noise associated with the dumping of trash and deliveries, undesirable behavior of people leaving businesses late at night, and traffic generated by businesses. Several citizens eluded to a sense of some level of mistrust in the process, and the Town's willingness to follow through with solutions.

Some of the suggested solutions included noise ordinances, limited hours of operation, restricting the number of people allowed on premises, better crosswalks and some level of traffic calming.

Businesses

The Team spent time with several of the business owners to discuss problems and opportunities. Some of the issues discussed included: employee parking, consolidation of trash, walkability, problems with split zoning of lots, taxes and insurance, noise problems (both real and perceived), availability of police for enforcement, and friction between businesses and residents.

Town Staff

The Team also spent time with several key staff people including the Town Administrator, the Zoning Administrator, the Fire Chief, the Police Chief, the Principal of Sullivan's Island Elementary School, and a representative of the Sullivan's Island Parks Foundation to discuss the general direction of the planning process. Their experience and history with the island was a valuable resource.

Stakeholder Meetings

Planning Commission

The Team presented to Planning Commission with the purpose of providing an update on the status of the design charrette. The meeting took place at charrette headquarters, and was open to the public. The major concepts that were discussed are as follows:

I. Create Community Commercial Overlay District – overlay district would be beneficial for identifying the commercial corridor in the event of any future modifications to zoning and design specifications and/ or infrastructure.

II. Middle Street improvements:

- Reverse Angle Parking – a tool utilized across the country to encourage safe parking in higher vehicle and pedestrian traffic areas. Mr. Eubanks reviewed the reverse angle parking concept, noting that it should be considered for portions of Middle Street.

- Intersections–improved for pedestrian crossing safety.

III. Station 22 ½ and Middle Street modifications:

- Stub Station 22 ½ to vehicle traffic at l'On Avenue - to allow for golf cart only parking from l'On Avenue/Station 22 ½ oceanward.

- New service route – New route for delivery and garbage collection to commercial establishments along Middle Street near Station 22 ½ (Currently Dunleavy's and Seel's on Sullivan's). Create a one way only truck route at rear of restaurants via service alley accessed off of Station 22 ½ and emptying onto Middle Street. Mr. Eubanks noted that this service route might include a modification of current exterior seating arrangements at existing restaurants.

IV. New Town Hall Facility – propose moving Town Hall and Police Department to Community Commercial District to create a unified municipal presence in this area. Various sites are being considered for a possible new facility.

V. Deal with Split Zone Lots along Middle Street – specifically properties at 2210, 2214 and 2216 Middle Street (Poe's Tavern and Exit Realty currently occupy two of the lots).

Commission members queried the residential lot sizes that would remain if the lots were split in three. Mr. Eubanks clarified that the residual residential lots would be less than ½ acre in size, allowing for smaller bungalow style homes. This applies only in the proposed Commercial Overlay District. Commission members pointed out that the Town's Comprehensive Plan calls for residential properties to be a minimum of ½ acre in size. Thereafter, there were questions about noise buffers, especially for current Jasper Boulevard residents, and the impact of increasing residential density in the commercial area.

Big Idea Statement:

Following the public workshop, the Design Team each developed their individual “big idea” statements. The purpose of the “big idea” statement is to focus the Design Team’s efforts in reaching a solution. The “big idea” is basically a “concept statement” that guides design decisions. The statements are developed with the goal and mission statements in mind, as well as lessons learned during the public workshop and site walk.

The Design Team met to discuss their individual statements that were developed individually and crafted a final “big idea” statement. Every design decision made must meet the intent of the big idea statement. The final statement developed reads as follows:

“Everything in its Right Place”

Organize the already successful components that make up the Sullivan’s Island Commercial District into a better arrangement that improves the quality of life for residents, businesses, and visitors.

Improve “community” by decreasing noise, calming traffic, providing better parking, and safer pedestrian movement while making the commercial area more visually cohesive - without losing the unique island charm and character.

Design Approach

The Team discussed the lessons learned during the site walk and the public workshop as well as their initial impressions of ways to solve some of the issues, and also reviewed "big idea" statement. They also conducted some site analysis studies as an internal effort to guide decision making. These efforts opened the way for design exploration and a list of possible recommendations. These were then presented to the public, revised and refined, and presented in the final public meeting of the charrette.

"total design is nothing more or less than the process of relating everything to everything."

-george nelson

Site Analysis

The Team developed a working "sketch" site analysis that identified commercial parking areas, and potential off-street and on-street parking as well as existing on-street parking that might be restricted. (Figure 1.) The purpose of this drawing was to identify problematic and congested areas and to inform decisions regarding parking.

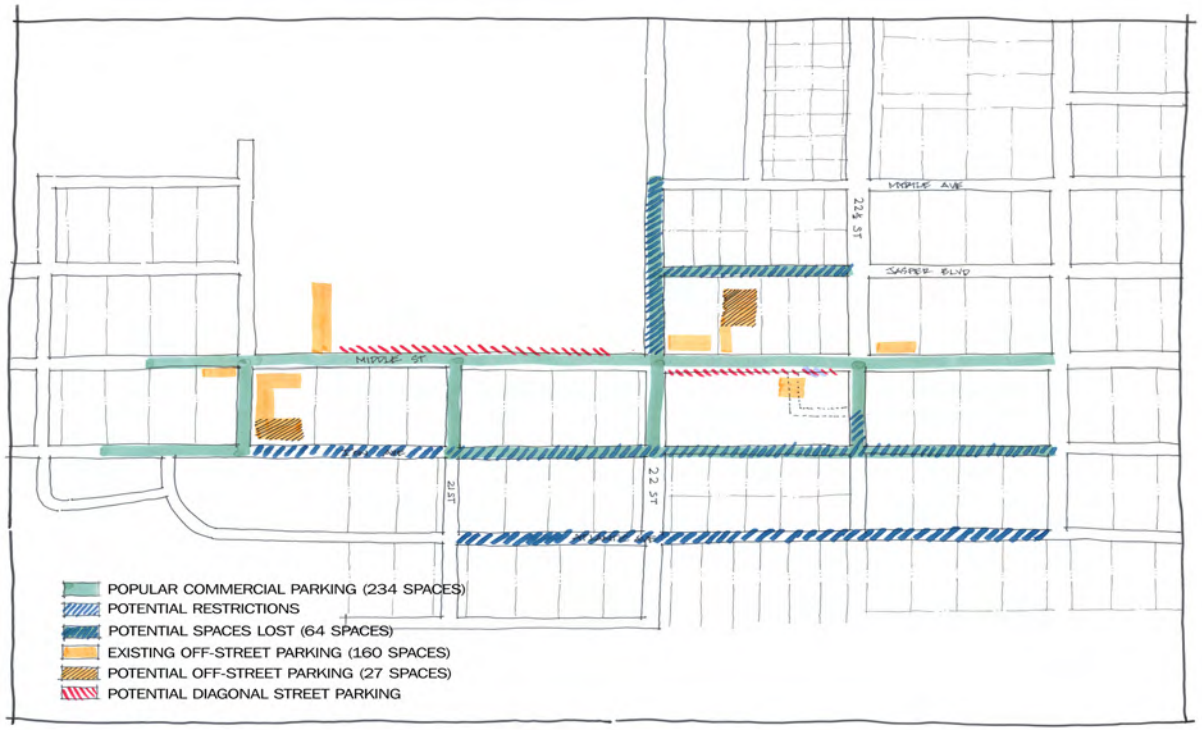
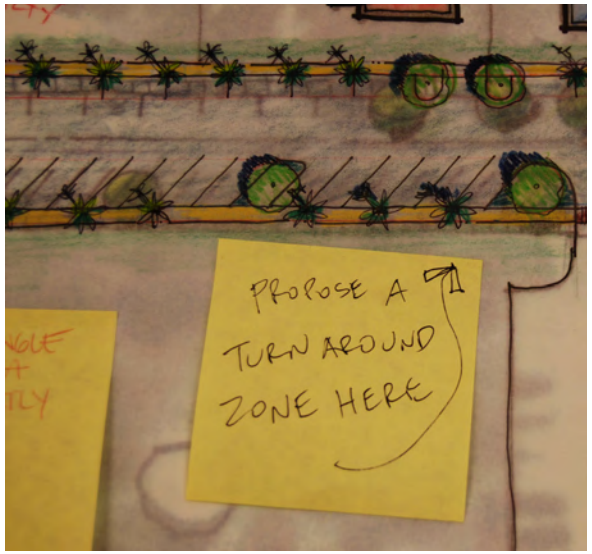


Figure 1.

Open House

The Team began crafting design solutions and held an Open House on Tuesday night to provide a feed-back loop in the process. At the Open House, the public was invited to write comments on post-it notes for all working drawings. The Design Team was also on-hand to field questions and provide explanations of design decisions. The input received in this session was quite valuable and several design decisions and plan revisions were made as a direct result of this event.



Recommendations

The following list of recommendations are items that the Team members feel could have a positive impact on the study area but may be outside the scope of what a landscape architect/urban designer might typically be charged. By and large, these are recommendations of things to be considered or studied to determine if their use would actually result in positive change. None of these recommendations increase the size of the commercial area in any way.

- Create a Commercial Area Overlay Zone District (Description to follow)
- Allow parking on one side of I'On Street only
- Resident/Guest parking permits only on I'On, Jasper, Atlantic, and Myrtle after 8 p.m. (or other reasonable time)
- Consider developing a new Noise Ordinance that addresses amplified music with appropriate time restrictions
- Consider cabaret ordinance similar to the City of Charleston
- Require shared parking provisions for off-street parking at office/retail businesses
- Institute a "Livability Court" to handle issues of litter, lack of maintenance, etc.
- Develop guidelines for commercial parking, lot subdivision, height, massing and scale, and setbacks within Overlay District
- Modify split zoning to allow parking to support existing businesses while limiting expansion of current commercial uses
- Explore options for increasing police presence/ code enforcement in the commercial area

Overlay Zoning

Overlay zoning is a regulatory tool that creates a special zoning district, placed over an existing base zoning district, which identifies special regulations and guidelines that are applied in addition to or above and beyond those in the underlying base zoning district(s). The overlay district can share common boundaries with the underlying zones or be applied to specific geographical areas regardless of underlying boundaries. Where differences in regulations exist between base zones and the overlay zones, the regulations on the overlay zone prevail. Regulations or incentives are usually attached to the overlay district to protect a specific resource or guide development in a specific direction within this special area.

Any governmental unit with the power to create zoning districts can create an overlay district. There are three basic steps to creating an overlay district:

1. The purpose of the district needs to be clearly defined.

2. The limits of the district need to be clearly defined and should be mapped.

3. Develop specific rules and regulations that apply to the identified district. These may include regulations like building heights, setbacks, land uses, parking requirements, minimum lot sizes, and other regulations which can guide development. This would address lot sizes that are less than a half acre, which is the standard for the rest of the island.

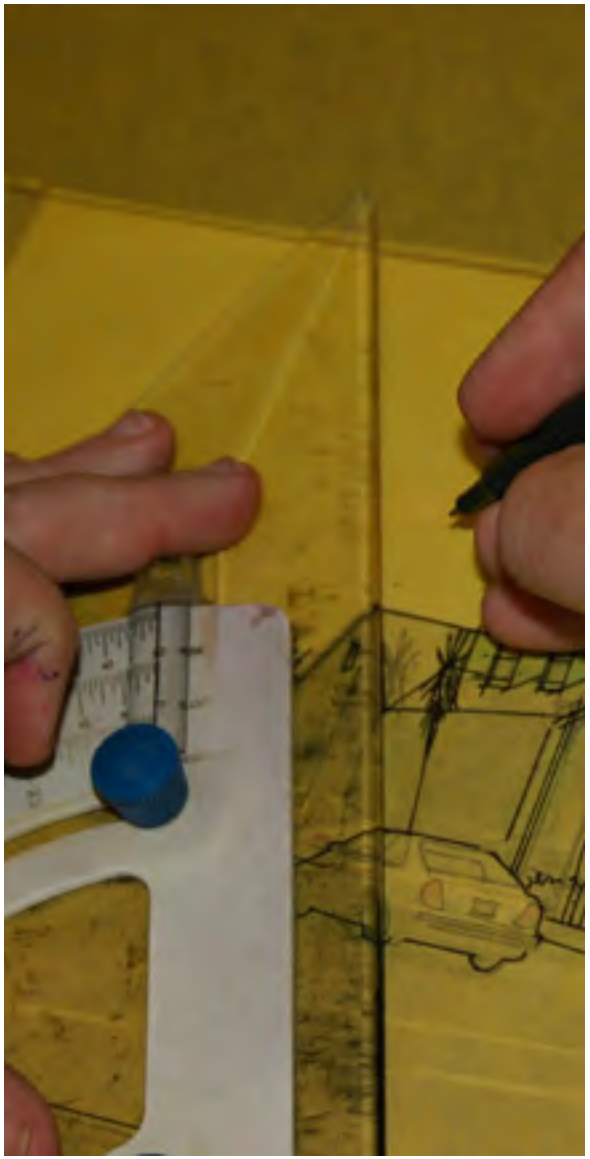
It is also important that the intent of the overlay be aligned with the comprehensive plan and may, in fact, require revisions to the comprehensive plan.

Design Solutions

The following is a list of design decisions made by the Team, most of which are actually reflected in the Master Plan, which is shown in the next section. All of these solutions will require further study and design, and are shown as conceptual ideas only. After further study it may be determined to eliminate some of these ideas. It is also important to remember change at this scale is incremental, and not all changes will happen immediately.

- Utilize a combination of parallel and reverse angle parking to create more efficient parking on Middle Street in order to decrease pressure on residential streets
- Create new single-family lots, with modified setbacks, on Jasper to complete the street
- Create new "service loop" at Sta. 22 ½, alley and space between High Thyme and Seel's with a consolidated screened/enclosed dumpster
- Modify Sta. 22 ½ from Middle to I'On streets to prevent through traffic while accommodating golf cart and bicycle parking
- Create new off-street parking on split zoning lots to help reduce pressure on residential streets
- Create a "civic node" at the current park that would include public parking, historical markers, an amphitheater and a farmers market
- Relocate Town Hall to the commercial area
- Provide better sidewalks, crosswalks, and pedestrian scaled lighting
- Reduce posted and actual speeds on Middle Street and Ben Sawyer through traffic calming street design
- Provide a better "entry experience" on Ben Sawyer Boulevard from the bridge to Middle Street

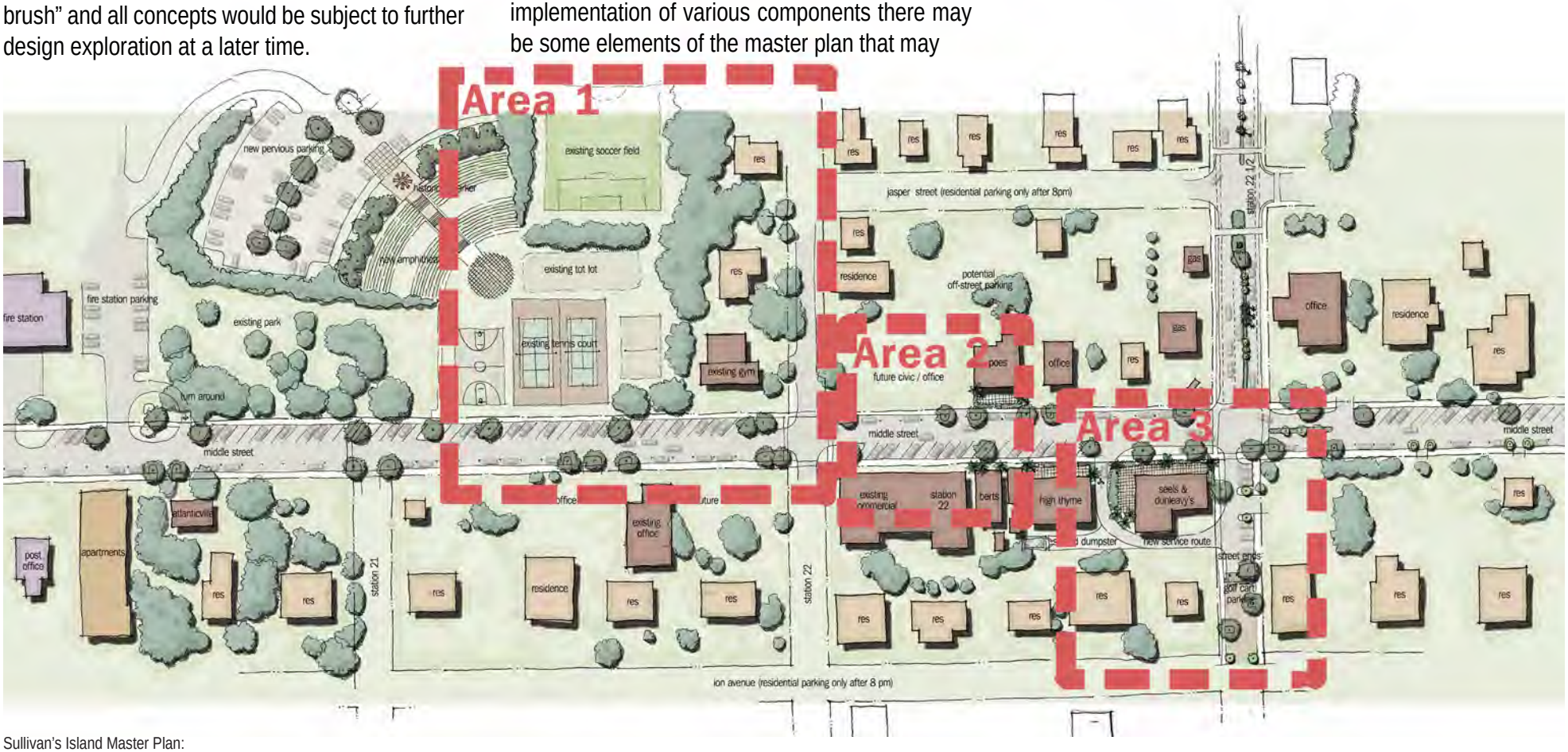
Note: It is the responsibility of the Town Council to decide which recommendations to implement as well as the timing and phasing of any improvements.

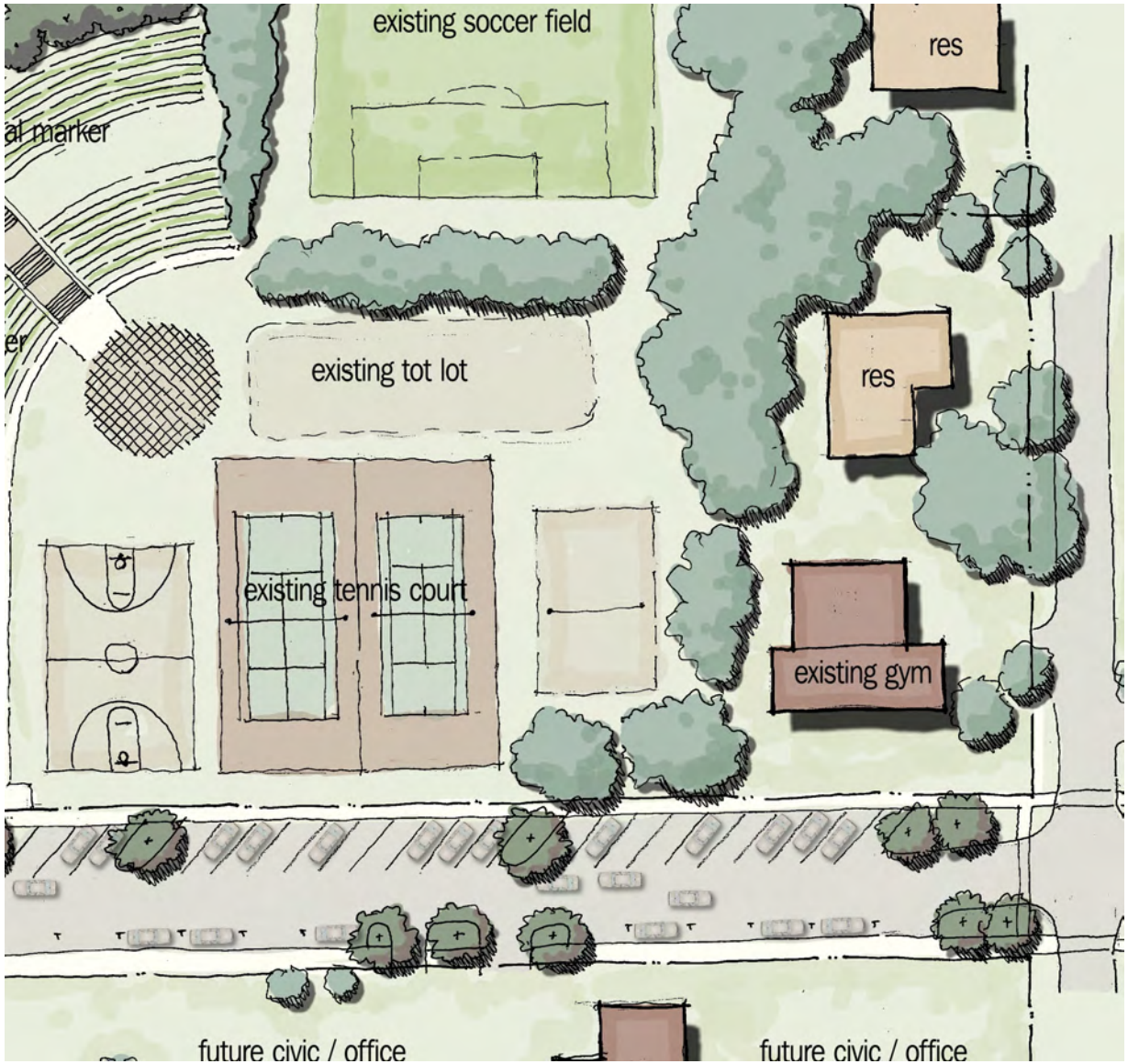


Master Plan

This Master Plan is a conceptual design study that incorporates the design solutions listed on the previous page. It should be stressed that, like all master plans, the design depicted is very "broad brush" and all concepts would be subject to further design exploration at a later time.

However, the master plan does reflect, in a purely illustrative manner, how the main tenets of the design approach could be achieved. As the Town and private property owners proceed with implementation of various components there may be some elements of the master plan that may be changed or omitted and other elements may be added. However, the spirit of the master plan should remain consistent.





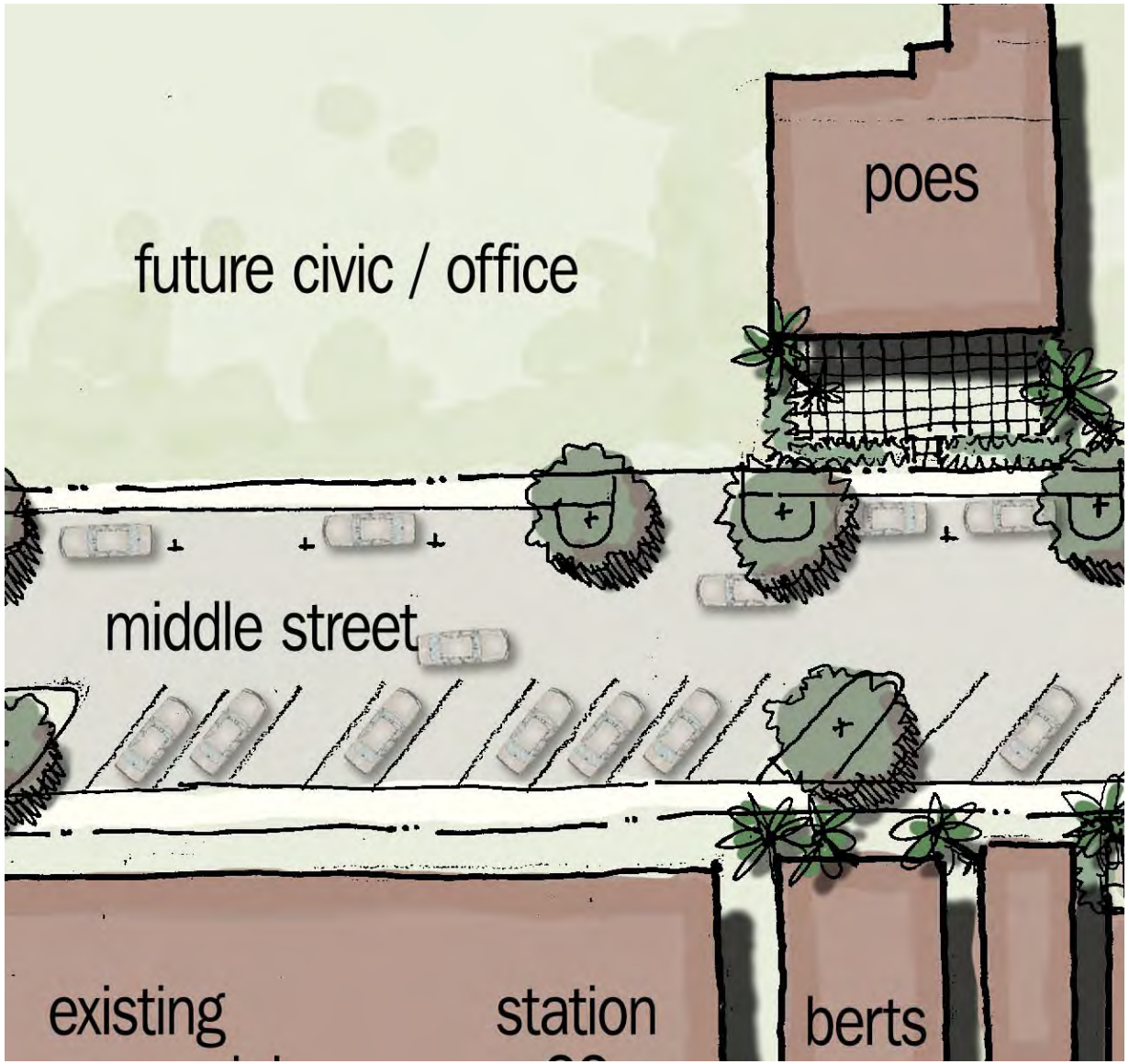
Area One

A portion of land at the top of the hill at the park could be utilized for overflow and / or valet parking and the slope could be used for an outdoor amphitheater. The section of Middle Street in front of the park would have reverse angle parking on the park side of the street and parallel parking on the opposite side. A turn around would be provided at the corner nearest the fire station. This turn around could be used by service and delivery vehicles and patrons searching for on-street parking.

Master Plan-Area Two

Area Two

Middle Street would be altered to include (2) eleven foot travel lanes with reverse angle parking on one side and parallel parking on the other. 6'-0" sidewalks would be on both sides of the street. The location of parking would alternate from one side to the other to accommodate curb cuts and other existing features. Tree plantings would be more organic and less uniform than most streetscape projects, reinforcing the casual nature of the beach community. All of this can be accomplished within the existing right-of-way. See Figure 2. for illustrated sections.



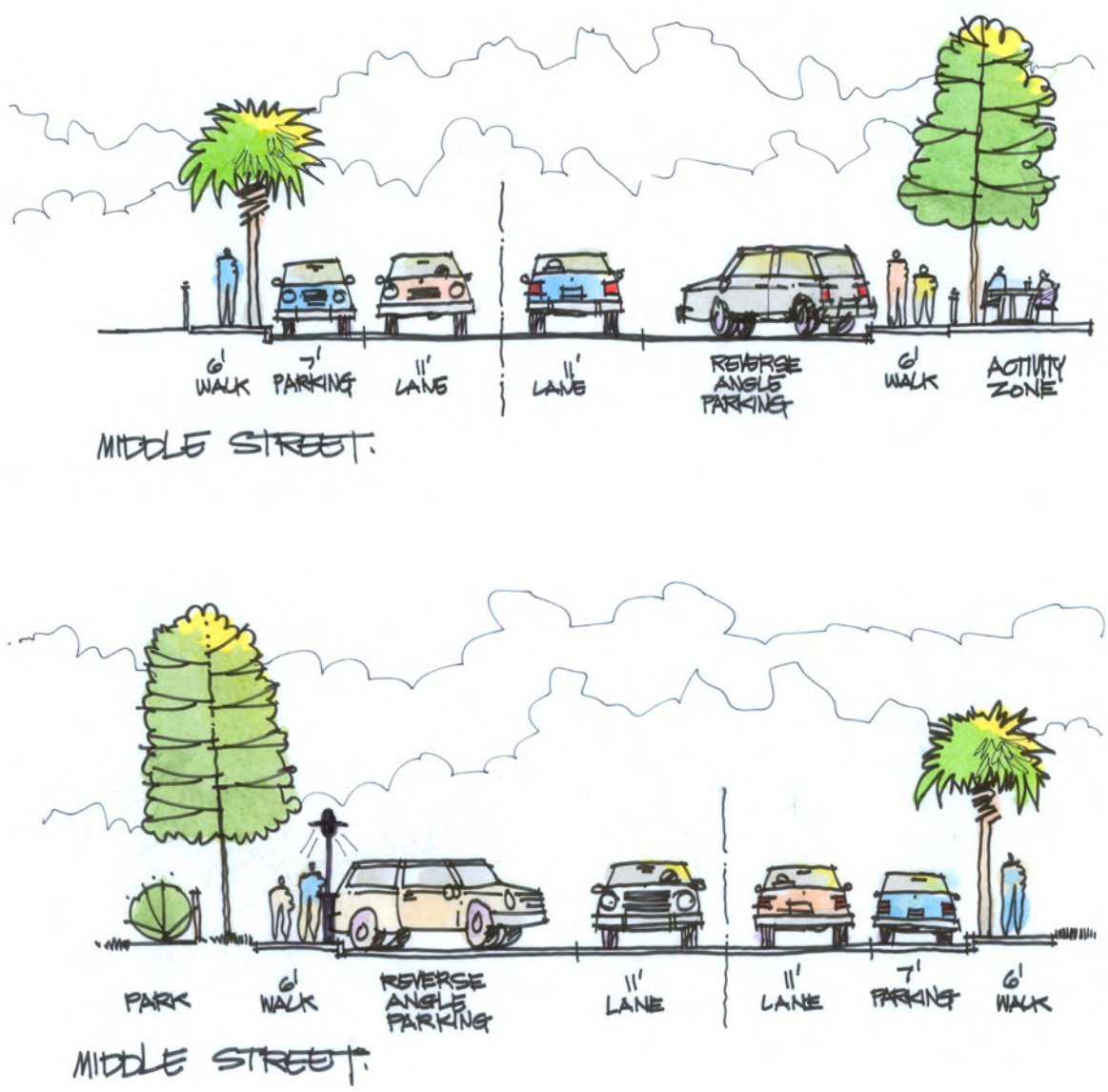

6' WALK
7' PARKING
11' LANE
11' LANE
REVERSE ANGLE PARKING
6' WALK
ACTIVITY ZONE
MIDDLE STREET
PARK
6' WALK
REVERSE ANGLE PARKING
11' LANE
11' LANE
7' PARKING
6' WALK
MIDDLE STREET

Figure 2.

Middle Street-Parking

Parking and Middle Street

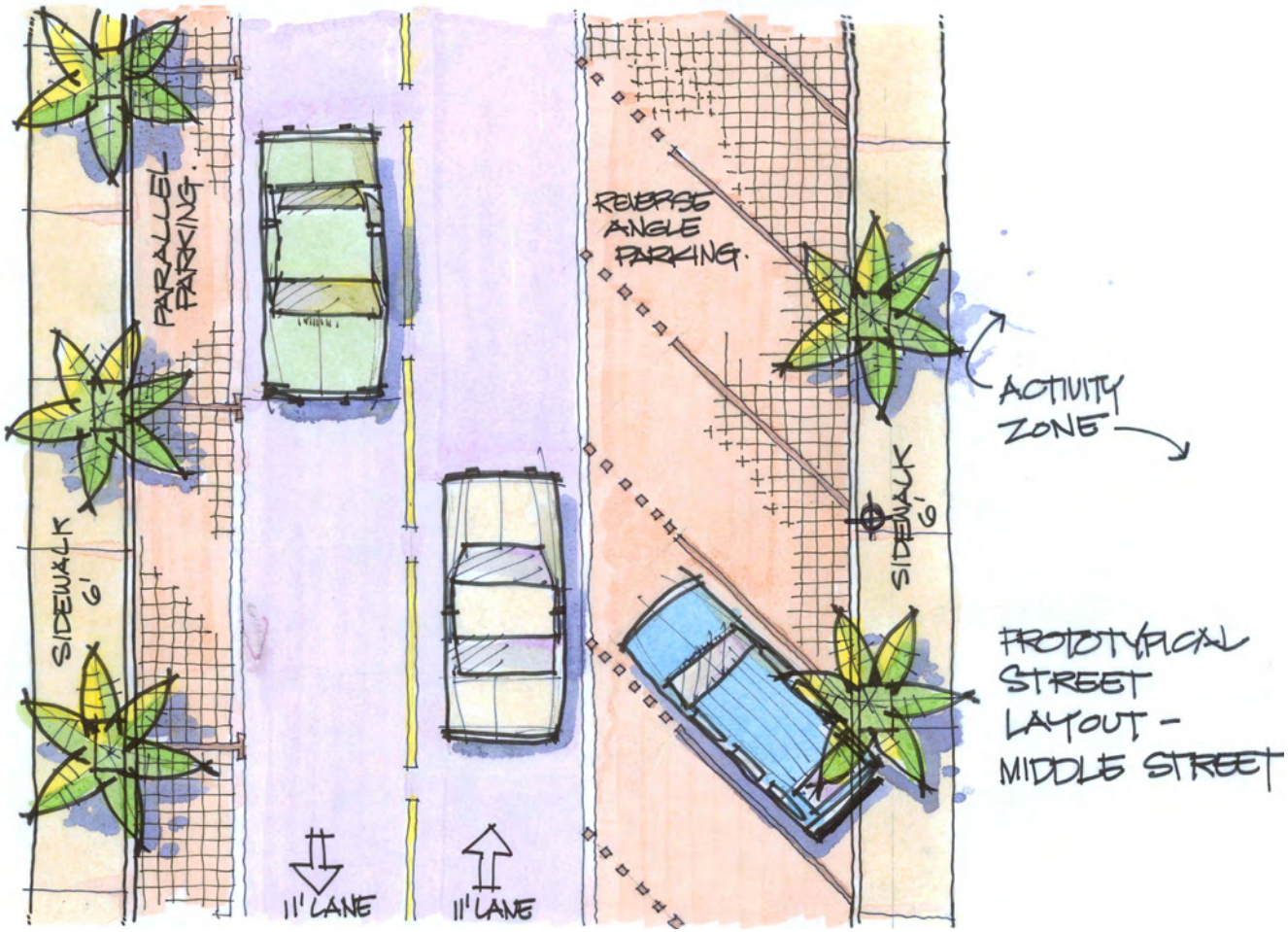
Reverse angle parking has many advantages over head-in angle parking or parallel parking. When parking, the decision making process is much like parallel parking in that the driver locates a space, pulls up slightly past the space and then does a backing in maneuver to get in the space. This movement is much simpler than the compound turning movements required for parallel parking (see Figure 3 for parking sequences illustrations).

Once parked, this arrangement offers significant advantages over parallel and head-in angle parking. With parallel parking the driver and left side passengers must exit the vehicle on the street side. With reverse angle parking, opened doors form a barrier between passengers and traffic. This is especially desirable for children.

Reverse angle parking, allows for packages to be loaded into the trunk or rear cargo space of a vehicle from the sidewalk, away from the street and flow of traffic.

Finally, when leaving the space, the driver's line of sight is better than with head-in angle or parallel parking scenarios. The simple head-out movement is a much simpler maneuver than backing out into traffic or vacating a parallel space.

Consideration for alternate paving and/or pervious materials should be discussed for angled and parallel parking spaces.



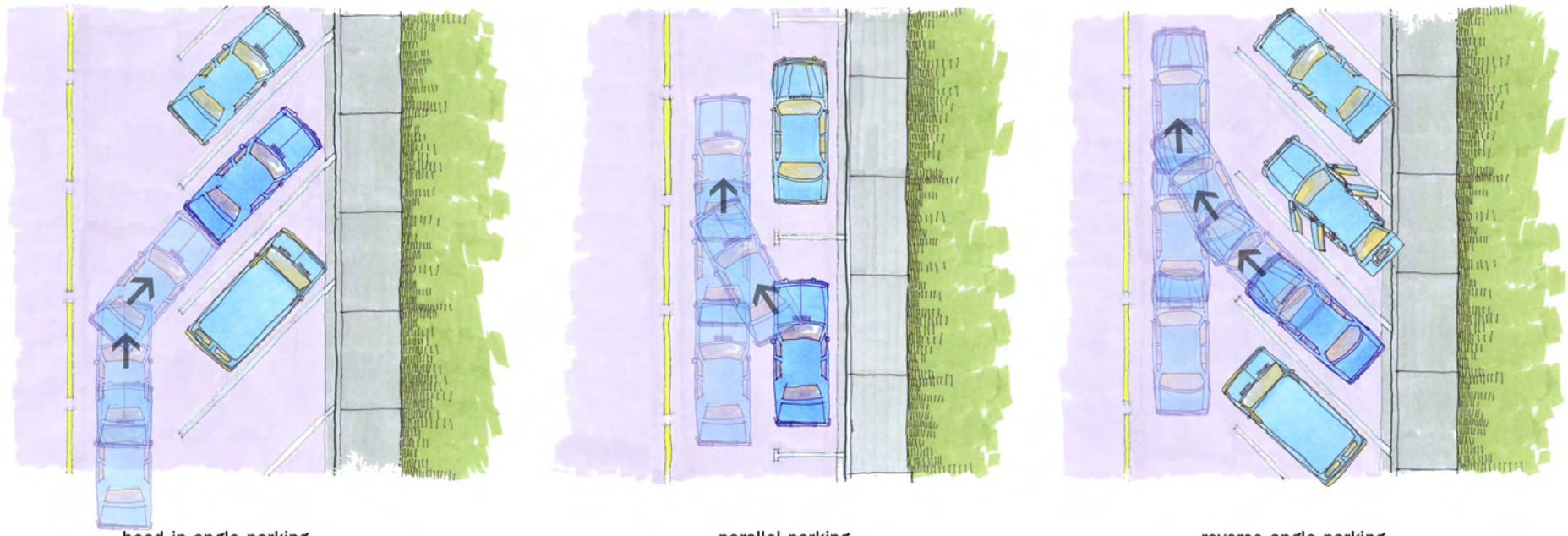

head-in angle parking
parallel parking
reverse angle parking

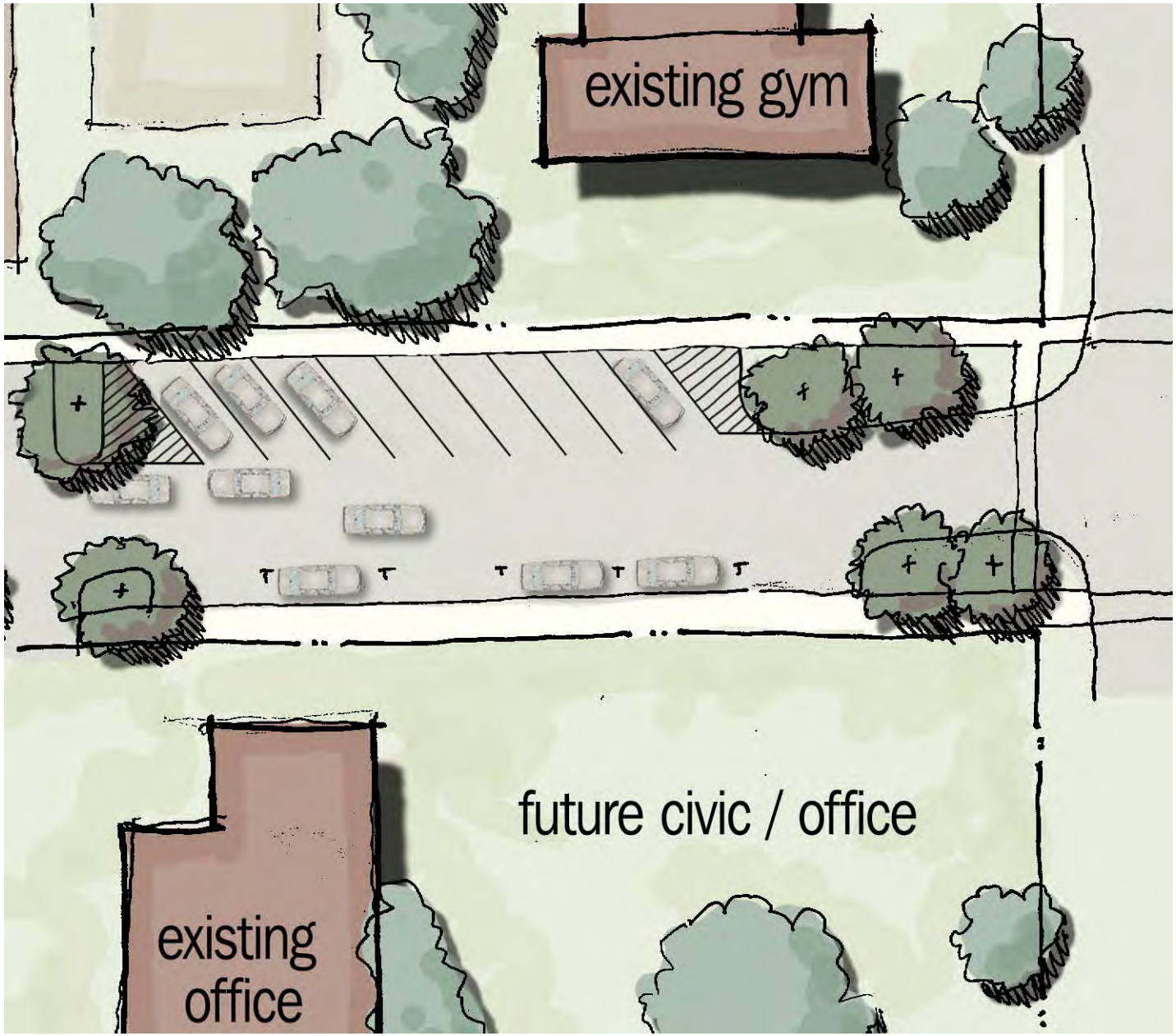
Figure 3.

Middle Street-Parking

Parking and Middle Street

This is another viable solution that will work with either reverse angled parking or head in angled parking. The tree islands in this scenario are perpendicular to the curb, allowing the spaces to be striped as either reverse angle or head in parking.

The solution ultimately selected by the Town will be subject to approval by SCDOT.



Street	from	to	Existing Parking	Proposed Parking	Net Change	Parking Achieved by
Jasper Blvd.	Sta. 22	BenSawyer	10	10	0	No action made
Middle St.	Sta. 20	Sta. 20 1/2	19	19	0	No action made
Middle St.	Sta. 20 1/2	Sta. 21	9	31	22	Angled parking north side of street, parallel on south side
Middle St.	Sta. 21	Sta. 22	21	42	21	Angled parking north side of street, parallel on south side
Middle St.	Sta. 22	BenSawyer	40	30	-10	Parallel on north side, angled parking south side of street. Remove parking in front of Seel's
Middle St.	BenSawyer	Sta. 23	26	37	11	Angled parking north side of street, parallel on south side
Ion Avenue	Sta. 20	Sta. 20 1/2	4	4	0	No action made
Ion Avenue	Sta. 20 1/2	Sta. 21	8	8	0	No action made
Ion Avenue	Sta. 21	Sta. 22	9	9	0	No action made
Ion Avenue	Sta. 22	BenSawyer	10	10	0	No action made
Ion Avenue	BenSawyer	Sta. 23	23	23	0	No action made
Sta. 20 1/2	Ion Avenue	Middle St.	12	9	-3	Blocked street to create service drive and golf cart parking
Sta. 21	Ion Avenue	Middle St.	8	8	0	No action made
Sta. 22	Middle St.	Jasper Blvd.	11	11	0	No action made
Sta. 22	Ion Avenue	Middle St.	11	11	0	No action made
BenSawyer	Myrtle Ave.	Middle St.	0	0	0	No action made
BenSawyer	Ion Avenue	Middle St.	14	14	0	No action made
Sta. 23	Ion Avenue	Middle St.	12	12	0	No action made
Total			**247**	**288**	**41**	

Master Plan-Area Three

Area Three

Station 22 ½ would be closed to through traffic between Middle and I'On Streets. The half of the block closest to Middle Street would be used for on-street parking and access to the service core. The half of the block closest to I'On would be used for golf cart and bicycle parking which allows island residents to have better access to the commercial area by alternate means of transportation, while avoiding traffic on Middle Street.

Service Court/Alley

The service alley behind the existing businesses would be improved by screening, resurfacing, and a consolidated dumpster located in an enclosure. This concept (see Figure 4. and 5. for illustration and plan) would eliminate parking between the buildings and provide better opportunities for outside dining. An improved streetscape would include wider sidewalks with a verge between the street and the sidewalk and a planted strip between the plaza (outdoor dining) area and the sidewalk. This strip could also include a low fence, providing even more delineation between the public and quasi-public realms. Immediately across Middle Street, the parallel parking could be signed to prohibit parking during normal deliver hours, thus allowing delivery trucks to park there to unload.

Figure 4.

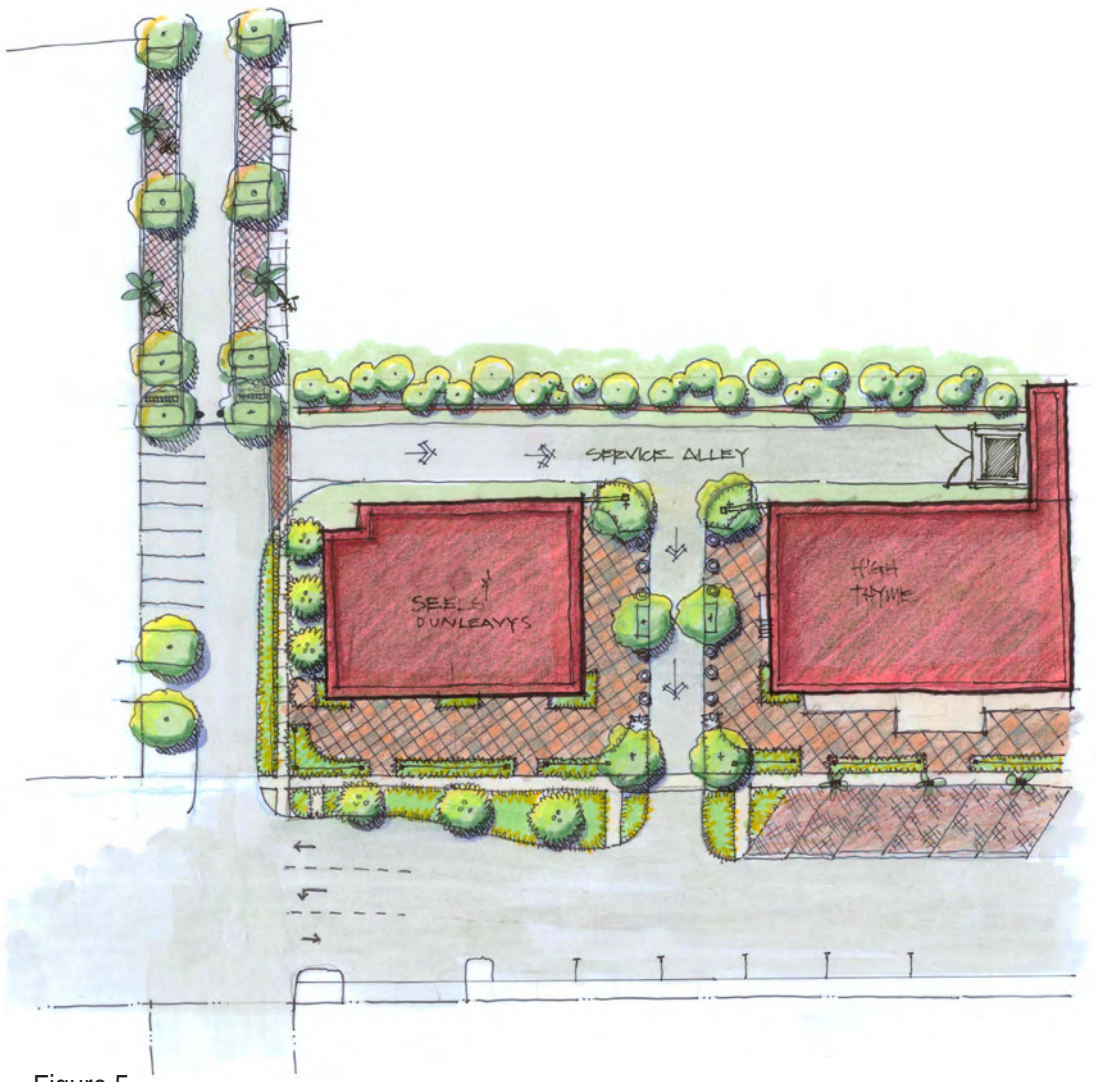


Figure 5.

Intersections

Intersections

There are options for the treatment of intersections as shown in the sketches to the right. Alternating the parallel and reverse angle parking between blocks requires some realignment of the street's center line. This will also provide some traffic calming as traffic will slow when approaching and negotiating the intersections; creating a much safer environment for pedestrians.

Figure 6. shows the addition of small landscaped medians. Some feedback from citizens suggested that this may be too formal for Sullivan's Island. However, it does provide a very good mid-street safe zone for pedestrians.

Figure 7. shows a subtle realignment that creates an intersection that is not quite perpendicular but still affords as shorter pedestrian crossing.

Figure 8. shows the option of having or eliminating "bump outs" at intersections. Having the bump-outs would require a larger corner radii than not having the bump-outs. However, the bump-outs do reduce the crossing distance for pedestrians.

The sketch on the following page shows, conceptually what an intersection may look like with improvements made.

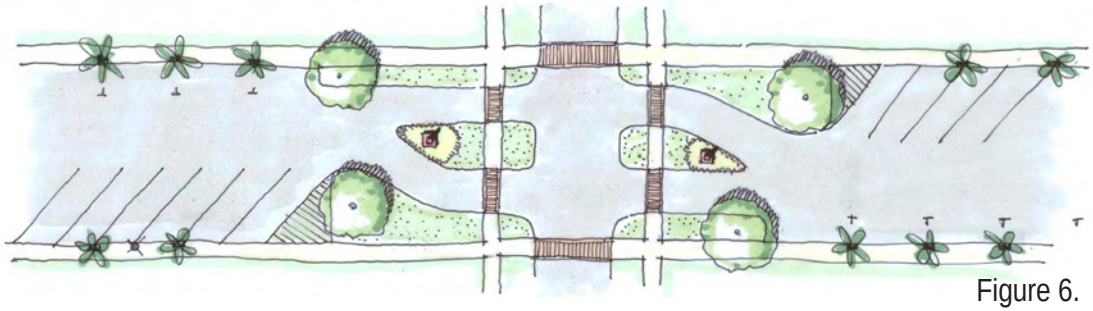


Figure 6.

Figure 7.

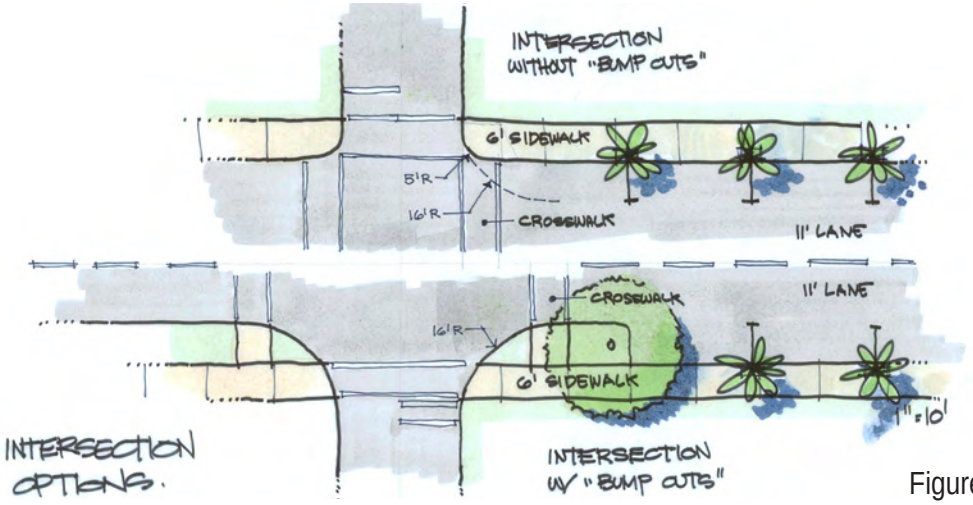


Figure 8.

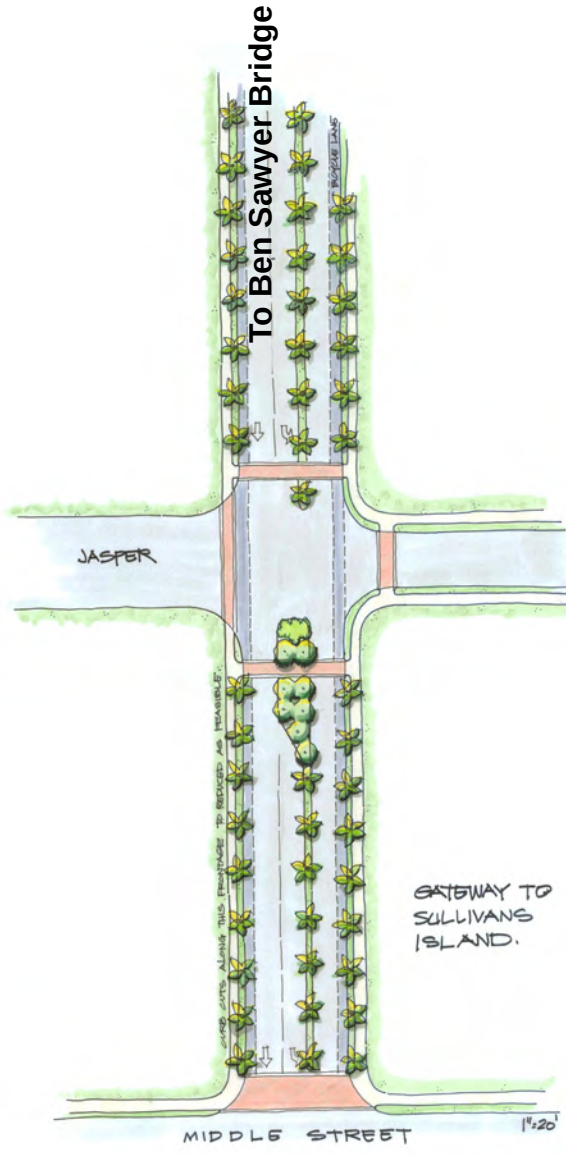
Island Approach

Island Approach

Sullivan's Island has a unique vernacular, and the approach and entry sequence onto the island needs to reflect that uniqueness.

The Team is proposing an approach to the island that includes a landscaped median flanked by sidewalks and landscaped verges on either side of the street. This new alignment should also alleviate some of the confusion associated with turning movements onto both Jasper and Middle Streets. The exhibit shown was generated during the charrette. Feedback from the residents indicated desire for a less formal approach, and the Design Team recommends further study of the landscape theme.

An improved treatment provides a gateway to the island that is much in keeping with the character of the rest of the town.



"if a city's streets look interesting, the city looks interesting; if they look dull, the city looks dull."

- jane jacobs

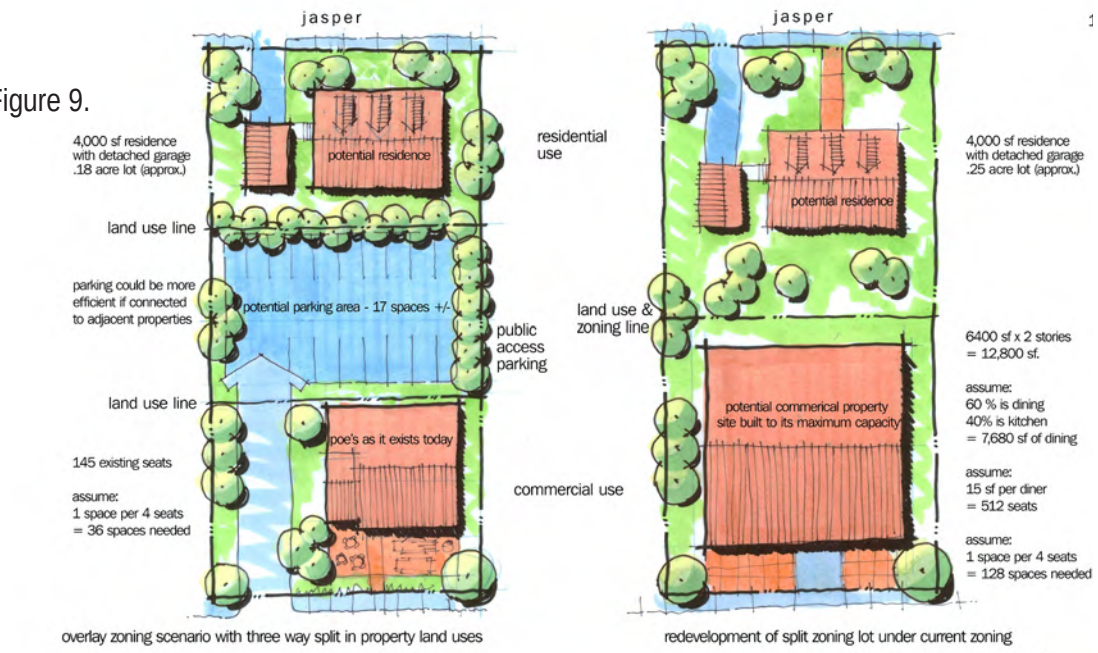
Mid block Parking

Under current zoning regulations, the properties with split lot zoning can have commercial uses on the front half and residential uses on the back half, although the properties cannot be subdivided. Under a possible overlay district, those restrictions could be modified.

The Design Team is proposing that split lot zoning be changed to incorporate three zones of use. The front portion of each lot could be used for commercial uses; the middle portion could be used for shared parking in support of the commercial uses; and the back portion could be used for residential uses. However, this portion could be subdivided within the overlay district only. In other words, the current minimum lot size would be set aside within the overlay district.

This approach has several advantages. First, business owners would have a higher level of control over the behavior of their patrons after they leave the place of business than they would if they were parked on a residential street. Second, businesses would be restricted in terms of available land for potential redevelopment. Third, the residential property could be sold rather than the current situation which requires residential zoning on the back portion of the lot to be owned by the business at the front of the lot. Figure 9. shows a hypothetical scenario at Poe's – both with the current building and a possible redevelopment with a much larger facility. Poe's has 145 existing seats which would need approximately 36 spaces to support the use. With parking added behind the restaurant approximately 17 of those spaces could be accommodated on-site with the remaining 19 provided with on-street parking.

Figure 9.



The theoretical building in the alternate scenario could seat approximately 512 with a parking demand of 128 spaces, none of which would be provided on-site.

Either scheme could accommodate a 4000 square foot residence, although the setbacks would need to be amended under the "existing building" scenario. However, the amended setbacks would be more in keeping with other homes along Jasper Street. The sketch on the following page shows what Jasper Street could look like with the new residences added, completing the street.

Jasper Street

Next Steps

The Team recommends that the Town take the following next three steps towards implementation of the master plan concepts (after approval of the Master Plan by Town Council):

- Develop an Overlay Zoning District for the Commercial Area incorporating the recommendations of this report.

- Engage a professional Design Team consisting of landscape architects and civil engineers to develop a detailed design for Middle Street, including modifications of Station 22 ½ between Middle and I'On Streets, with the ultimate goal of implementation.

- After completion of the Middle Street improvements, implement residential parking permits for I'On, Atlantic, Jasper, Myrtle, and selected perpendicular streets.

There are other recommendations found within this report. However, these first three steps are considered most critical to the success of the area in terms of alleviating problems and issues that currently exist and making the area more livable and more walkable.

"forget the damned motor car and build the cities for lovers and friends."
-lewis mumford

Summary of Recommendations

The following is an abbreviated summary of the most important recommendations from within the report. The Town Council should evaluate these recommendations and the appropriate timing of implementation.

1. Create a Commercial Area Overlay Zone District including:
   a. Guidelines for parking, lot subdivision, height, massing and scale, and setbacks
   b. Modify split zoning to allow parking to support existing businesses
   c. Limit expansion of current commercial uses
   d. Modify Comprehensive Plan as needed

2. Allow parking on one side of I'On Street only (or golf cart parking on one side)

3. Require resident parking permits (could be all residential area on time restricted basis)

4. Consider developing a new Noise Ordinance that addresses amplified music

5. Consider cabaret ordinance similar to the City of Charleston

6. Require shared parking provisions for off-street parking at office/retail businesses

7. Consider a "Livability Court" to handle issues of litter, lack of maintenance, etc.

8. Explore options for increasing police presence/code enforcement in the commercial area

9. Utilize a combination of parallel and angled or reverse angle parking to create more efficient parking on Middle Street in order to decrease pressure on residential streets

10. Create new "service loop" at Sta. 22 ½, alley with a consolidated screened/enclosed dumpster

11. Modify Sta. 22 ½ from Middle to I'On streets to prevent through traffic

12. Accommodate golf cart and bicycle parking on Sta. 22 1/2

13. Create a "civic node" at the current park

14. Relocate Town Hall to the commercial area

15. Reduce posted speed limit on Middle Street and Ben Sawyer

16. Provide a better "entry experience" on Ben Sawyer Boulevard

Appendix: KHA Traffic Study

EXECUTIVE SUMMARY

The Traffic & Parking Analysis for the Commercial District Master Plan provides a summary of existing intersection delay and occupancy statistics for parking throughout the study area. The result of this analysis is a series of recommendations to ensure proper function of streets and adequate supply of convenient parking.

The current road network near the study area is created by four southwest to northeast streets and six perpendicular streets. Middle Street traverses the length of the island and serves as the activity center of the community commercial district. Existing data on land use, traffic, pedestrian facilities, and parking options were reviewed. Additional data collected by the project team included intersection turning movement counts and parking occupancy counts. Brief summaries of the existing conditions and recommendations are below. More detailed information can be found later in this memorandum and the Traffic & Parking Appendix.

Traffic Analysis

Four intersections were studied in detail: Station 22 1/2 Street at Jasper Boulevard, Middle Street at Station 21 Street, Middle Street at Station 22 Street, and Middle Street at Station 22 1/2 Street. The analysis of these intersections was based on turning movement counts collected during the evening peak period. Because the planning study recommends a partition on Station 22 1/2 Street between Middle Street and Ion Avenue, two scenarios were conducted. Figure 1 shows the turning movement counts for each of the four intersections in the existing conditions scenario. The level-of-service for each intersection is shown encircled in red. Figure 2 displays the same information for the build scenario.

The detailed intersection analysis indicated these intersections currently function well during the peak hour of a normal day and little change occurs following the planned improvements to Station 22 1/2 Street. The only minor street that currently fails is the eastbound approach at the intersection of Station 22 1/2 Street and Jasper Boulevard. However, the low volume of this approach (only four vehicles approached the intersection from this direction) suggests no specific action is necessary. Overall, no roadway changes are recommended at the four study intersections to improve traffic performance.

The traffic analysis focused on turning movement counts at four study area intersection during the evening peak period.

Parking Analysis

The assessment of parking conditions was the result of an inventory of hourly parking occupancy conducted on a Saturday at the end of the summer season. The results of this analysis are presented as a series of charts that illustrate percent occupancy for on-street and off-street parking. The appendix includes similar charts for each segment of on-street parking and individual off-street parking lots.

On-street parking reaches a lunchtime peak around 2:30pm and maxes out at only 60% during the evening. However, this result is slightly misleading given spaces located beyond typical walking distances to commercial establishments remain unused throughout the day while more convenient parking remains near capacity. Off-street parking also reaches its apex during the evening in part because private lots are used in the evening once on-street parking reaches capacity and relaxed nighttime enforcement.

The parking analysis consisted of hourly occupancy counts for all on-street and off-street parking in the study area.

In general, the parking assessment revealed high demand for spaces convenient to the island's commercial establishments as well as a need for improved safety for parking vehicles and traveling vehicles.

- **Recommendation:** Improve lighting, wayfinding, and continuity along paths that link parking areas to the establishments they are intended to serve.
- **Recommendation**: Replace perpendicular parking in front of businesses with reverse angle parking where possible in order to improve safety.

Some residents and visitors prefer to use alternative means of transportation on the island. For bicyclists and golf cart users, a limiting factor is often a lack of parking at their destination.

- **Recommendation**: Provide parking for bicycles and golf carts within the commercial district.

TRAFFIC ANALYSIS

Study Area Roadways

The road network on Sullivan's Island in the vicinity of the study area forms a grid system. Streets running along the length of the island run southwest to northeast, and streets running perpendicular to the length of the island run northwest to southwest. For simplicity in this analysis, these streets are referred to as east-west and north-south streets, respectively. The Community Commercial District study area includes four east-west street segments and six north-south street segments:

East-West Segments:

- Jasper Boulevard from its intersection with Station 22 Street to its intersection with Station 22 1/2 Street
- Middle Street from mid-block between Station 20 Street and Station 20 1/2 Street to its intersection with Station 23 Street
- Ion Avenue from its intersection with Atlantic Avenue to its intersection with Station 23 Street

North-South Segments:

- Station 20 1/2 Street from its intersection with Middle Street to its intersection with Ion Avenue
- Station 21 Street from its intersection with Middle Street to its intersection with Ion Avenue
- Station 22 Street from its intersection with Jasper Boulevard to its intersection with Ion Avenue
- Station 22 1/2 Street (Ben Sawyer Boulevard) from the bridge entrance to the island to its intersection with Ion Avenue
- Station 23 Street from its intersection with Middle Street to its intersection with Ion Avenue

The majority of roads on the island are labeled with painted black and white sign posts such as this one, located at the study intersection of Jasper Blvd. and Station 22 ½ St.

This traffic and parking study considers the differing transportation needs of island residents and visitors. It aims to improve transportation for both groups in a way that contributes to the vibrant life of the island.

Middle Street serves as the activity center of the community commercial district. It hosts the two commercial areas, including the larger commercial area between Station 22 and Station 22 1/2 Streets and the smaller commercial area on the corner of Station 20 1/2 Street. Ion Avenue runs parallel to Middle Street just one block south and connects residential properties to a few commercial properties with rear access points.

Planning Study Recommendation

The planning study recommends a partition on Station 22 1/2 Street mid-block between Middle Street and Ion Avenue to improve visitor wayfinding and pedestrian safety by preventing through traffic. Visitors often continue on Station 22 1/2 Street when they enter the island via the bridge and become lost in the surrounding residential area. This partition will help visitors to find their way more effectively and will reduce unnecessary traffic in residential areas. Parking along this block of Station 22 1/2 Street will be retained on both sides of the partition. The recommendation creates a second scenario for traffic operational analysis due to its effect on the surrounding road network. It is referred to as the "Build Scenario".

Traffic Operations Analysis

Traffic operation at intersections depends on the number of through and turn lanes as well as the number of vehicles traveling in each direction. In order to analyze this relationship and determine how an intersection functions, intersection configurations were recorded and turning movement counts were collected. Turning movement counts catalog the direction from which vehicles approach the intersection and whether they travel through or turn.

Study Intersections

Four intersections in the community commercial district were identified as study intersections because of their high traffic volumes:

- Middle Street at Station 21 Street
- Middle Street at Station 22 Street
- Middle Street at Station 22 1/2 Street
- Jasper Street at Station 22 1/2 Street

Turning Movement Counts

Turning movement counts for the four study intersections were collected during the evening peak period on weekdays at the end of the summer season. Figure 1 presents these volumes as the existing scenario. Given the expectation that traffic will be highest on weekends during the peak summer season, these counts do not represent the highest traffic volumes encountered on the road network. Instead, they represent traffic volumes experienced on the island on a normal day.

One of the four study intersections will be revised as a result of Master Plan recommendations. Due to the improvements along Station 22 1/2 Street between Middle Street and Ion Avenue, the configuration of Station 22 1/2 Street will switch from one-way to two-way. The south leg of the intersection will serve as a driveway for vehicles visiting the nearby establishments. The existing traffic at the intersection was redistributed as a result of the change. Figure 2 presents these volumes as the build scenario.

Station 22 1/2 (Ben Sawyer Boulevard), upon entering the community commercial district, transitions from two-way into one-way configuration as it crosses Middle Street. As a primary entrance to the island from the bridge, the layout leads visitors into the residential areas instead of toward their intended destinations. A partition blocking through traffic will remedy the problem, protecting access and parking.

TABLE 1 INTERSECTION LEVELS-OF–SERVICE		
Minor Street Approach	**Level of Service**	
	Existing Scenario PM Peak	**Build Scenario PM Peak**
Station 22 1/2 St at Jasper Blvd		
EB Approach	F	F
WB Approach	C	C
Middle St at Station 21 St		
NB Approach	B	B
Middle St at Station 22 St		
NB Approach	B	B
SB Approach	B	B
Middle Street at Station 22 1/2 St		
NB Approach	N/A	C
SB Approach	B	B

Level-of-Service

Level-of-service (LOS) is a standard measure of effectiveness for traffic operation. Similar to grades assigned to assess performance in academic settings, letters A to F are assigned to evaluate traffic conditions in a particular roadway area. LOS A indicates excellent performance and corresponds to freely flowing traffic, whereas LOS F indicates poor performance and corresponds to highly congested traffic.

Traffic volumes for both the existing scenario and the build scenario were analyzed using Synchro 7 traffic analysis software. In accordance with their current traffic control, all four study intersections were analyzed as unsignalized intersections. The results of the analysis are included in Table 1, which presents the LOS for minor street approaches.

Analysis results indicate the road network functions well under current conditions on a normal day during the peak hour. It also shows the road network will function similarly with the improvements planned for Station 22 1/2 Street with current traffic volumes.

The single operational concern is the eastbound approach at the intersection of Station 22 1/2 Street and Jasper Boulevard, which operates at LOS F in both existing and build scenarios. However, only four vehicles approached the intersection from this direction when intersection movements were counted, all of which turned left. Left turns from minor streets at unsignalized intersections typically experience long delays during peak hours, while the majority of the traffic moving through the intersection on the major street experiences little or no delay.

Given the low number of vehicles trying to complete the eastbound left-turn movement and the unbalanced distribution of vehicles at this approach, the poor LOS is not indicative of a large-scale operation problem. Drivers familiar with the area can choose other routes for their trips to avoid longer delays. Since Jasper Blvd is a residential street on the west side of the intersection, drivers using the street likely are familiar with the area.

No roadway changes are recommended at the four study intersections to improve traffic performance.

Sign and Pedestrian Inventories

The sign inventory conducted includes the location and type of each sign in the study area. Signs in poor condition were noted. It is recommended that these signs be replaced during the construction phase of the project, if not sooner. The sign inventory can be found in the Traffic and Parking Appendix.

Figure 3 presents the results of the pedestrian count performed in the same time frame as the traffic volume counts.

A warning sign along Middle Street alerts drivers of pedestrians and provides a safer environment for alternative transportation modes such as bicycles and golf carts by encouraging a lower travel speed.

Middle Street provides parallel parking along the curb and perpendicular parking directly from the street, both of which are considered "on-street parking" in this analysis.

A view of Station 22 Restaurant and nearby businesses in the island's primary commercial area from the restaurant's off-street lot across the street.

PARKING ANALYSIS

Current Conditions

The Community Commercial District of Sullivan's Island provides a mix of parking spaces in its current state. Due to fast growth in recent years, parking spaces take many forms and lack consistent design. For analysis purposes, available spaces were divided into on-street and off-street categories. On-street parking in this analysis is defined as any space requiring the vehicle to pull into a travel lane in order to enter or exit the space. Current on-street parking in the study area includes the following types:

- unmarked parallel parking on the roadway along curbs
- parallel parking on shoulders beside the roadway
- perpendicular parking between commercial buildings and roadways
- diagonal parking between commercial buildings and roadways
- parking on shoulders

Conversely, off-street parking is defined as any space not requiring the vehicle to pull into a travel lane in order to enter or exit the space. Access to these spaces from the street is provided via driveways. Current off-street parking in the study area includes the following types:

- shared paved lots located between businesses in more dense areas
- designated gravel lots adjacent to and across from their respective businesses
- designated paved lots wrapping around individual businesses in less dense areas

Aerial images in the Traffic and Parking Appendix illustrate available on-street and off-street parking areas.

Parking Inventory Site Visit

The parking inventory site visit occurred on a Saturday at the end of the summer season. Parking volumes were monitored on an approximate hourly basis between 11:00am and 8:30pm for on-street parking and between 1:30pm and 8:30pm for off-street parking. The charts to the right and on the following page illustrate changing volumes (percentage of total spaces occupied) throughout the day in the study area for on-street, off-street, and all parking spaces, respectively. Charts illustrating these changing volumes for individual sections of street and individual off-street lots can be found in the Traffic and Parking Appendix.

On-Street Parking Observations

As the chart illustrates, on-street parking reaches a lunchtime peak around 2:30 pm and then dips slightly before rising to the higher nighttime peak. The chart illustrates parking volumes reaching only 60% capacity at its highest peak. The simple chart may be misleading because it considers available on-street parking spaces in the entire study area. Many of these spaces are located farther than typical walking distance from the businesses in the area and remain unused throughout the day. Conversely, as the charts in the appendix illustrate, most on-street spaces in the vicinity of commercial establishments were filled to capacity throughout the afternoon and especially in the evening.

Off-Street Parking Observations

Off-street parking in the study area indicated trends similar to those of on-street parking. However, the lunchtime peak is not pronounced in off-street totals and the evening peak increases quickly between 5:30pm and 6:30pm. During the site visit, commercial district visitors generally respected parking lot regulations during the day yet disregarded them at night after normal business hours. During these hours, when on-street parking reached capacity near popular establishments, patrons would park in private lots (e.g. Post Office lot) nearby as opposed to parking a block or more away. This could be the result of relaxed nighttime enforcement patterns, local knowledge of its general acceptance, or a lack of sign visibility due to nighttime darkness.

The charts above and below show parking usage for all on-street and for all off-street spaces in the study area.

This chart presents usage of all parking spaces in the study area. It illustrates the contribution of on-street (red) and off-street (green) parking toward the total.

This photograph illustrates the limited parking at Middle Street destinations near Station 20 1/2 Street. The Post Office parking lot located on the next block serves as overflow parking at night.

Need for Improvement

The parking inventory revealed high demand for convenient spaces outside commercial establishments during lunchtime and nighttime hours. Given the full utilization of available nearby parking spaces during these peaks, it is unknown how many potential patrons chose not to visit establishments because they were unable to find acceptable parking. Although some spaces remained available throughout inventory hours within a few blocks of all establishments, drivers chose not to use them. This could be due to a variety of reasons:

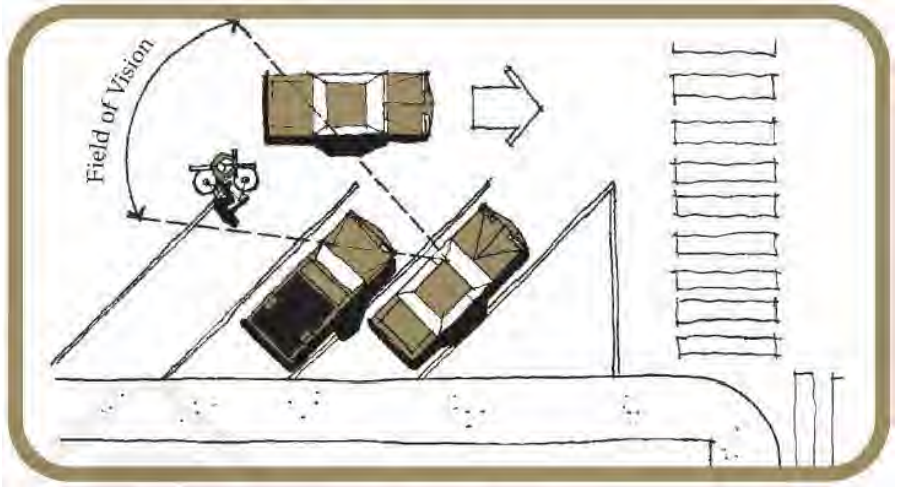
- **Lack of familiarity with local road network.**
  Many visitors use only Station 22 1/2 Street (Ben Sawyer Boulevard) and Middle Street to reach their destinations, since traveling onto side streets and residential streets is beyond their knowledge.
- **Sense of insecurity on side streets and residential streets.**
  The dim lighting and low activity on side streets and residential streets may create a sense of insecurity in visitors regardless of their actual levels of safety.
- **Disjointed general feel of Middle Street.**
  The varied streetscape that currently defines Middle Street may make walking distances seem longer to visitors than they actually are. Consistent sidewalks are located on the opposite side of the street from the majority of establishments and few safe nighttime crossings link the sidewalks to desired destinations. Sections of the street that are clearly not meant for visitors, including private property with fences and driveways, divide the street and exaggerate the distance between commercial areas.

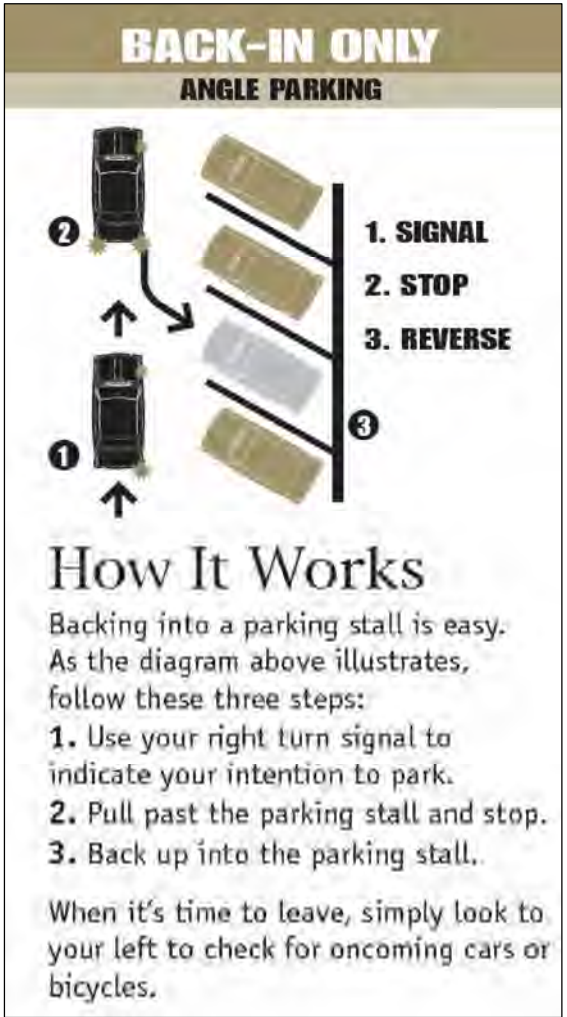
Recommendation: Improve lighting, wayfinding, and continuity along paths that link parking areas to the establishments they are intended to serve.

Beyond considerations of adequate parking, safe interactions between parking vehicles and traveling vehicles are a high priority. Perpendicular parking along business frontage creates unsafe interactions. Along Middle Street, vehicles pull directly into spaces with their front ends facing buildings and their back ends facing the street. When exiting parking spaces, vehicles must back into the travel lane, change gears, and then proceed forward with the flow of traffic. The safety concern comes with backing into the travel lane, which occurs when drivers readjust their location within parking spaces and when drivers exit parking spaces. Crashes occur when vehicles backing into the travel lane fail to yield to traveling vehicles and when traveling vehicles fail to stop for vehicles backing into the travel lane. Drivers backing their vehicles into the travel lane often have poor visibility due to nearby parked vehicles, and drivers continuing along the travel lane have little warning given the close proximity of all parked vehicles to the travel lane.

A safer parking design that serves the same purpose is called **reverse angle parking**, also known as back-in angle parking. It allows a vehicle to enter a space by coming to a complete stop in the travel lane, changing gears, and then backing into the space at an angle. It allows the vehicle to exit the space by simply proceeding forward at an angle into the flow of traffic. By completing the reverse maneuver upon entry, the vehicle has slowed down and come to a stop in the travel lane, giving other vehicles adequate visual warning. When the vehicle pulls back into the travel lane, the driver has an improved view of vehicles in the travel lane and has less maneuvering to join the flow of traffic. In addition, with the nose of the vehicle pointed toward the travel lane, vehicle doors shield children from traffic, and the trunk can loaded and unloaded from the sidewalk.

Recommendation: Replace perpendicular parking in front of businesses with reverse angle parking where possible in order to improve safety.





These excerpts from the brochure "Back-In Angle Parking" illustrate reverse angle parking (source: http://www.newwestcity.ca/cityhall/engineer/parking/back-in_angle_parking.pdf).

Bicycles provide clean local transportation and can be parked in areas with insufficient space for motor vehicles. Planning secure spaces for bicycles reduces the need for vehicle spaces and encourages bike use while adding to the island's charm.

Bicycles and Golf Carts

Bicycles and golf carts provide efficient transportation for residents and visitors staying on the island. They require less space for parking than typical motor vehicles, reduce gas emissions on the island, and add to the island charm that defines Sullivan's Island. In addition to these positives, they also create the ability for the island to structure its parking to meet the needs of residents and their guests differently than the needs of nighttime visitors.

Recommendation: In order to better accommodate residents, provide parking for bicycles and golf carts within the commercial district. Visitors who drive to the island for entertainment may be willing to walk a bit farther to venues and likely will be drawn to the small-town feel that bicycles and golf carts create.

Canine residents take a break beside the local park, enjoying the clean air protected by their alternative transportation vehicle.

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Kimley-Horn and Associates, Inc.	SULLIVANS ISLAND MASTER PLAN	EXISTING (2008) PM PEAK HOUR TRAFFIC VOLUMES COUNTED 4-6PM, WED 9/24/2008	FIGURE 1

THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.

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Kimley-Horn and Associates, Inc.	SULLIVANS ISLAND MASTER PLAN	BUILD (2008) PM PEAK HOUR TRAFFIC VOLUMES BASED ON 9/24/08 COUNTS	FIGURE 2

THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.

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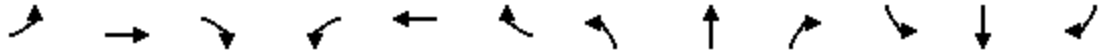
Kimley-Horn and Associates, Inc.	SULLIVANS ISLAND MASTER PLAN	EXISTING (2008) PM PEAK HOUR PEDSTRIAN VOLUMES COUNTED 4-6PM, WED 9/24/2008	FIGURE 3

THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.

Traffic & Parking Appendix

SULLIVAN'S ISLAND COMMUNITY COMMERCIAL DISTRICT MASTER PLAN

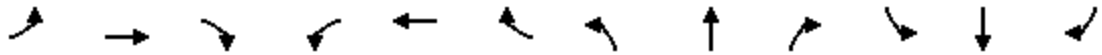


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	4	0	0	19	2	216	0	261	15	292	356	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	4	0	0	21	2	240	0	290	17	324	396	2
Pedestrians		1			2			1			1	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1579	1355	399	1346	1348	301	399			309		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1579	1355	399	1346	1348	301	399			309		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	91	100	100	79	98	67	100			74		
cM capacity (veh/h)	47	110	650	102	111	736	1159			1250		

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	4	23	240	0	307	324	398
Volume Left	4	21	0	0	0	324	0
Volume Right	0	0	240	0	17	0	2
cSH	47	103	736	1700	1700	1250	1700
Volume to Capacity	0.09	0.23	0.33	0.00	0.18	0.26	0.23
Queue Length 95th (ft)	7	20	35	0	0	26	0
Control Delay (s)	89.8	49.9	12.2	0.0	0.0	8.9	0.0
Lane LOS	F	E	B			A	

Approach Delay (s)	89.8	15.6	0.0	4.0
Approach LOS	F	C		

Intersection Summary			
Average Delay	5.7		
Intersection Capacity Utilization	44.5%	ICU Level of Service	A
Analysis Period (min)	15		

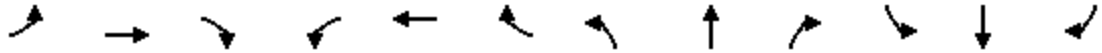


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	227	81	9	6	76	55	0	0	0	44	26	236
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	252	90	10	7	84	61	0	0	0	49	29	262
Pedestrians		3						3			7	
Lane Width (ft)		12.0						0.0			12.0	
Walking Speed (ft/s)		4.0						4.0			4.0	
Percent Blockage		0						0			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	153			103			1010	768	98	730	743	125
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	153			103			1010	768	98	730	743	125
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	82			100			100	100	100	83	90	71
cM capacity (veh/h)	1420			1489			123	270	958	288	279	918

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	252	100	152	78	262
Volume Left	252	0	7	49	0
Volume Right	0	10	61	0	262
cSH	1420	1700	1489	285	918
Volume to Capacity	0.18	0.06	0.00	0.27	0.29
Queue Length 95th (ft)	16	0	0	27	30
Control Delay (s)	8.1	0.0	0.4	22.3	10.5
Lane LOS	A		A	C	B

Approach Delay (s)	5.8	0.4	13.2		
Approach LOS			B		

Intersection Summary			
Average Delay	7.8		
Intersection Capacity Utilization	36.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	3	270	5	39	256	7	3	4	20	4	2	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	3	300	6	43	284	8	3	4	22	4	2	4
Pedestrians		2			7			14			15	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		0			1			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	307			320			706	717	324	731	716	305
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	307			320			706	717	324	731	716	305
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			96			99	99	97	99	99	99
cM capacity (veh/h)	1238			1226			326	333	705	303	334	724

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	309	336	30	11
Volume Left	3	43	3	4
Volume Right	6	8	22	4
cSH	1238	1226	545	404
Volume to Capacity	0.00	0.04	0.06	0.03
Queue Length 95th (ft)	0	3	4	2
Control Delay (s)	0.1	1.3	12.0	14.2
Lane LOS	A	A	B	B

Approach Delay (s)	0.1	1.3	12.0	14.2		
Approach LOS			B	B		

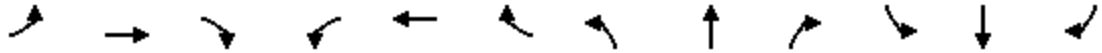
Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	46.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	232	2	14	257	8	44
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	258	2	16	286	9	49
Pedestrians					1	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			261		577	260
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			261		577	260
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		98	94
cM capacity (veh/h)			1302		473	778

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	260	301	58
Volume Left	0	16	9
Volume Right	2	0	49
cSH	1700	1302	708
Volume to Capacity	0.15	0.01	0.08
Queue Length 95th (ft)	0	1	7
Control Delay (s)	0.0	0.5	10.5
Lane LOS		A	B

Approach Delay (s)	0.0	0.5	10.5		
Approach LOS			B		

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	35.0%	ICU Level of Service	A
Analysis Period (min)	15		

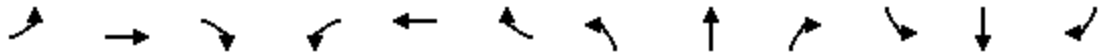


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	4	0	0	19	2	216	0	261	15	292	356	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	4	0	0	21	2	240	0	290	17	324	396	2
Pedestrians		1			2			1			1	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1579	1355	399	1346	1348	301	399			309		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1579	1355	399	1346	1348	301	399			309		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	91	100	100	79	98	67	100			74		
cM capacity (veh/h)	47	110	650	102	111	736	1159			1250		

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	4	23	240	0	307	324	398
Volume Left	4	21	0	0	0	324	0
Volume Right	0	0	240	0	17	0	2
cSH	47	103	736	1700	1700	1250	1700
Volume to Capacity	0.09	0.23	0.33	0.00	0.18	0.26	0.23
Queue Length 95th (ft)	7	20	35	0	0	26	0
Control Delay (s)	89.8	49.9	12.2	0.0	0.0	8.9	0.0
Lane LOS	F	E	B			A	

Approach Delay (s)	89.8	15.6	0.0	4.0
Approach LOS	F	C		

Intersection Summary			
Average Delay	5.7		
Intersection Capacity Utilization	44.5%	ICU Level of Service	A
Analysis Period (min)	15		

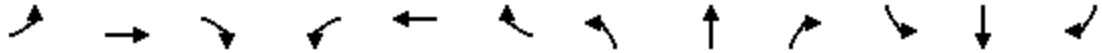


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	232	83	2	1	79	57	4	3	2	47	6	253
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	258	92	2	1	88	63	4	3	2	52	7	281
Pedestrians		3						3			7	
Lane Width (ft)		12.0						12.0			12.0	
Walking Speed (ft/s)		4.0						4.0			4.0	
Percent Blockage		0						0			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	158			97			1021	772	96	740	742	129
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	158			97			1021	772	96	740	742	129
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	82			100			96	99	100	81	98	69
cM capacity (veh/h)	1413			1492			124	267	958	279	279	913

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1	SB 2
Volume Total	258	94	152	10	59	281
Volume Left	258	0	1	4	52	0
Volume Right	0	2	63	2	0	281
cSH	1413	1700	1492	198	279	913
Volume to Capacity	0.18	0.06	0.00	0.05	0.21	0.31
Queue Length 95th (ft)	17	0	0	4	20	33
Control Delay (s)	8.1	0.0	0.1	24.2	21.3	10.7
Lane LOS	A		A	C	C	B

Approach Delay (s)	5.9	0.1	24.2	12.5			
Approach LOS			C	B			

Intersection Summary			
Average Delay	7.7		
Intersection Capacity Utilization	38.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	3	270	5	39	256	7	3	4	20	4	2	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	3	300	6	43	284	8	3	4	22	4	2	4
Pedestrians		2			7			14			15	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		0			1			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	307			320			706	717	324	731	716	305
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	307			320			706	717	324	731	716	305
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			96			99	99	97	99	99	99
cM capacity (veh/h)	1238			1226			326	333	705	303	334	724

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	309	336	30	11
Volume Left	3	43	3	4
Volume Right	6	8	22	4
cSH	1238	1226	545	404
Volume to Capacity	0.00	0.04	0.06	0.03
Queue Length 95th (ft)	0	3	4	2
Control Delay (s)	0.1	1.3	12.0	14.2
Lane LOS	A	A	B	B

Approach Delay (s)	0.1	1.3	12.0	14.2		
Approach LOS			B	B		

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	46.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	232	2	14	257	8	44
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	258	2	16	286	9	49
Pedestrians					1	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			261		577	260
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			261		577	260
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		98	94
cM capacity (veh/h)			1302		473	778

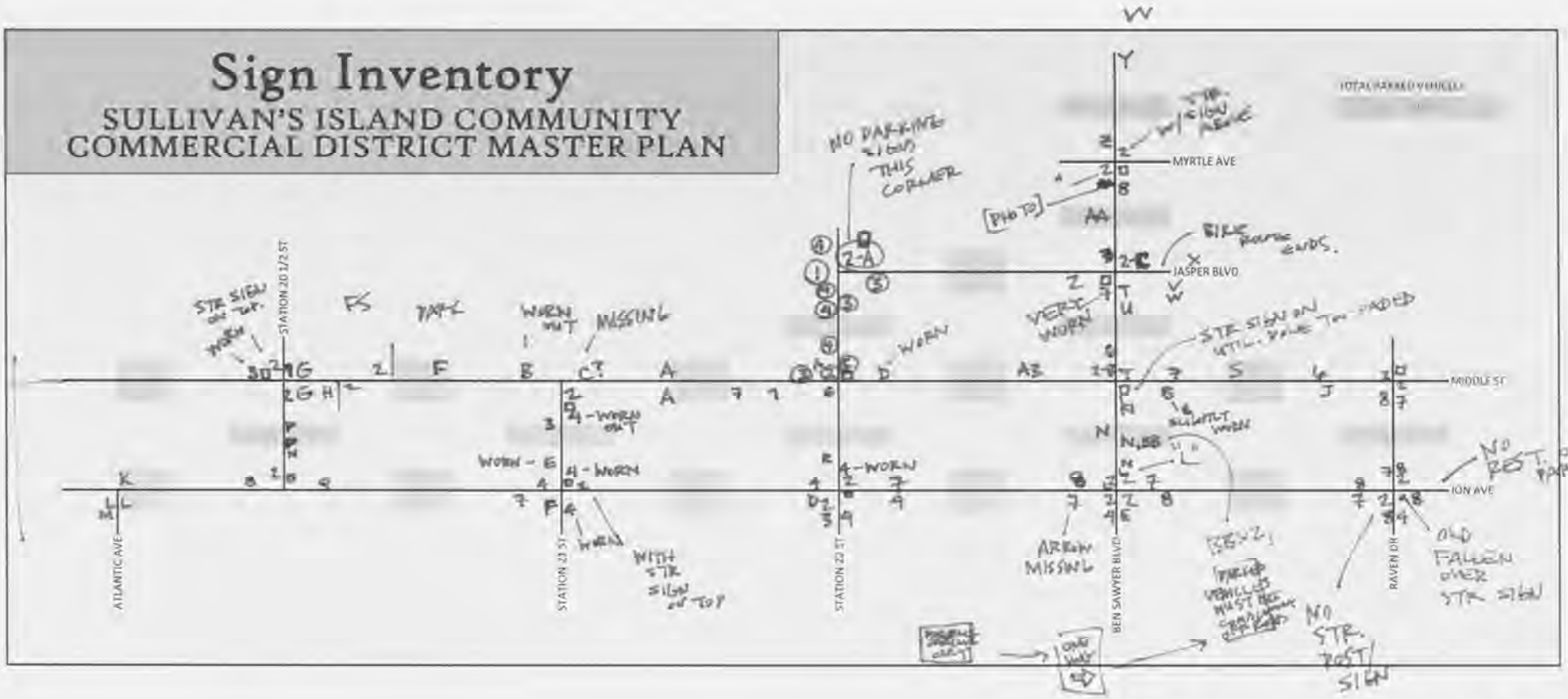
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	260	301	58
Volume Left	0	16	9
Volume Right	2	0	49
cSH	1700	1302	708
Volume to Capacity	0.15	0.01	0.08
Queue Length 95th (ft)	0	1	7
Control Delay (s)	0.0	0.5	10.5
Lane LOS		A	B

Approach Delay (s)	0.0	0.5	10.5		
Approach LOS			B		

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	35.0%	ICU Level of Service	A
Analysis Period (min)	15		

Sign Inventory

SULLIVAN'S ISLAND COMMUNITY COMMERCIAL DISTRICT MASTER PLAN

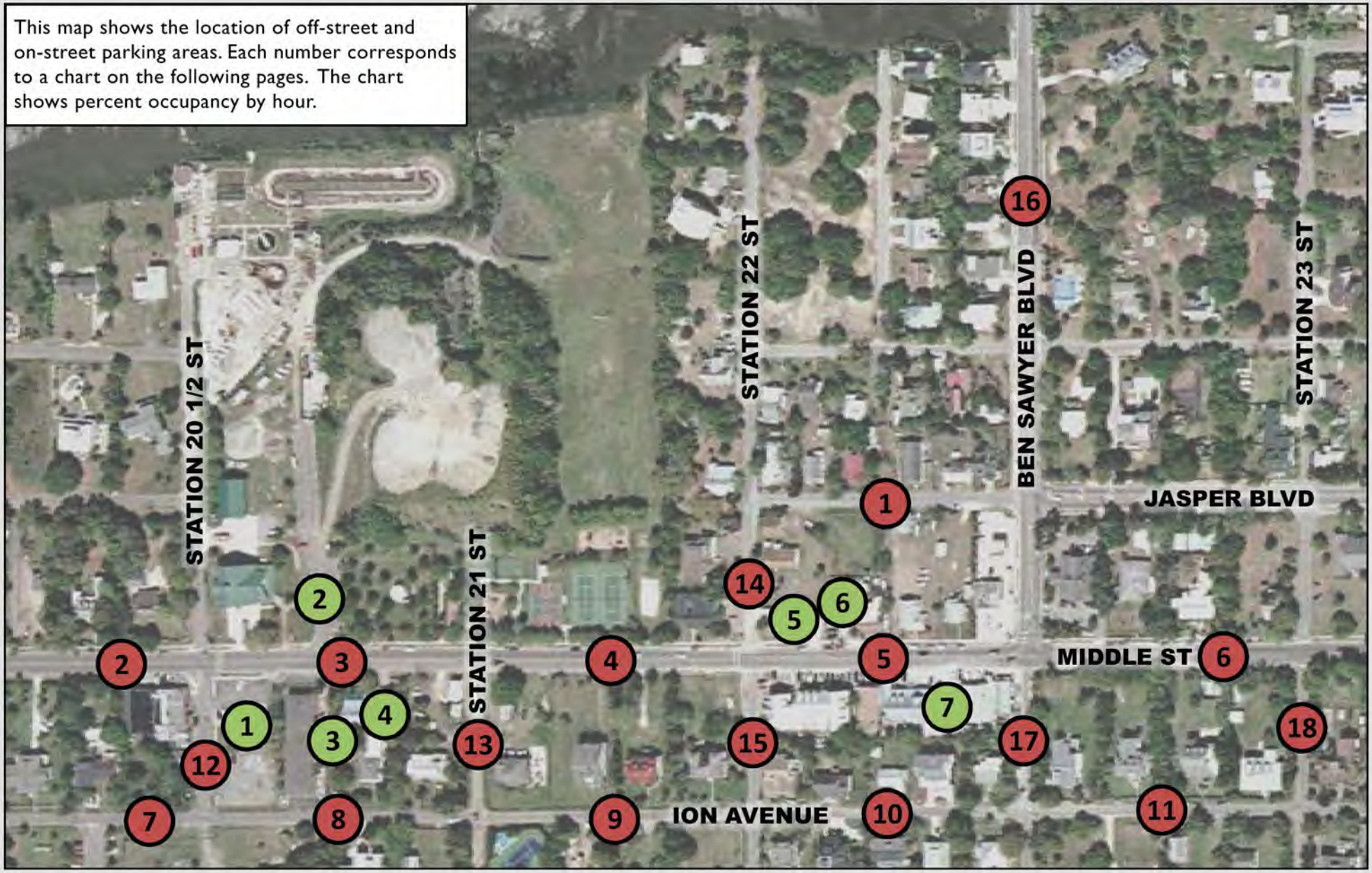


COMMUNITY COMMERCIAL DISTRICT MASTER PLAN

Parking Survey Results: Saturday, September 20, 2008

Kimley-Horn and Associates, Inc.

This map shows the location of off-street and on-street parking areas. Each number corresponds to a chart on the following pages. The chart shows percent occupancy by hour.



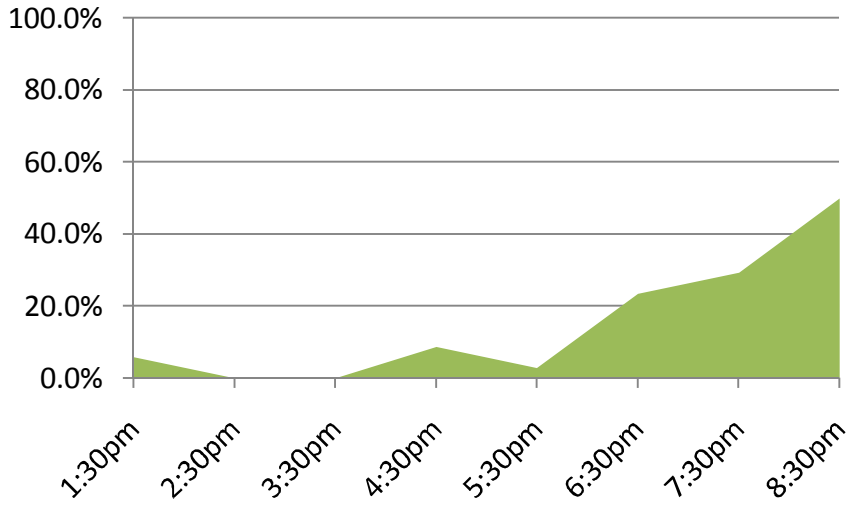
COMMUNITY COMMERCIAL DISTRICT MASTER PLAN

Parking Survey Results: Saturday, September 20, 2008

Kimley-Horn and Associates, Inc.

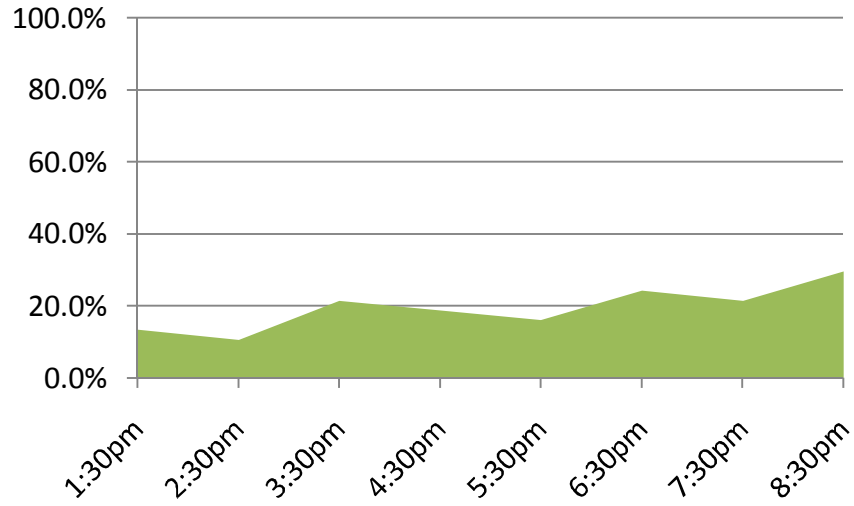
1 Post Office Lots

[OFF-STREET PARKING - 34 VEHICLE CAPACITY]



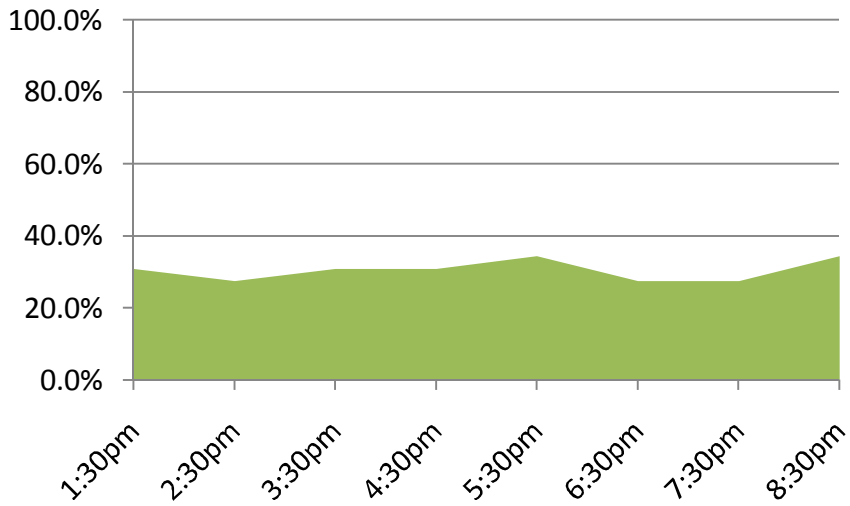
2 Fire Station/Park Lots

[OFF-STREET PARKING - 37 VEHICLE CAPACITY]



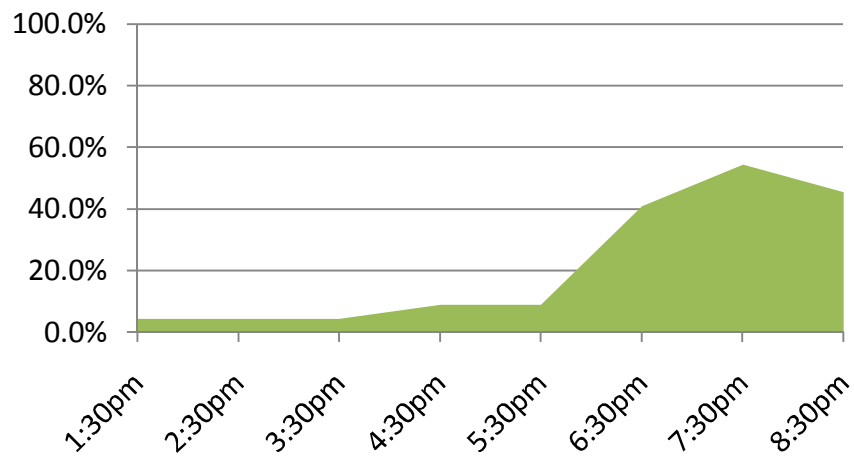
3 Condo Lot

[OFF-STREET PARKING - 29 VEHICLE CAPACITY]



4 Atlanticville Restaurant & Jones Co. Building Lots

[OFF-STREET PARKING - 22 VEHICLE CAPACITY]



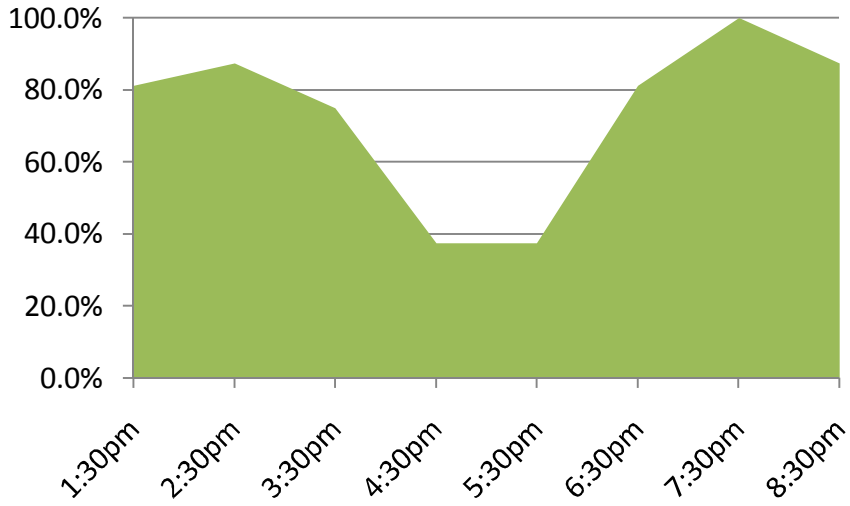
COMMUNITY COMMERCIAL DISTRICT MASTER PLAN

Parking Survey Results: Saturday, September 20, 2008

Kimley-Horn and Associates, Inc.

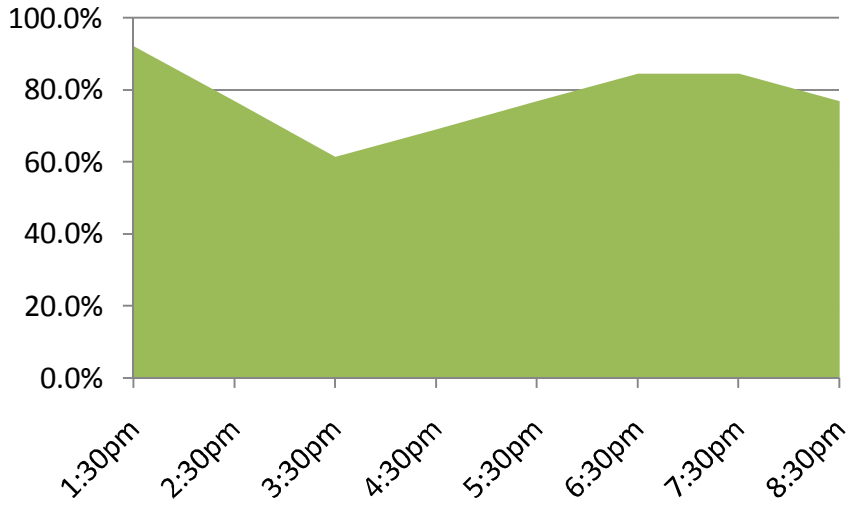
5 Station 22 Restaurant Lot

[OFF-STREET PARKING - 16 VEHICLE CAPACITY]



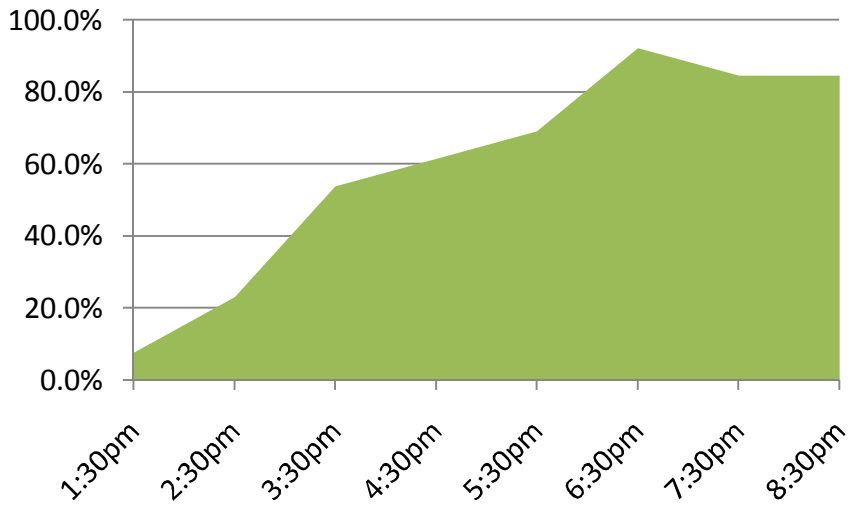
6 Poe's Tavern Lot

[OFF-STREET PARKING - 13 VEHICLE CAPACITY]

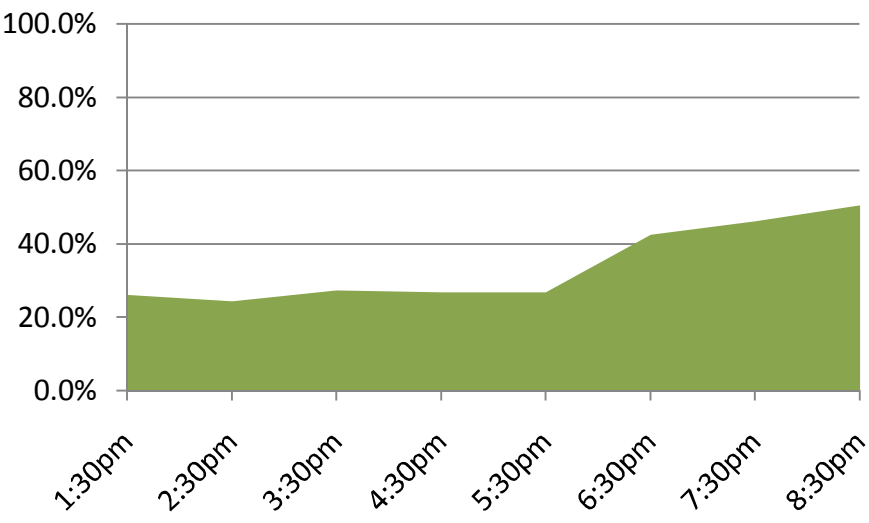


7 Off the Hook Restaurant Lot

[OFF-STREET PARKING - 13 VEHICLE CAPACITY]



OFF-STREET PARKING TOTALS

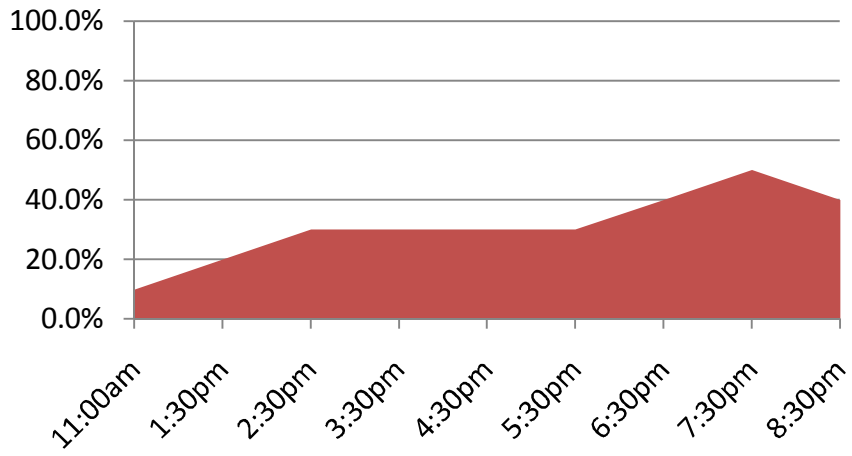


COMMUNITY COMMERCIAL DISTRICT MASTER PLAN

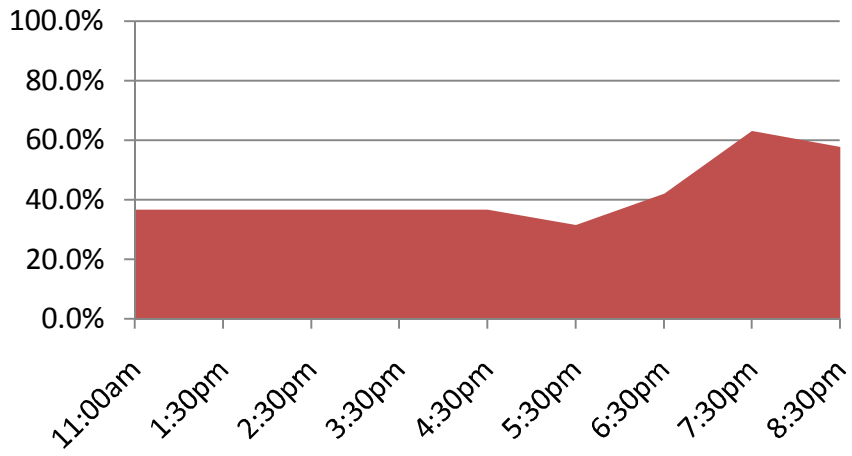
Parking Survey Results: Saturday, September 20, 2008

Kimley-Horn and Associates, Inc.

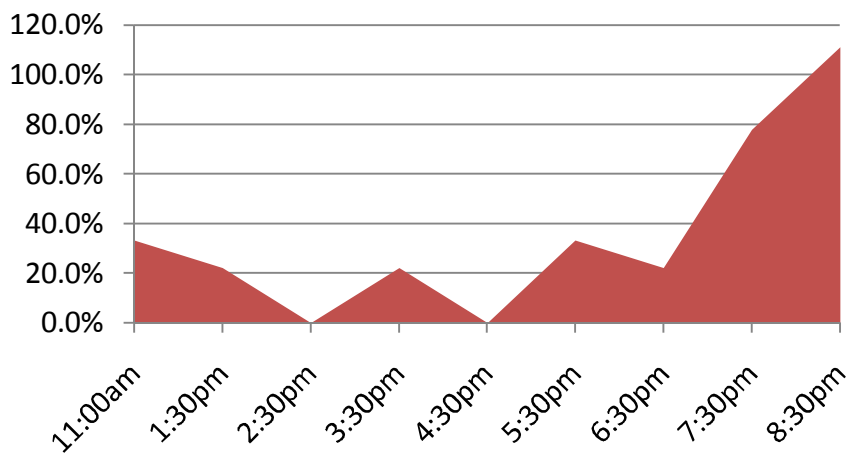
1 Jasper Boulevard
Between Station 22 & Ben Sawyer Blvd
[ON-STREET PARKING - 10 VEHICLE CAPACITY]



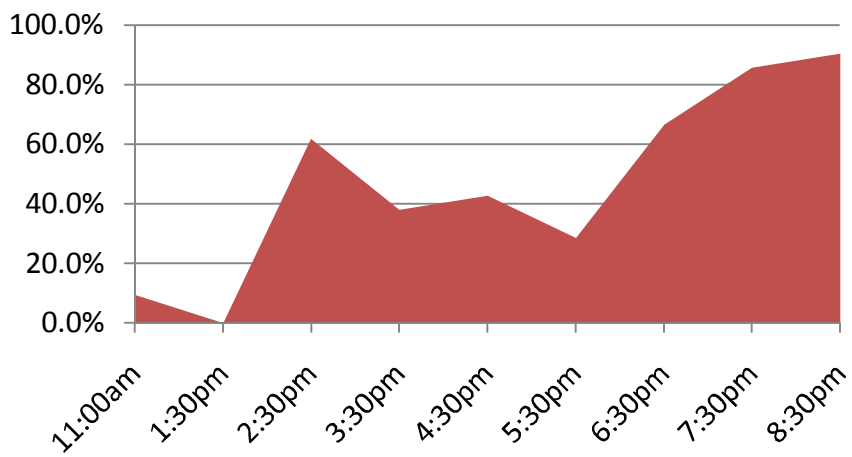
2 Middle Street
West of Station 20 1/2
[ON-STREET PARKING - 19 VEHICLE CAPACITY]



3 Middle Street
Between Station 20 1/2 & Station 21
[ON-STREET PARKING - 9 VEHICLE CAPACITY]



4 Middle Street
Between Station 21 & Station 22
[ON-STREET PARKING - 21 VEHICLE CAPACITY]

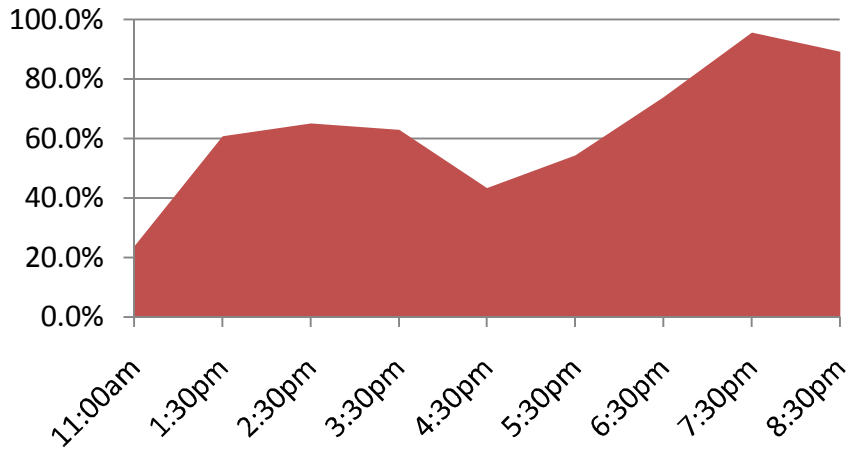


COMMUNITY COMMERCIAL DISTRICT MASTER PLAN

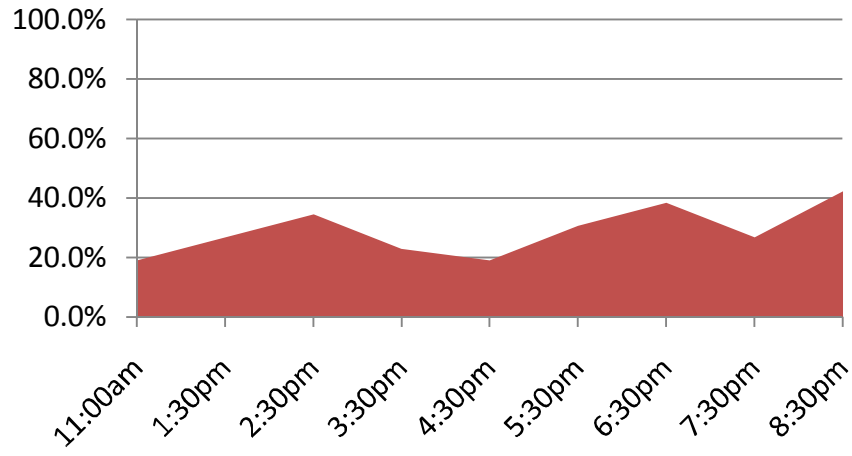
Parking Survey Results: Saturday, September 20, 2008

Kimley-Horn and Associates, Inc.

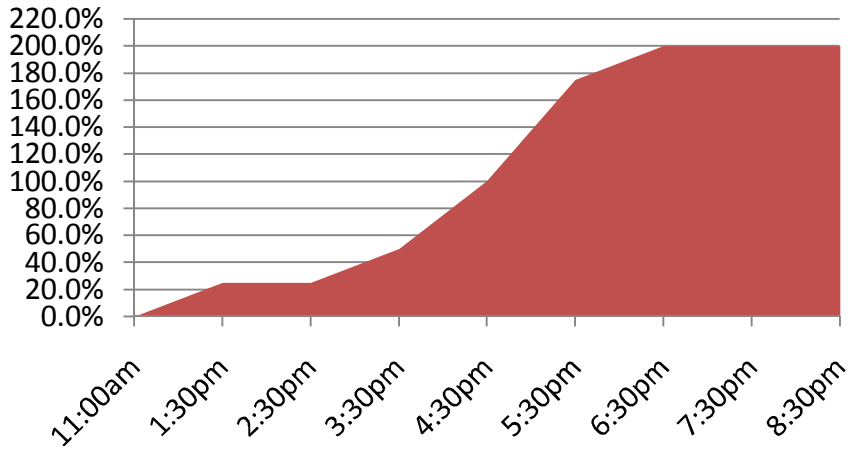
5 Middle Street
Between Station 22 & Ben Sawyer Blvd
[ON-STREET PARKING - 46 VEHICLE CAPACITY]



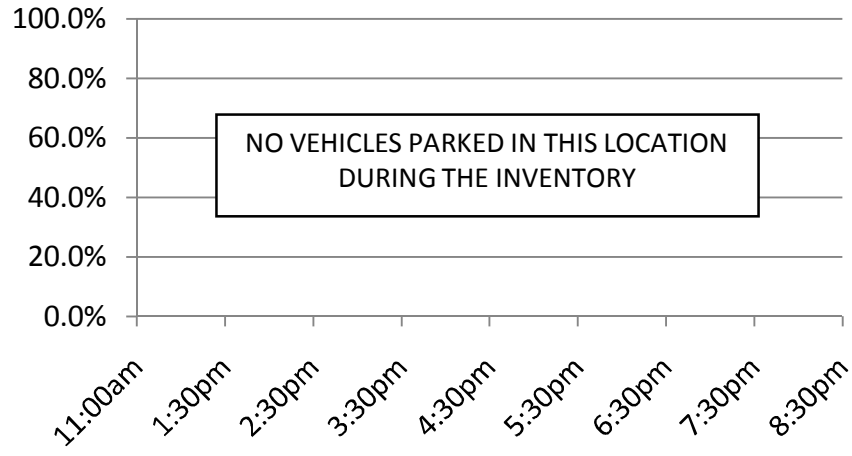
6 Middle Street
Between Ben Sawyer Blvd & Station 23
[ON-STREET PARKING - 26 VEHICLE CAPACITY]



7 Ion Avenue
West of Station 20 1/2
[ON-STREET PARKING - 4 VEHICLE CAPACITY]



8 Ion Avenue
Between Station 20 1/2 & Station 21
[ON-STREET PARKING - 8 VEHICLE CAPACITY]

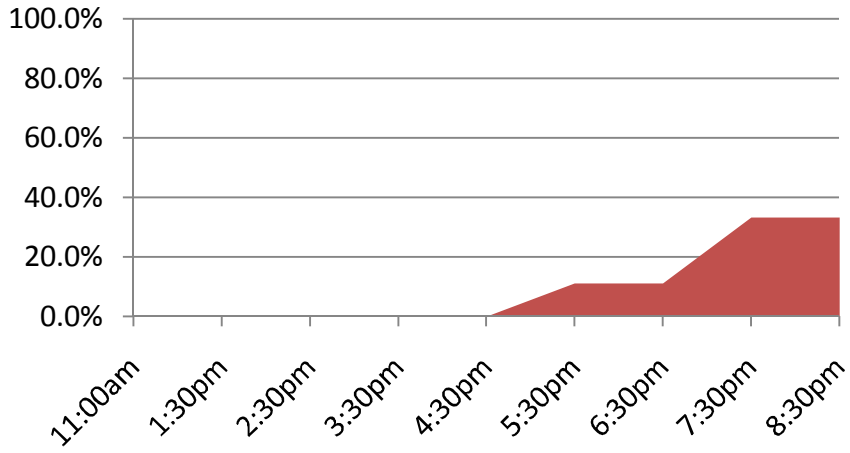


COMMUNITY COMMERCIAL DISTRICT MASTER PLAN

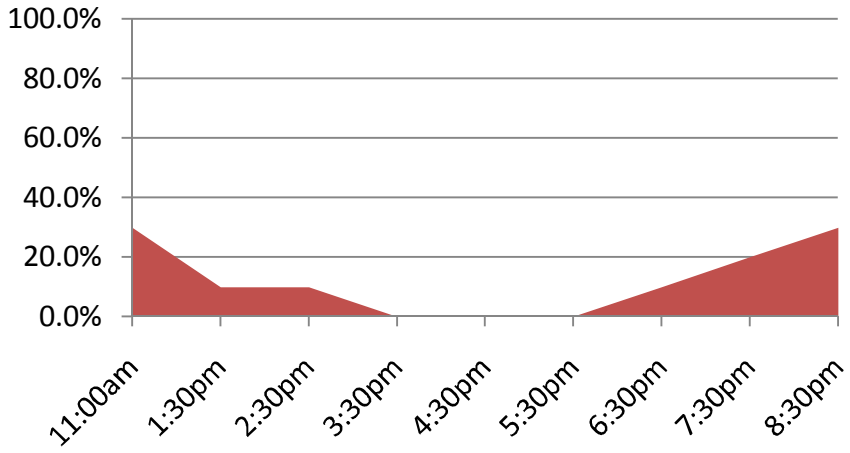
Parking Survey Results: Saturday, September 20, 2008

Kimley-Horn and Associates, Inc.

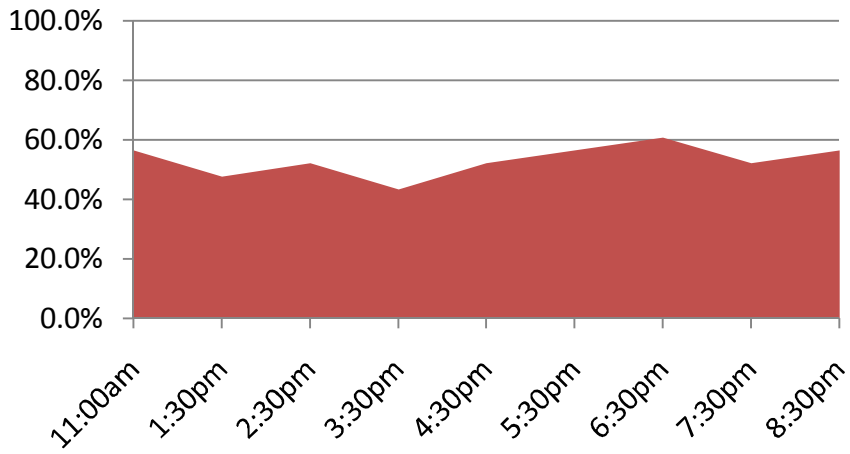
9 Ion Avenue
Between Station 21 & Station 22
[ON-STREET PARKING - 9 VEHICLE CAPACITY]



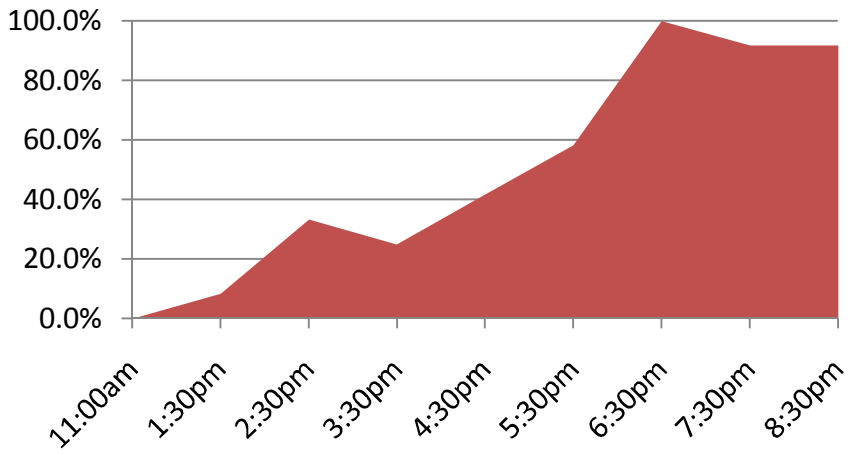
10 Ion Avenue
Between Station 22 & Ben Sawyer
[ON-STREET PARKING - 10 VEHICLE CAPACITY]



11 Ion Avenue
Between Ben Sawyer Blvd & Station 23
[ON-STREET PARKING - 23 VEHICLE CAPACITY]



12 Station 20 1/2
Between Ion Ave & Middle St
[ON-STREET PARKING - 12 VEHICLE CAPACITY]

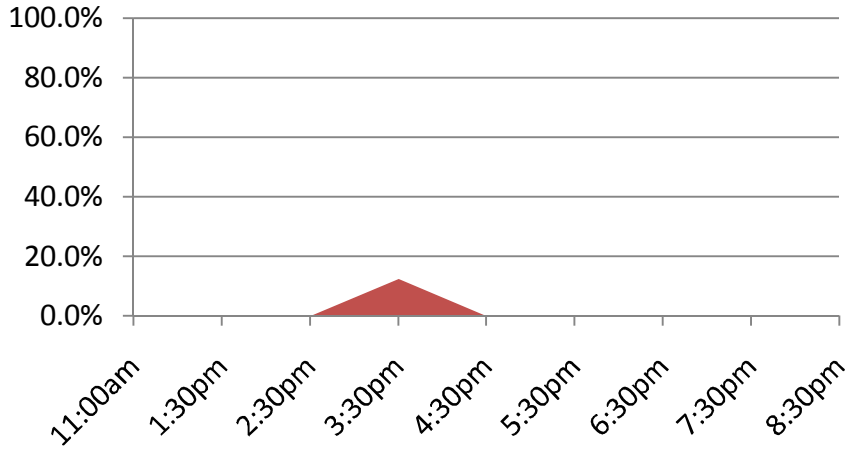


COMMUNITY COMMERCIAL DISTRICT MASTER PLAN

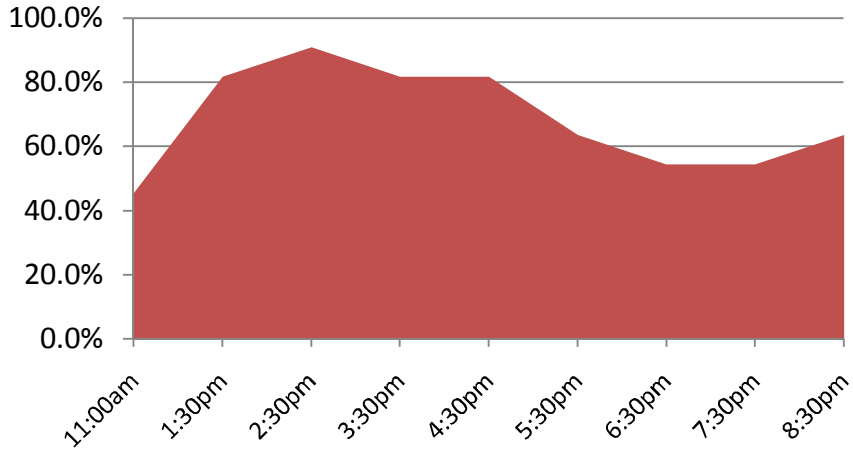
Parking Survey Results: Saturday, September 20, 2008

Kimley-Horn and Associates, Inc.

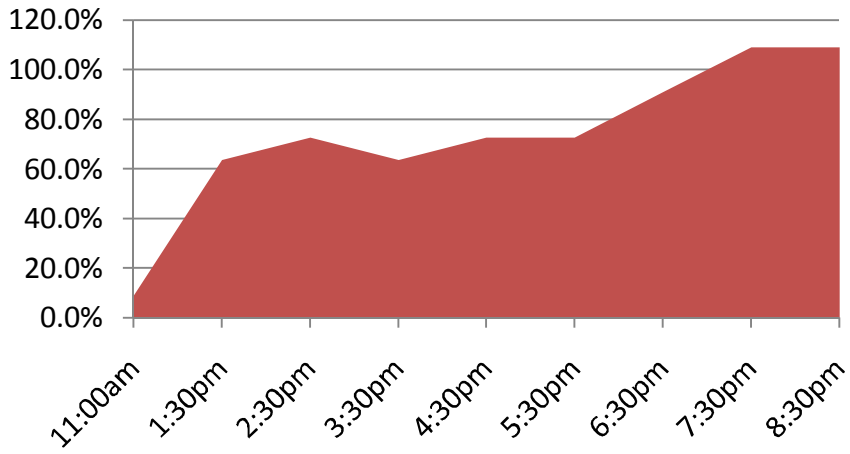
13 Station 21
Between Ion Ave & Middle St
[ON-STREET PARKING - 8 VEHICLE CAPACITY]



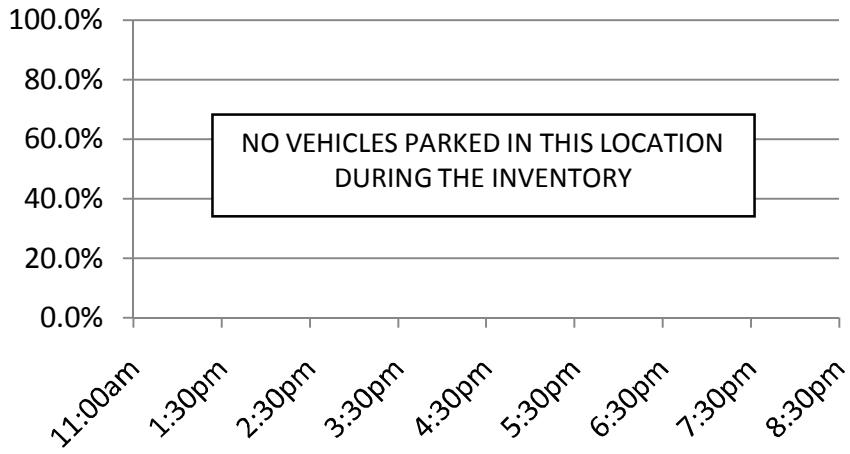
14 Station 22
Between Middle St & Jasper Blvd
[ON-STREET PARKING - 11 VEHICLE CAPACITY]



15 Station 22
Between Ion Ave & Middle St
[ON-STREET PARKING - 11 VEHICLE CAPACITY]



16 Ben Sawyer Boulevard
North of Myrtle Ave
[ON-STREET PARKING - 23 VEHICLE CAPACITY]

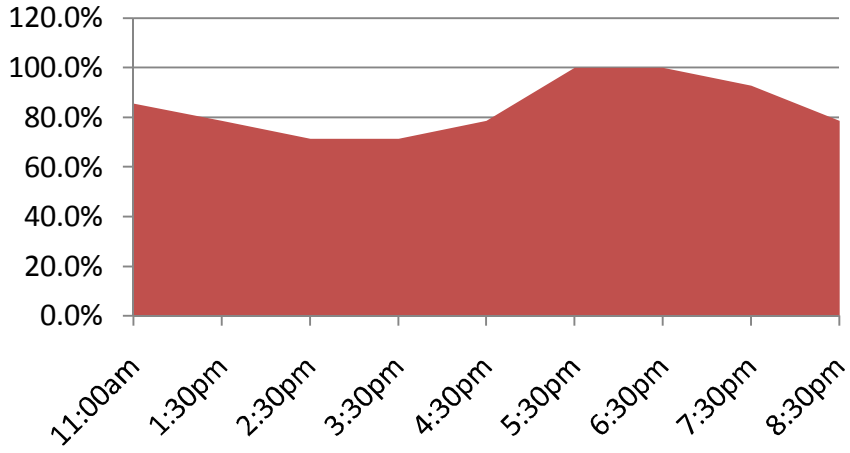


COMMUNITY COMMERCIAL DISTRICT MASTER PLAN

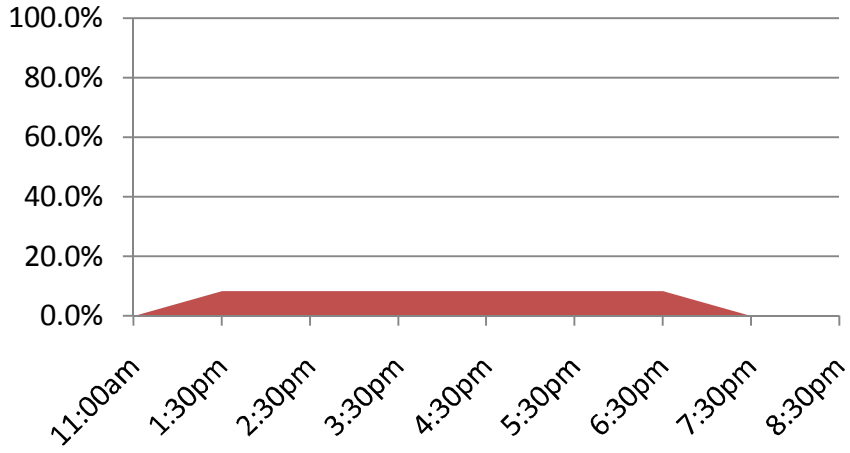
Parking Survey Results: Saturday, September 20, 2008

Kimley-Horn and Associates, Inc.

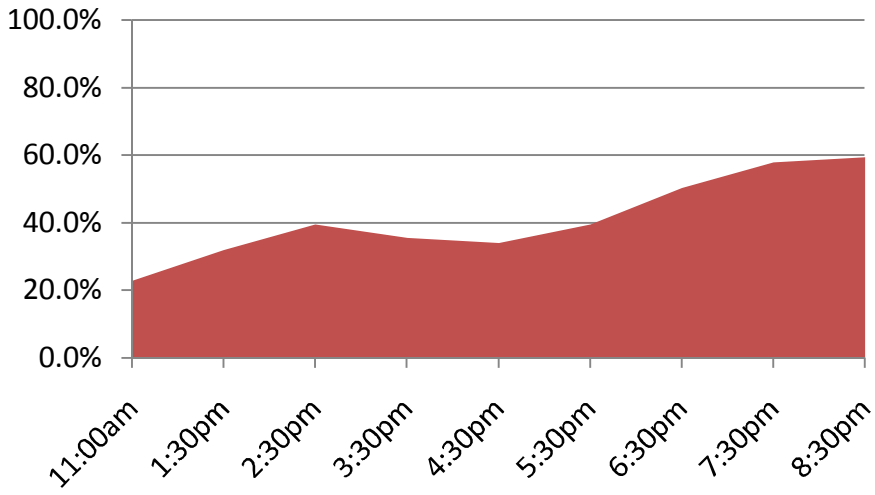
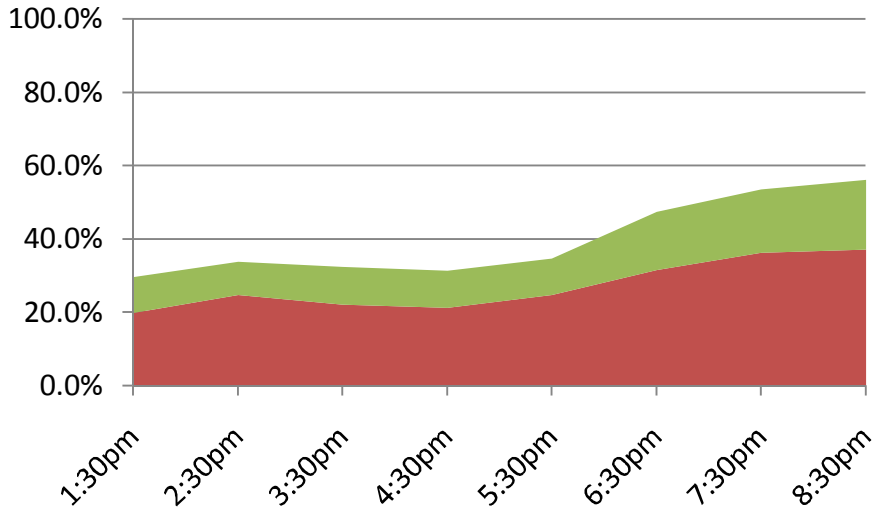
17 Ben Sawyer Boulevard
Between Ion Ave & Middle St
[ON-STREET PARKING - 14 VEHICLE CAPACITY]



18 Station 23
Between Ion Ave & Middle St
[ON-STREET PARKING - 12 VEHICLE CAPACITY]



ON-STREET PARKING TOTALS



PARKING GRAND TOTALS