

Ocean Acres Elementary School



Stafford Township, NJ
School Travel Plan
September 2020

Prepared by Greater Mercer TMA



NEW JERSEY
Safe Routes to School



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Contents

Introduction.....	3
Goals.....	4
Ocean Acres Elementary School Description	5
Picture 1: School Entrance.....	5
Current Safe Routes to School Programming.....	6
Working Group	7
Partnerships	7
Existing Conditions.....	8
Maps	8
Fig. 1 School Neighborhood.....	8
Ocean Acres Elementary -School Zone.....	9
Picture 2: Nautilus Drive – southbound toward School Zone.....	10
Sidewalks.....	10
Fig. 2 School and Community Center	11
Crossing Guard	11
Arrival/Parking/Dismissal	12
Picture 3: Morning arrival of school buses at Ocean Acres ES on Quadrant Drive	12
February 13, 2020 Walkability Audit.....	12
Fig. 3 Walkability Audit Route.....	14
Fig. 4 Neighborhood audit by auto.....	15
Walk/ Bike Barriers and Opportunities.....	16
School Zone	16
Sidewalks.....	17
Nautilus Park.....	18
Other Neighborhood Observations.....	19
Fig 5. Area Speed Limits.....	20
Travel Tallies.....	21
Table 1. Travel Tallies	21
School Policies.....	22
Transportation.....	22

Safe Routes to School-Disabled Student Inclusion	25
Crash Data	26
Fig. 6 Pedestrian and Cyclist Crash Data 2006-2016 (source – Numetric)	26
Identification of Problem Areas.....	27
Recommended Infrastructure Improvements.....	27
Fig. 7 Proposed Walking and Biking Network.....	28
Nautilus Drive	29
Lighthouse Drive.....	30
Neptune Drive	31
Mermaid Drive.....	32
Barnacle Drive	33
Atlantis Avenue.....	34
Infrastructure Improvements Overview	35
Proposed School Campus Area Improvements	35
Fig. 8 Overview of Ocean Acres Elementary School Area Proposed Improvements	35
Proposed Neighborhood Improvements.....	36
Fig. 9 Overview of Ocean Acres community -Proposed Improvements	36
Fig. 10 Example On-street Bike/Walk facilities.....	37
Fig. 11 Example On-street Bike/Walk facilities – Advisory Bike Lanes	38
Fig 12 Example Pedestrian Crossing - Rectangular Rapid-Flashing Beacon.....	39
Goals and Actions:	40
Evaluation.....	43
Task Force Timeline.....	43
Conclusions.....	43
Appendix A: Stafford Twp Pedestrian and Cyclist Crashes from New Jersey Department of Traffic and Highway Safety, 2006-2016.....	44
Appendix B: FHWA Proven Safety Countermeasures.....	48

Introduction

Stafford Township is located in Ocean County, NJ, and covers an area of nearly 55 square miles. It is the gateway to the Long Beach Island (LBI) resort communities. State Route 72 traverses Stafford Township and leads to the Manahawkin Bay Bridge. This bridge crosses Barnegat Bay and is the only

connection between LBI and the mainland. The Garden State Parkway also crosses through Stafford Township, with Exit 63 connecting to State Route 72. There are two major 4-lane, high speed highways and one US Highway (US Route 9) going through Stafford Township. These major highways have separated the residential communities of Stafford Township into distinct sections, and to reach one residential section from another on foot or by bike is often challenging and sometimes dangerous.

According to the 2010 Census, Stafford Township had 26,535 residents. Manahawkin is the largest community within Stafford Township, with a population of approximately 2,400. Main Street in Manahawkin is US Route 9.

The township's population really began to grow in the 1980s, with several new developments including, Colony Lakes, the expansion of Beach Haven West, and Ocean Acres transitioning from a vacation home community into a year-round single-family home development.

At the intersection of Main Street/US Route 9 and Barnegat Road/State Route 72 is the A. Paul King County Park and Manahawkin Lake Park (Stafford Township) with a small swimming beach, fishing facilities, picnic tables and a pavilion, a playground, a walking track and a bike trail. These parks host numerous town events and festivals throughout the year. The 1,642-acre Manahawkin Wildlife Management Area and the Edwin B. Forsyth National Wildlife Refuge area are also in the township.

The Stafford Township School District had a total of 2,242 students enrolled in grades Pre-K through sixth grade for the 2018-19 school year. It is part of New Jersey's Interdistrict Public School Choice program, therefore students may be enrolled in Stafford Township schools without being residents of the township.

Greater Mercer Transportation Management Association (TMA), a private transportation non-profit, was able to assess the current pedestrian and cyclist facilities, and to propose improvements to increase both safe pedestrian and bicycle access and green commutation to Ocean Acres Elementary School.

This school travel plan identifies background and context about the Ocean Acres Elementary School campus, observed pedestrian, cyclist, and traffic conditions, some recommended improvements, and an estimated timeline/cost breakdown.

Goals

Using the "Six E's" of Safe Routes to School (Evaluation, Engineering, Education, Encouragement, Enforcement, Equity), Stafford Township and its school district would like to increase the number of bicycle riders and walkers at their schools.

Ocean Acres Elementary School Description

Picture 1: School Entrance



This picture shows the arrival in the front of Ocean Acres Elementary where parents drop-off in the morning.

Ocean Acres Elementary School, located at 489 Nautilus Drive, Manahawkin, New Jersey, is within the Ocean Acres neighborhood. It is the district's school for first and second grade students in Stafford Township. Nautilus Drive is also a county road, Ocean County Route 111.

The school was opened in 1999. Its surrounding property comprises almost 14 acres. Buccaneer Lane and Quadrant Road are the roads that access the school property. To the south and east of Quadrant Road is Nautilus Park, nearly 31 acres, including a baseball/softball diamond, basketball court, soccer field, playground, a walking track, and a bike trail.

The Ocean Acres Community Center is connected to the Ocean Acres Elementary School building. The community center has an active schedule of regular group meetings of the Girl Scouts, Boy Scouts, and the Ocean Acres Civic Association, some Stafford Township athletic programs, as well as events, including ones to recognize military service veterans.

According to the NJDOE statistics for the 2018-19 school year:

<u>Grade</u>	<u>Enrollment</u>
1st	246 students
2nd	289 students
total	535 students

From the Stafford Township School District Handbook 2018-19 the **school's hours** are :

<u>School hours</u>	<u>Extended Day</u>	<u>Drop off location</u>	<u>Pick up location</u>
8:45am – 3:25pm	6:30am - 8:45am 3:20pm - 6:00pm	PLC* main entrance	Ocean Acres, Door #9

Current Safe Routes to School Programming

- 2020 "First Steps" Safe Routes to School Municipal Recognition for Stafford Township
- Safety patrol for 2nd grade
- Bike Rodeo with Stafford Township Police Department

*Morning Extended Day Sessions take place at Ronald L. Meinders Primary Learning Center (PLC), 1000 McKinley Ave. Ocean Acres Elementary School students are bused, at no cost to the parent/guardian, from PLC to Ocean Acres ES in time for the start of school.

Working Group

Member Name	Organization/ Title	Role/ Responsibility	Contact Info
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Frank Little	Township Engineer	Key Partner	732-267-2788 flittle@owenlittle.com
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Susan d'Alessandro	Ocean Acres Elementary School Principal	School Partner	609-978-5700 x1198 sdalessandro@staffordschools.org

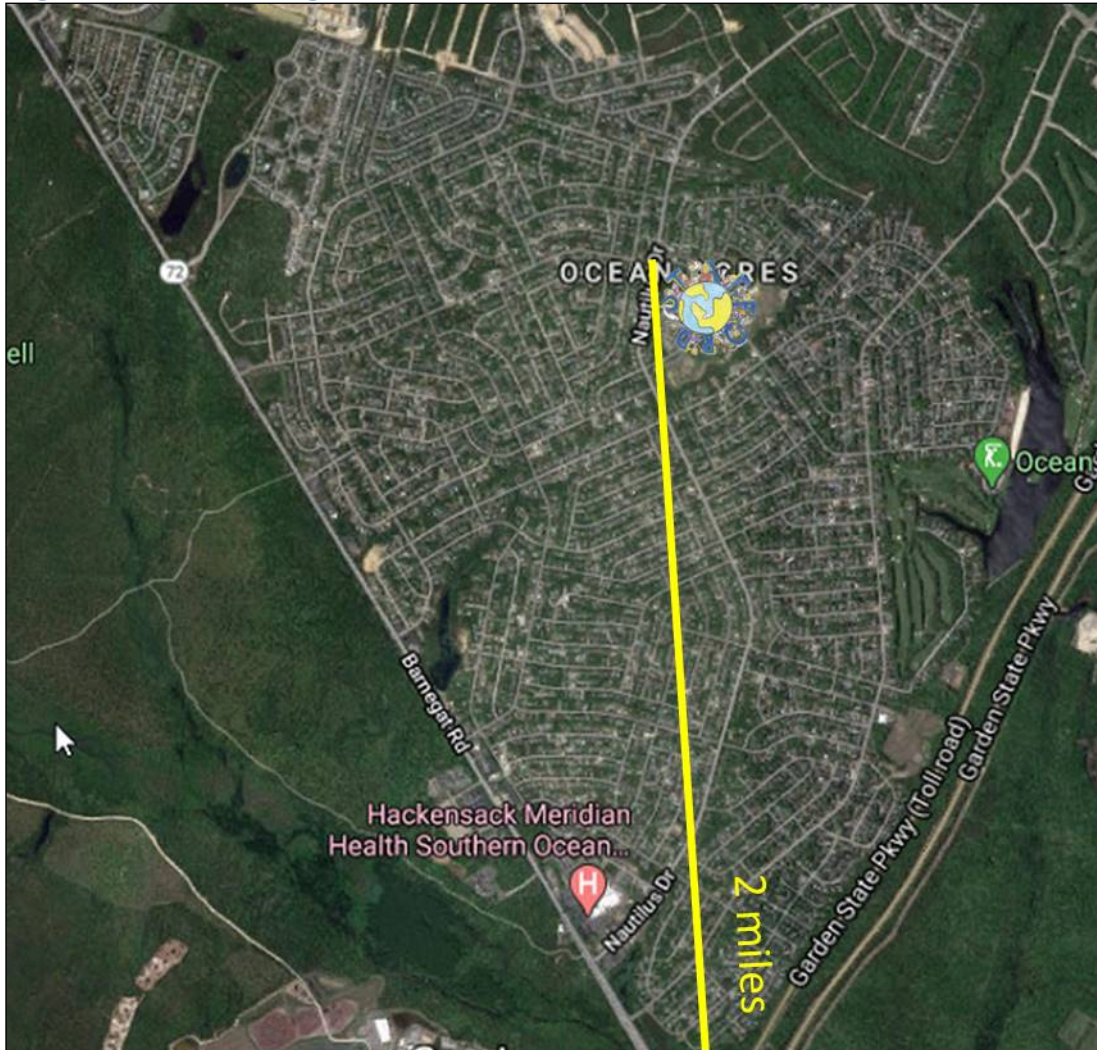
Partnerships

- Stafford Township School District
- Township of Stafford municipal government
- Township of Stafford Green Team Advisory Committee
- Stafford Township Police Department

Existing Conditions

Maps

Fig. 1 School Neighborhood



[Google satellite view]

The school (Globe icon) is within the Ocean Acres neighborhood and next to Nautilus Park.

Source: Google Maps

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The Ocean Acres neighborhood is west of the Garden State Parkway and north of Barnegat Road/State Route 72. With a community population of 16,142, Ocean Acres represents over 60% of the Stafford Township's population with 5,561 households (Census 2010). The average lot size is 0.21 acres, and according to the Census 2010, 39% of households had children under the age of 18, and 27% of the population were under the age of 18.



The majority of the Ocean Acres community is located within Stafford Township. The homes on Swordfish Road, Compass Road and Compass Court, Commodore Road and Lubbers Lane are at the northernmost limit of Stafford Township, and homes on Buccaneer Lane are also within Stafford Township. Beyond these streets is Barnegat Township, with approximately six percent of Ocean Acres total population.

In addition to Nautilus Park (adjacent to Ocean Acres Elementary School), there are several other recreation and community facilities including Ocean Acres Lake Park with a lakefront bathing beach, basketball court, tennis courts, a playground, and picnic facilities, Lighthouse Park with a roller hockey court, playground, walking track and bike trail, and Ocean Acres Country Club with an 18-hole public golf course and dining and banquet facilities.

### **Ocean Acres Elementary -School Zone**

Nautilus Drive/Ocean County Rt. 111, has a speed limit of 35 mph, and within the school zone the speed limit is 25 mph “When Children Are Present.” There are pedestrian crossing warning beacons, and “SCHOOL” pavement markings, on Nautilus Drive on the northbound side before Quadrant Drive, and on the southbound side before Sloop Road.

There are school crosswalk signs and pedestrian crosswalk pavement markings at the intersections of Nautilus Drive & Quadrant Road, and at Nautilus Drive & Buccaneer Lane.

There are School Speed Limit Sign assemblies at the northeast corner of Nautilus Drive & Quadrant Road, and on the west side of Nautilus Drive after Neptune Drive, 75 feet before the crosswalk at Buccaneer Lane.

Traveling southbound on Nautilus Drive at about 425 feet before the crosswalk at Buccaneer Lane there is a pedestrian crossing warning beacon and a “SCHOOL” pavement marking. However, due to a crest in the road the school crossing is not visible from the warning beacon and pavement marking (see Picture 2, next page).



#### Picture 2: Nautilus Drive – southbound toward School Zone

This picture shows Nautilus Drive heading south, as it crests between Sloop Road and Neptune Drive. From the point where this picture was taken it is approximately 290 feet to the school crosswalk at Buccaneer Lane.

#### Sidewalks

There is a sidewalk around the Ocean Acres school grounds perimeter, though it is not continuous. There are no sidewalks from the school that lead to either Nautilus Drive crossing, at Buccaneer Lane or at Quadrant Road. There are however well-worn footpaths between the school and Quadrant Road, and along the south side of Buccaneer Lane to Nautilus Drive.

There are no sidewalks along the front of the Ocean Acres Elementary property on Nautilus Drive, though well-worn foot paths are apparent again. South of the school along Nautilus Drive on the east and west sides, from Atlantis Avenue to Yeoman Road, foot paths can also be seen. The posted speed limit on Atlantis Avenue is 25 mph.

To the east of Ocean Acres Elementary, across Quadrant Road, is Nautilus Park, with several athletic fields, a playground, walking paths and biking trails. On the east side of the park, along that section of Buccaneer Lane that leads to Atlantis Avenue, there are sidewalks on both sides of Buccaneer Lane that begin at the park's parking lot. There is a 4-way stop and crosswalks at the intersection of Buccaneer Lane and Atlantis Avenue. Several other residential cul-de-sacs have direct walk and bike access to Nautilus Park.



Fig. 2 School and Community Center



*[Google satellite view]*

The school property contains the elementary school and the Ocean Acres Community Center, bordered by Nautilus Park with playing fields, a playground, a walking path and a bike trail.

*Source: Google Maps*

## Crossing Guard

Within the 2-mile distance to the Ocean Acres Elementary School there is one crossing guard located near the school entrance, at the intersection of Nautilus Drive/Ocean County Rd 111 and Quadrant Road, according to Stafford Township Police.

However the Stafford Township Schools website indicates that there is no crossing guard at the entrance to the Ocean Acres Elementary School.

## Arrival/Parking/Dismissal

Picture 3: Morning arrival of school buses at Ocean Acres ES on Quadrant Drive



According to Principal D'Alessandro the majority of students travel by bus to and from Ocean Acres Elementary.

For children being dropped off, the morning car line happens from 8:42am until 8:55am, with 69-100 families arriving. To drop off their children, parents need to enter Ocean Acres Elementary from Nautilus Drive. By using the entire span of the front of the school about 10-15 cars are able to drop off students simultaneously (see Picture 1). For safety students are asked to exit the car from the passenger side only. <https://www.staffordschools.org/Page/1553>

At dismissal there are about 80-100 families who pick up their children every day, though in order to do so, parents must park and enter the school in order to sign out their child.

Because of the lack of sidewalks, no students walk to Ocean Acres Elementary, though some families living near Nautilus Park are quite interested to be able to walk to school.

All morning Extended Day sessions meet at the Primary Learning Center, 1000 McKinley Avenue. The hours offered are 6:30am until the start of school, when participating students are transported by bus to Ocean Acres Elementary.

## February 13, 2020 Walkability Audit

To gather ground-level observations, representatives from Greater Mercer TMA and Stafford Township School District (Superintendent, Principal, Transportation Services, and Facilities), and Stafford Township Administrator walked the perimeter of the Ocean Acres Elementary School.

Photographs taken on the audit appear in this report here and under the section, "Recommended Infrastructure Improvements."

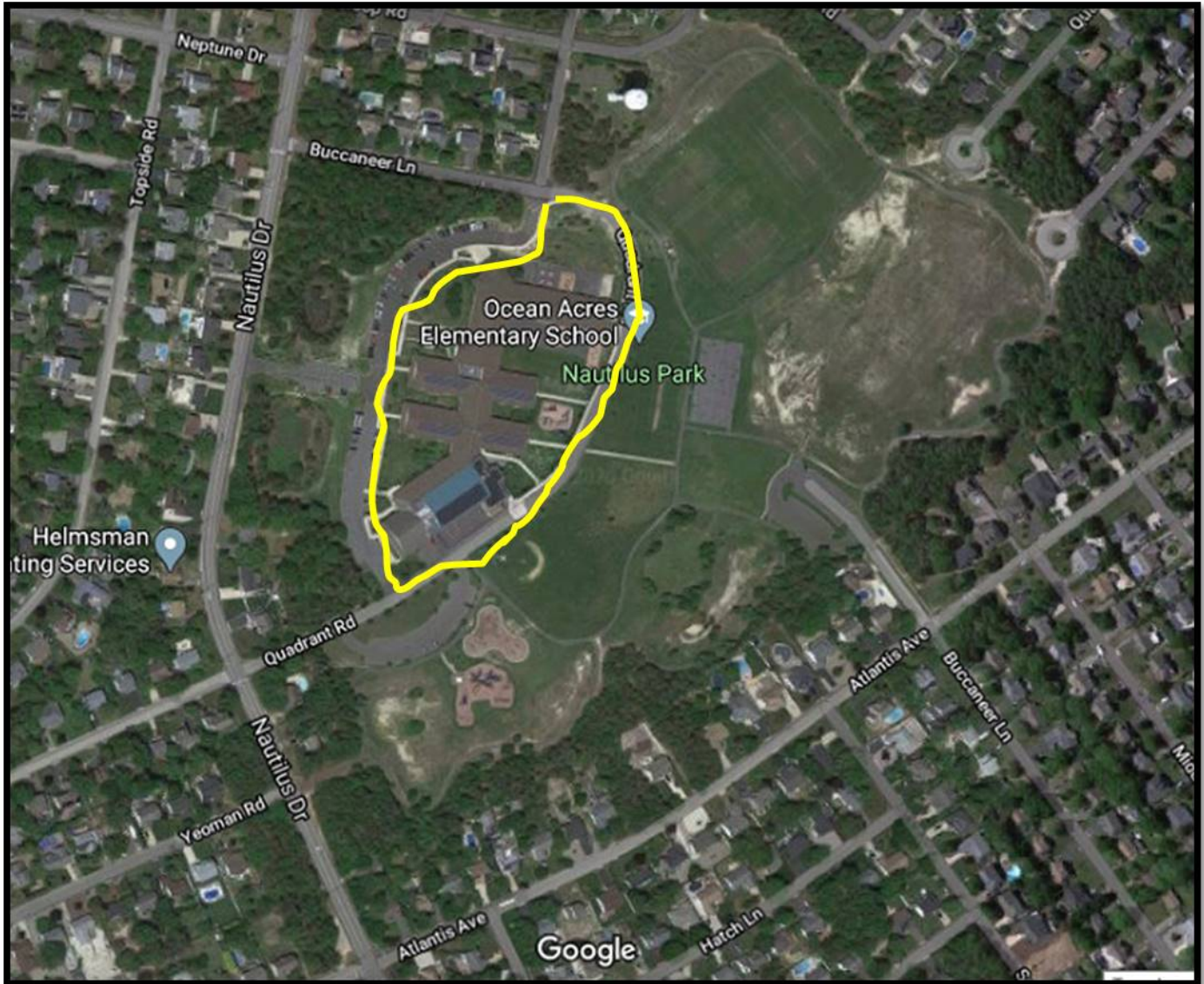
Due to the scale of the district's sending area we drove to nearby neighborhoods to survey walking and biking conditions. See Fig. 3 below.



The entrance/exit drives for Ocean Acres Elementary School are at the intersections of Nautilus Drive with Buccaneer Drive and with Quadrant Road. Nautilus Drive (Ocean County Route 111) has a posted speed limit of 35 mph on either side of the school zone.

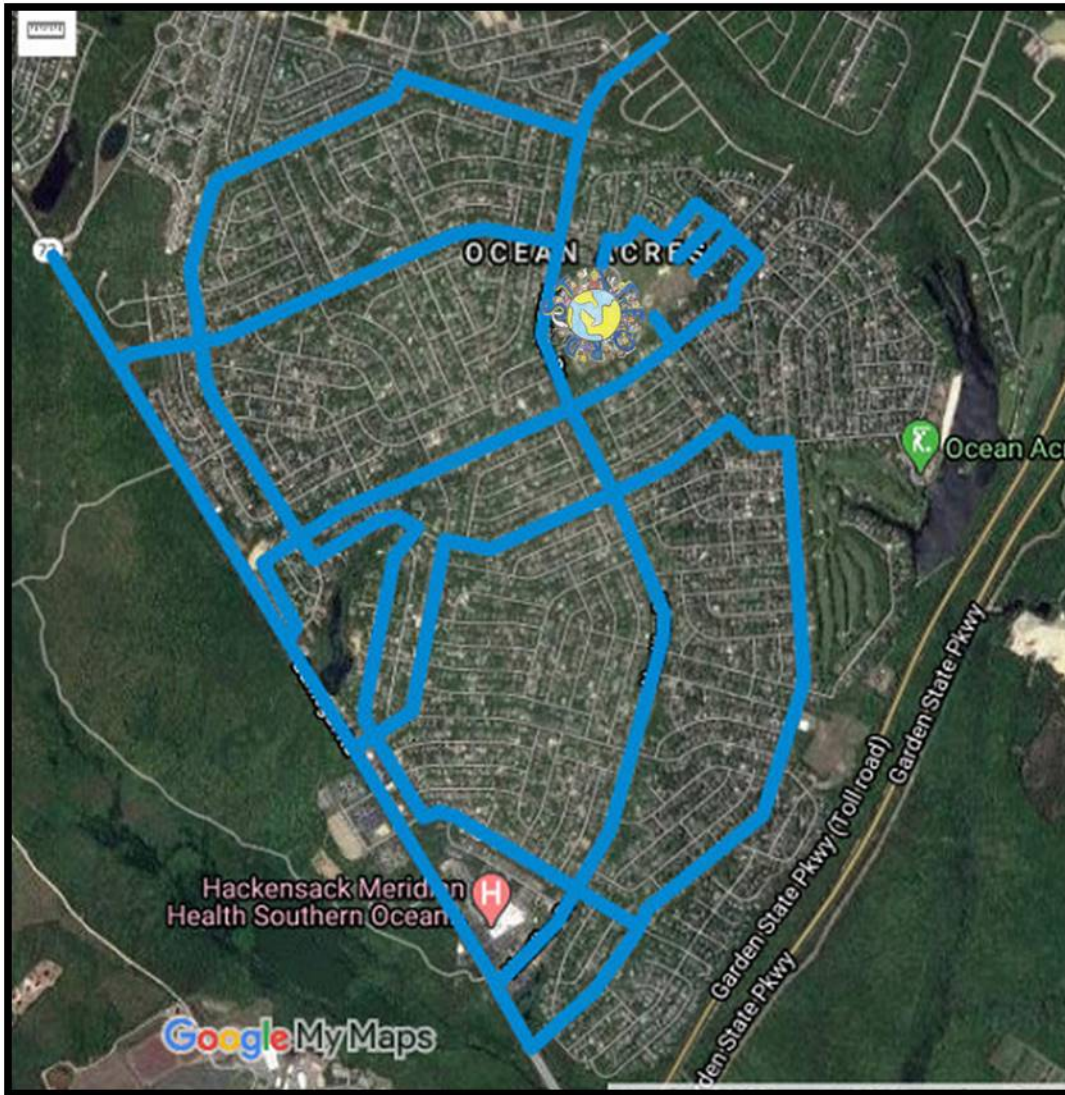
The Nautilus Park, maintained by Stafford Township, consists of athletic fields, a playground, and walking/biking paths. Any infrastructure modifications that would increase the walkability and bikeability to Ocean Acres Elementary School would have a significant effect on the park's and the community center's overall accessibility for the community, due to the number of school-age students who use the facilities of the park and the community center.

Fig. 3 Walkability Audit Route



The yellow area shows the walking audit route.

*Source: Google Maps*



### Fig. 4 Neighborhood audit by auto

The blue shows the area toured by automobile.

*Source: Google Maps*



## Walk/ Bike Barriers and Opportunities

The primary road entrances to the Ocean Acres Elementary School are at the intersections of Nautilus Drive with Buccaneer Drive, and with Quadrant Road. There is a third access to the school parking lot from Nautilus Drive. Ocean Acres Elementary could also be reached on foot or on bike via the walking paths and biking trails through the adjacent Nautilus Park.

While the school district's catchment area covers all of Stafford Township, the residential area known as Ocean Acres that surrounds the school, provides the greatest opportunity for potential routes to walk or bike safely to the elementary school. However, due to the lack of sidewalks nearby no students walk to Ocean Acres Elementary School, though some families living near Nautilus Park have expressed interest in being able to walk to school.

## School Zone

There are pedestrian crossing warning beacons, and "SCHOOL" pavement markings, on Nautilus Drive:

- northbound at approximately 430 feet before Quadrant Drive, and
- southbound at approximately 425 feet before Buccaneer Lane

With posted speed limits of 35 mph beyond the school zone, and these same routes providing access to Nautilus Park and the Ocean Acres Community Center, consideration could be given to upgrading these beacons to Rectangular Rapid Flashing Beacons (RRFB), which according to the Manual on Uniform Traffic Control Devices (MUTCD) could increase yielding rates of vehicles and improve pedestrian safety.

Pedestrian crosswalks are located at Quadrant Road and at Buccaneer Lane, the main entry roads from Nautilus Drive into Ocean Acres Elementary. Each road has one pedestrian crossing painted on Nautilus, and a second on the crossing street, on the west, or far side from the school. However there are no marked crosswalks on the east (school) side of Nautilus Drive at Quadrant Road, Buccaneer Lane, or on the entry to the school parking lot between Quadrant Road and Buccaneer Lane. Also, from a review of Google satellite and street views there would appear to be no stop line at Quadrant Road before the intersection with Nautilus Drive, nor from the exit from the school parking lot leading to Nautilus Drive.

On the west side of Nautilus Drive heading southbound, at the intersection with Quadrant Road, (northwest corner -144 Quadrant Road), there is an End School Speed Limit Sign. However the pedestrian crosswalk that leads to Ocean Acres Elementary and Nautilus Park comes after the End School Zone sign.



Traveling southbound on Nautilus Drive from Barnegat Township, the speed limit is 35 mph for approximately 1.75 miles (from West Bay Avenue/County Road 554).

At approximately 500 feet before the School Zone there is a vertical sign, “HILL BLOCKS VIEW – 30 MPH” Nautilus Drive crests between Sloop Road and Neptune Drive, a distance to the school crossing at Buccaneer Lane of about 290 feet. A vehicle traveling south from the crest of the road towards the school zone is on a downward slope. The stopping sight distance at 30mph on a *level* surface is 200 feet.

The School Speed Limit 25 mph Sign assembly is located about 70 feet before the pedestrian crossing at Buccaneer Lane and is unsignalized. Concern has been expressed about this school crossing, the proximity of the crest of the hill that creates limited sight distance, the unsignalized school crossing, and the young ages of the Ocean Acres Elementary School students.

## Sidewalks

There is a sidewalk around the Ocean Acres school grounds perimeter, however it is not continuous. There are gaps at the top of Quadrant Road (approx. 220 ft), near the intersection with Voyager Lane and Buccaneer Lane and along Quadrant Road (approx. 340 ft), adjacent to the Ocean Acres Community Center.

There are no sidewalks along the school side of Nautilus Drive, or from the school crosswalks at Quadrant Road or Buccaneer Lane that lead to Ocean Acres Elementary. The well-worn footpaths along Nautilus Drive in front of the school, and from Quadrant Road and from Buccaneer Lane leading to the school, demonstrate that pedestrians are walking toward the school along these roads and would benefit from ADA-compliant sidewalks.

From the east side of Nautilus Drive at Yeoman Road a pedestrian or bicyclist could enter Nautilus Park via a paved multi-use path (at 432 Nautilus Dr.) and then connect to Ocean Acres Elementary, Ocean Acres Community Center, or Nautilus Park. The Ocean Acres community would benefit from the addition of sidewalks in many places. For instance, along the west side of Nautilus Drive from Atlantis Avenue, a footpath is evident. However to continue to the school, the community center, or Nautilus Park it would require walking on the shoulder on or private property to reach the marked crossing at Quadrant Road and Nautilus Drive.

Other nearby streets about a half-mile walk to Ocean Acres School, on the west of Nautilus Drive that do not currently have sidewalks include:

|                 |                    |              |               |
|-----------------|--------------------|--------------|---------------|
| Bark Road       | Compass Court/Road | Equinox Road | Neptune Drive |
| Brigantine Road | Crows Nest Road    | Lanyard Road | Seaspray Road |
| Castaway Road   | Dinghy Road        | Mooring Road | Topside Road  |

Further to the south and east of Ocean Acres Elementary are two areas with sidewalks. Just under one mile's walking distance to Ocean Acres Elementary is Ocean Acres Lake Park. Along the front of the park on Buccaneer Lane there is a sidewalk, and crosswalks at both entrances to the parking lot.

Another area with sidewalks is southeast of Lighthouse Drive. The streets include part of Sandy Circle, Anchor Avenue (from Sandy Circle to Starboard Ave), Winding Oak Trail, Lazy Oak Lane, Autumn Oak Lane, Barnacle Lane and Barnacle Drive from Anchor Avenue to Lighthouse Drive, most of Whispering Oak Lane, Thousand Oak Lane, and Hollow Oak Lane.

From Ocean Acres Elementary, via Nautilus Park, to Anchor Avenue, the closest point by road in this cluster of sidewalks, is about 2 miles. In order to walk or bike this route, however, there are no sidewalks from Lighthouse Drive. To reach the school a person would need to go along Lighthouse Drive or Nautilus Drive, both Ocean County Roads, with speed limits of 35 mph, and no sidewalks.

## Nautilus Park

Another possibility for walking and biking routes to Ocean Acres Elementary is through Nautilus Park. Coming from Atlantis Avenue and the eastern portion of Buccaneer Lane, there are biking and walking trails in the park that lead to the section of Quadrant Road within the school grounds. However there is no marked crossing from park paths across Quadrant Road, reaching the school entrance (Figure 3).

The park has walking paths and bike trails that could be used to arrive at the school. These streets end in cul-de-sacs at the park:

Voyager Lane  
Sloop Road  
Squall Road  
Quadrant Road (north section)  
Yeoman Road (north section)

From the base of the parking lot in Nautilus Park to Atlantis Avenue there are sidewalks on both sides of Buccaneer Lane. There is a 4-way stop and crosswalks at the intersection of Buccaneer Lane and Atlantis Avenue. In 2014 Google streetview showed this intersection with a painted crosswalk and a stop line on the south side of Buccaneer Lane. On the most recent streetview (2019) the road was repaved, however the stop line and crosswalk were not repainted.

On Atlantis Avenue 110-120 feet before each of the crosswalks, there are pavement markings, “SLOW PARK AHEAD,” and vertical signs, “WATCH CHILDREN.” About 100 feet before the intersection there are signs for unsignalized pedestrian crosswalks. Also it is important to note that the intersection of Atlantis Avenue and Buccaneer Lane is a four-way stop. There are no sidewalks along Atlantis Avenue or the southern section of Buccaneer Lane. Both streets are about 30 feet wide.

On Buccaneer Lane, approaching Atlantis Ave, there are vertical signs alerting drivers at :

- 430 ft from the intersection - “STOP AHEAD”
- 200 ft from the intersection – [pedestrian crossing symbol], and
- 115 ft from the intersection - “WATCH CHILDREN,” as appear on Atlantis Ave near the park.

From Academy Lane at Buccaneer Lane it is one-half mile distance to the entrance to Ocean Acres Elementary. However from Google satellite view (2020) there do not appear to be pavement markings, “SLOW PARK AHEAD” on Buccaneer Lane approaching Atlantis Avenue.

From Yeoman Road (north section) and Commodore Road it is a half-mile walk to Ocean Acres Elementary, about a quarter-mile of which is through Nautilus Park via the bike/walk trail. However along Yeoman Road there are no sidewalks.

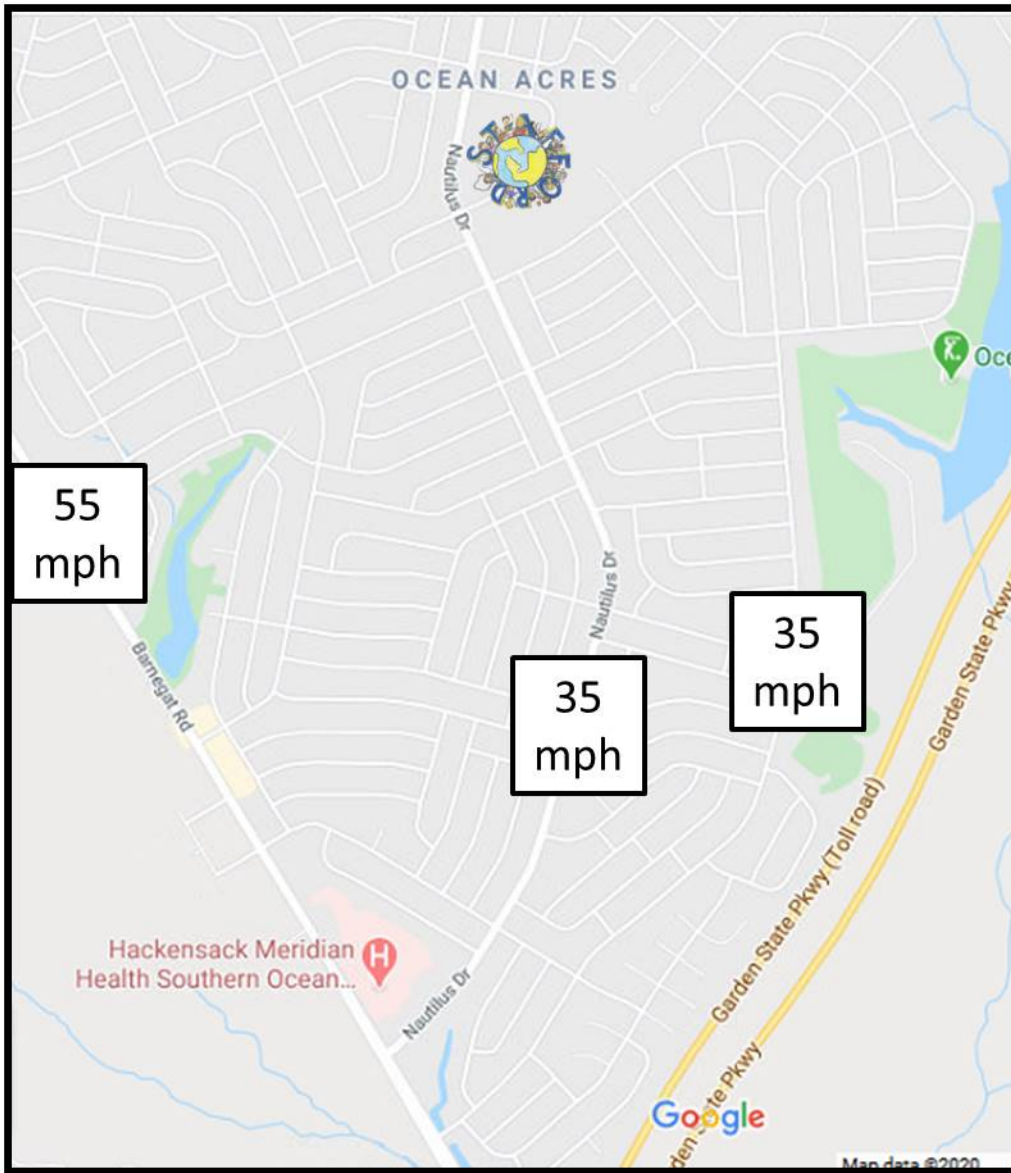
The park has walking paths and bike trails that could be used to arrive at the school. Here are the nearby streets leading to Nautilus Park within roughly a half-mile walk to the school and have posted speed limits of 25 mph:

|                |               |                   |                 |
|----------------|---------------|-------------------|-----------------|
| Academy Lane   | Jetsam Road   | Pirate Lane       | Steering Lane   |
| Commodore Road | Lubbers Lane  | Quadrant Road (N) | Topsail Lane    |
| Cutter Lane    | Middie Lane   | Serpent Lane      | Voyager Lane    |
| Flotsam Road   | Mizzen Avenue | Sloop Road        | Yeoman Road (N) |
| Gangway Lane   | Navy Lane     | Squall Road       |                 |

Other Neighborhood Observations

Stop lines are missing at many intersections around Ocean Acres (according to Google maps 2020-satellite view). The proposed infrastructure improvements describe a minimal walking and biking network through Ocean Acres, using the 40 ft wide main roads (Nautilus Drive, Lighthouse Drive, Neptune Drive, Barnacle Drive, and Mermaid Drive) plus Atlantis Avenue, only 28 ft wide, but placed perfectly to provide connectivity to the school.

**Fig 5. Area Speed Limits**



*Source: Google Maps*

The school is approached by Nautilus Drive, also known as Ocean County Route 111, a two-lane Urban Local road with a posted speed limit of 35 mph, before and after the school zone. NJDOT's Straight Line Diagrams identify the lanes as 12 ft wide, with two 8 ft wide shoulders. No volume information is provided by the Straight Line Diagram.

Another nearby Urban Local county road, Lighthouse Drive (Ocean County Route 105), has a posted speed limit of 35 mph. NJDOT's Straight Line Diagrams identify the lanes as 12 ft wide, with two 8 ft wide shoulders. No volume information is provided by the Straight Line Diagram.

All other area roads are 25mph until you get to Barnegat Rd (State Rt 72), a 55 mph speed limit road.



# Travel Tallies

*Not available at time of reporting. To be conducted at a later date.*

Table 1. Travel Tallies

# School Policies

## Transportation

From Stafford Township Transportation Coordinator, Mrs. Linda Morris: "Your Precious Cargo Rests in Our Capable Hands: That's the motto of the Transportation Department here in Stafford Township. Concern for safety and security are the two most prominent attributes of our staff. Our professional staff of 41 school bus drivers, attendants, mechanics, and secretaries team up to provide the safest, efficient, and most economical home-school transportation to over 2400 resident students in 31 vehicles traveling over 500,000 miles per year."

A list of Hazardous Roadways and those streets where students are not to cross in order to board or disembark from a school bus, can be found below.

- ✓ No students are to cross the following streets:
  - Bay Avenue
  - Breakers Drive
  - Cedar Bridge Road, both in Warren Grove and Manahawkin.
  - Hilliard Blvd.
  - Lighthouse Drive
  - Mermaid Drive (Points south of the Mermaid/Breakers intersection). Students may cross if their bus stop is at or north of the Mermaid/Breakers Intersection.
  - Millcreek Road
  - Nautilus Drive
  - Neptune Drive
  - Route 539
  - Route 9
  - Route 72

The following streets in the list above are located within the Ocean Acres community, or border it:

- Breakers Drive
- Lighthouse Drive = Ocean County Route #105
- Mermaid Drive
- Nautilus Drive = Ocean County Route # 111
- Neptune Drive
- State Route 72

## Bus Rules and Regulations

From the Stafford Township School District Handbook 2018-19, page 28,

"Our [school bus] drivers have the tremendous responsibility of transporting 2,500 students daily. The... Bus Rules Handbook is sent home with students on the first day of school...It is extremely important for parents

and students to know and adhere to the handbook's rules and regulations. To avoid dangerous situations and accidents, students must follow bus safety rules and procedures. Parents should review their school's specific bus rules and procedures with their children. Then, make sure the children understand these general bus safety principles...."

A student enrolled through the State Department of Education's Interdistrict Public School Choice program, who lives within 20 miles of the schools, is eligible for transportation.

### ***Bike or Walk to School policy***

From the Stafford Township School District website, [staffordschools.org](http://staffordschools.org), Resources for Parents/Guardians, there is a [student permission form](#) for Bikers and Walkers, dated 2018:

"...The Stafford Township Board of Education will permit the use of bicycles and walking to and from school by pupils in grades three through six only within a two-mile radius of pupil's home and school ..."

From the Stafford Township School District Handbook 2018-19, page 28, "Safety and Security -Bikers and Walkers:

"...For students living close enough to the school to ride their bikes (in grades five and six) or walk, the following conditions must be adhered to:

1. A written permission statement from the parent/guardian must be submitted to the school's Principal (link above)
2. Bikers must wear required safety equipment and follow all rules set forth in Board of Education Regulation –Student Use of Vehicles on School Grounds.
3. Students are expected to arrive at school on time. Lateness may result in suspension of this privilege.
4. Students will wait until all buses have left before they are dismissed.
5. Any witnessed reports of unsafe riding may result in loss of privilege."

Also skateboards, scooters, and other vehicles that do not meet the definition of a bicycle are not permitted.

### ***Safety Patrol***

This school district-wide program is for students in grades 2, 4, and 6.

Stafford Township Board of Education [Safety Patrol Policy #5860](#) and [Regulation](#):

From the Principal of Ocean Acres Elementary School :

The Ocean Acres Safety Patrol is a select group of second graders that are committed to providing a safe environment for all students. The Ocean Acres Safety Patrol members are responsible, respectful, cooperative and helpful. One student per second grade homeroom is selected to participate. They meet with the Safety Patrol Advisor monthly to discuss safety and jobs that need to be completed.



## Bike Rodeo



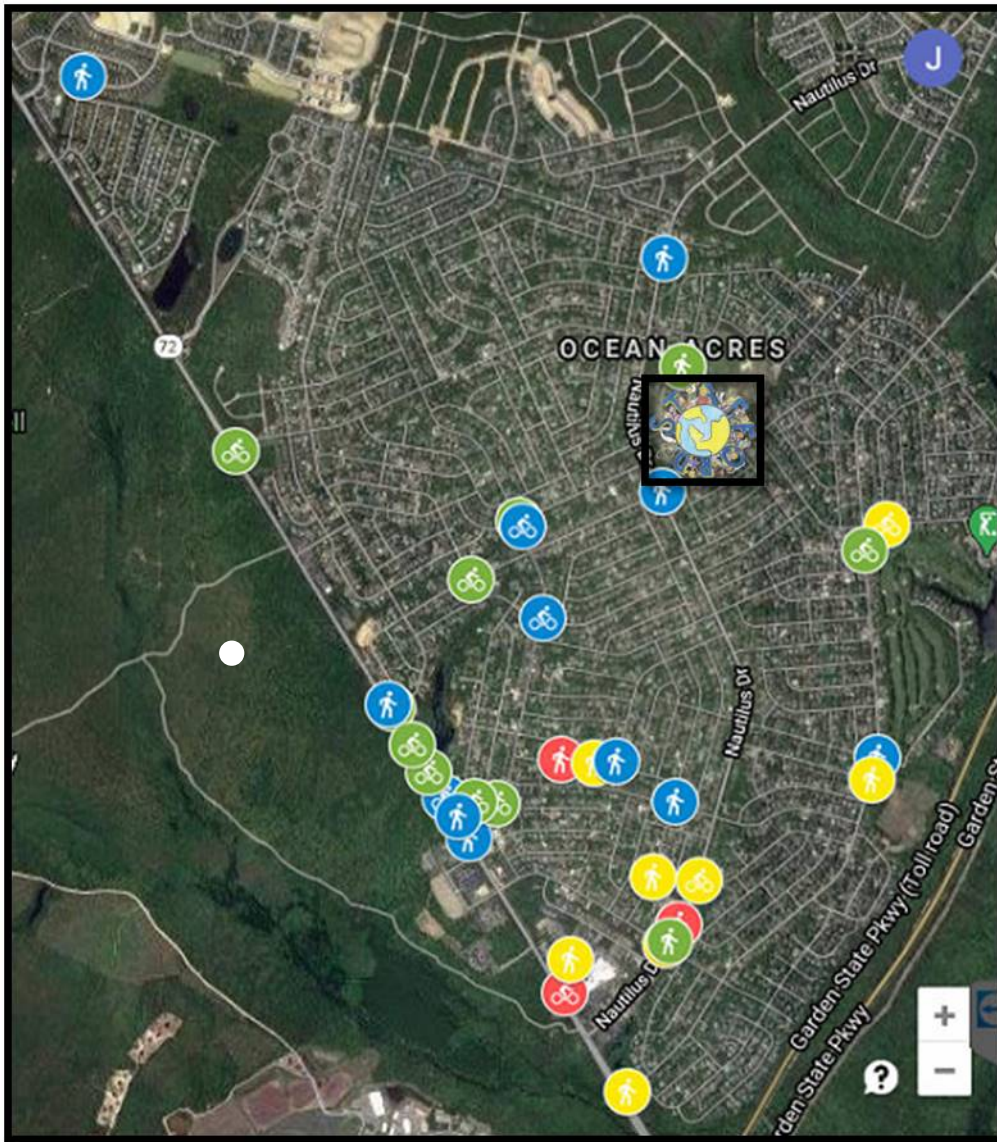
The Bike Rodeo has been a joint venture with the Stafford Township Police Department. It has been held annually after school to give the students a chance to get their helmets and bikes checked while having some fun completing an obstacle course on their bikes.

## Safe Routes to School-Disabled Student Inclusion

- Maintenance of existing ADA-compliant pads and installation of additional pads to sidewalks to enable access during Walk to School events
- Adjust safety presentation styles for those with ADHD and other learning obstacles
- During schoolwide walk audit events, tailor routes for special needs students
- Train the Trainers approach- Pass along safety education to the aides who have to tailor educational needs based on individual student plans
- Look into funding sources for purchasing specially-tailored bicycles for students with disabilities.

## Crash Data

Fig. 6 Pedestrian and Cyclist Crash Data 2006-2016 (source – Numetric)



Red= Fatality, Orange=Serious Injury, Yellow= Moderate Injury, Blue= Pain, Green=No apparent injury 2006-2016.

Source: NJDHTS

A full list of Stafford Township cyclist and pedestrian crashes from 2006-2016 is listed in Appendix A.

## Identification of Problem Areas

Please see Figure 3 for the route map of the perimeter walk audit conducted at Ocean Acres Elementary School on February 13, 2020. In addition to the walk audit, we conducted a survey by car of surrounding neighborhoods (Figure 4), in order to get a better understanding of the local areas, and to identify improvements for future walking and biking to Ocean Acres Elementary School.

Parent and administrative input and conversation would provide valuable input in determining priority areas.

## Recommended Infrastructure Improvements

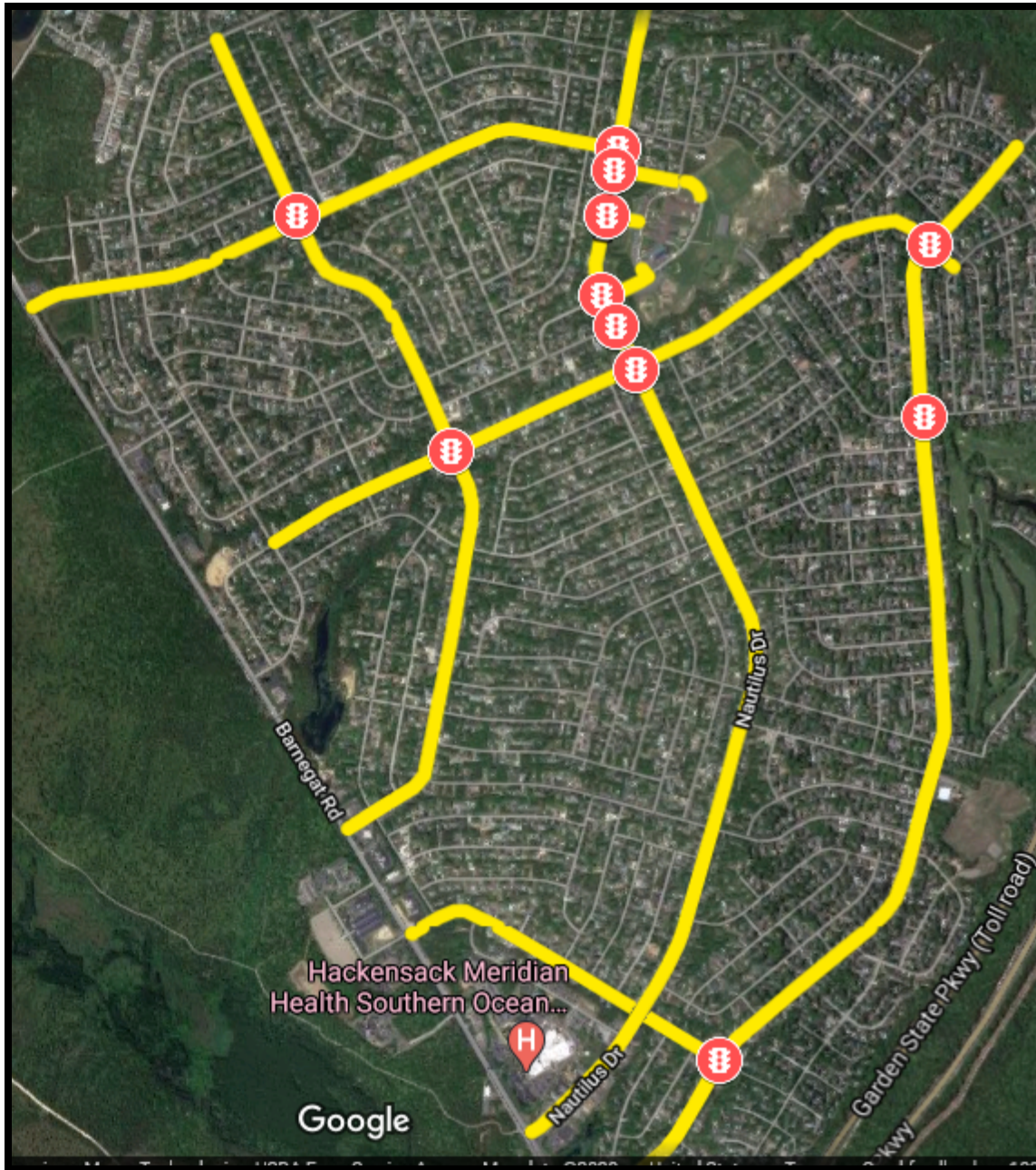
*In general:*

- Greater Mercer TMA would like to see more students walk or bike to school. This could be achieved through street improvements that increase safety.
- Road and lane widths are wide which encourage speeding; therefore traffic-calming measures should be prioritized.
- Host Walk and Bike to School events and work on Safe Routes to School Recognition.

The following pages contain infrastructure recommendations to create a walking and biking network within the Ocean Acres Elementary school campus as well as within the overall Ocean Acres neighborhood. Photographs of current conditions precede a description of suggested improvements.



**Fig. 7 Proposed Walking and Biking Network**



Yellow lines represent proposed walking/biking facilities, such as a sidewalk or path. Red traffic symbols represent proposed crossing improvements, such as a rapid flashing beacon, pedestrian hybrid beacon, or traffic signal. See Engineering table (p.40) for detailed descriptions.

*Source: Google Maps*

## Nautilus Drive



Nautilus Drive is Ocean County 111, an Urban Local road with 35mph speed limit, two 12 foot lanes and 8 foot shoulders, according to NJDOT's Straight Line Diagram. No volume information is provided, however a reasonable approximation based on similar roads is 5-10K cars per day, which under NJDOT Complete Streets design guidelines, bicycle facilities could consist of bike lanes, buffered bike lanes, separated bike lanes or a multi-use path. GMTMA recommends installing sidewalks on both sides of Nautilus and painting a buffered bike lane where the shoulders currently exist. Narrowing the lane width to 11 feet would encourage motorists to drive closer to the speed limit.



## Lighthouse Drive



Lighthouse Drive is Ocean County 105, an Urban Local road with 35mph speed limit, two 12 foot lanes and 8 foot shoulders, according to NJDOT's Straight Line Diagram. No volume information is provided, however a reasonable approximation based on similar roads is 5-10K cars per day, which under NJDOT Complete Streets design guidelines, bicycle facilities could consist of bike lanes, buffered bike lanes, separated bike lanes or a multi-use path. GMTMA recommends installing sidewalks on both sides of Nautilus and painting a buffered bike lane where the shoulders currently exist. Narrowing the lane width to 11 feet would encourage motorists to drive closer to the speed limit.

## Neptune Drive



Neptune Drive connects Route 72 to Nautilus near the entrance to Ocean Acres Elementary. It is 40 feet wide, so has the potential for reconfiguration to encourage driving closer to the 25mph speed limit. For example, sidewalks could be added in the current paved area, which would allow walking and biking but not increase the impervious surface area, which has drainage problems and is subject to flash flooding, as the sign indicates.



## Mermaid Drive



Mermaid Drive connects Route 72 to Neptune through Ocean Acres. It is 40 feet wide, so has the potential for reconfiguration to encourage driving closer to the 25mph speed limit. For example, sidewalks could be added in the current paved area, which would allow walking and biking but not increase the impervious surface area.

## Barnacle Drive



Barnacle Drive connects Route 72 to Nautilus and Lighthouse through Ocean Acres. It is 40 feet wide, so has the potential for reconfiguration to encourage driving closer to the 25mph speed limit. For example, sidewalks could be added in the current paved area, which would allow walking and biking but not increase the impervious surface area.



## Atlantis Avenue

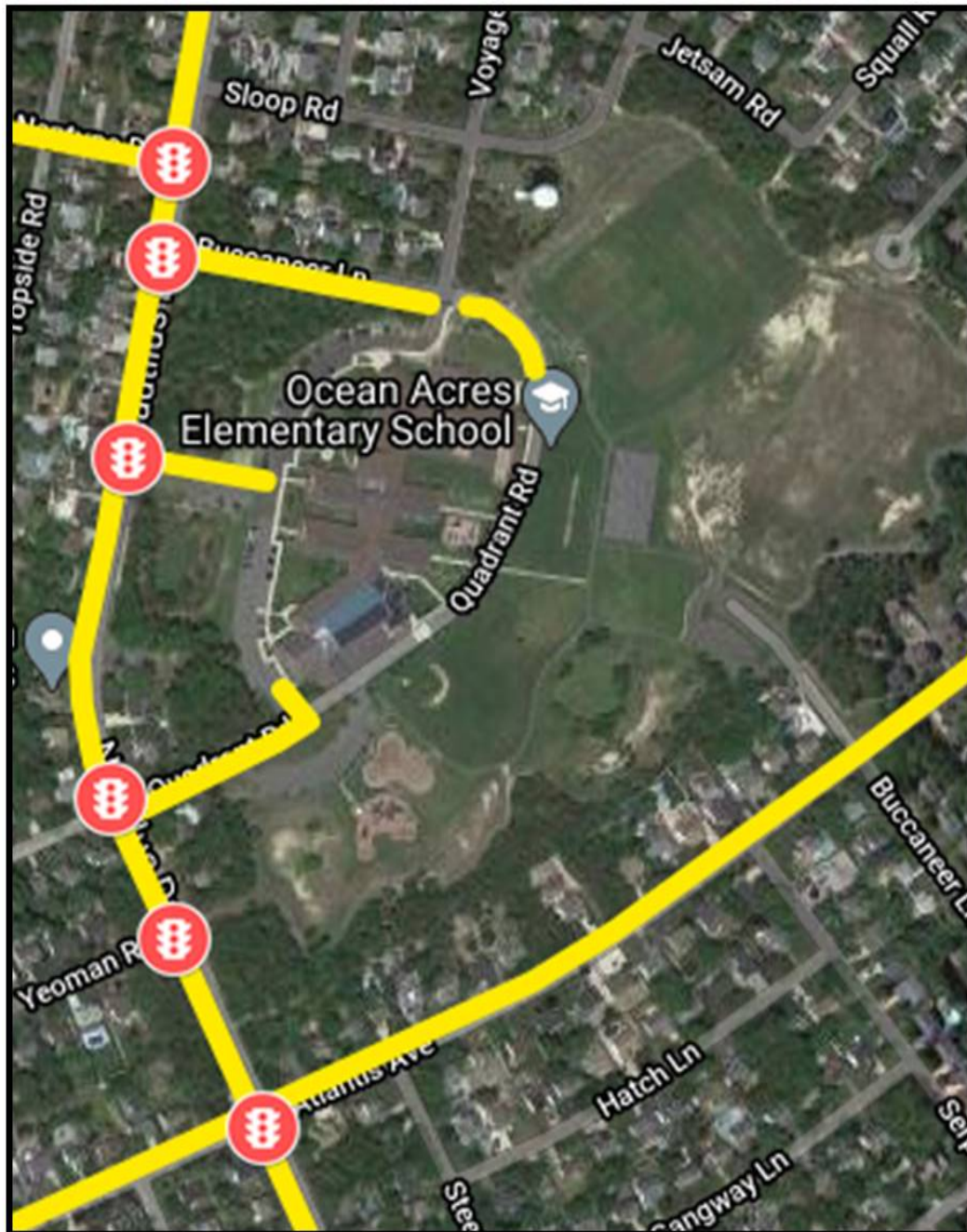


Atlantis Avenue provides a unique north/south connection from Lighthouse to Nautilus to Mermaid through Ocean Acres, passing quite closely to Ocean Acres Elementary. Only 28 feet wide, sidewalks could be added at the expense of landscaping, and sharrows might alert motorists to the presence of bicyclists. Innovative treatments might include advisory bike lanes or a painted two-way biking and walking area, see examples in Figures 10 and 11 below.

# Infrastructure Improvements Overview

## Proposed School Campus Area Improvements

Fig. 8 Overview of Ocean Acres Elementary School Area Proposed Improvements



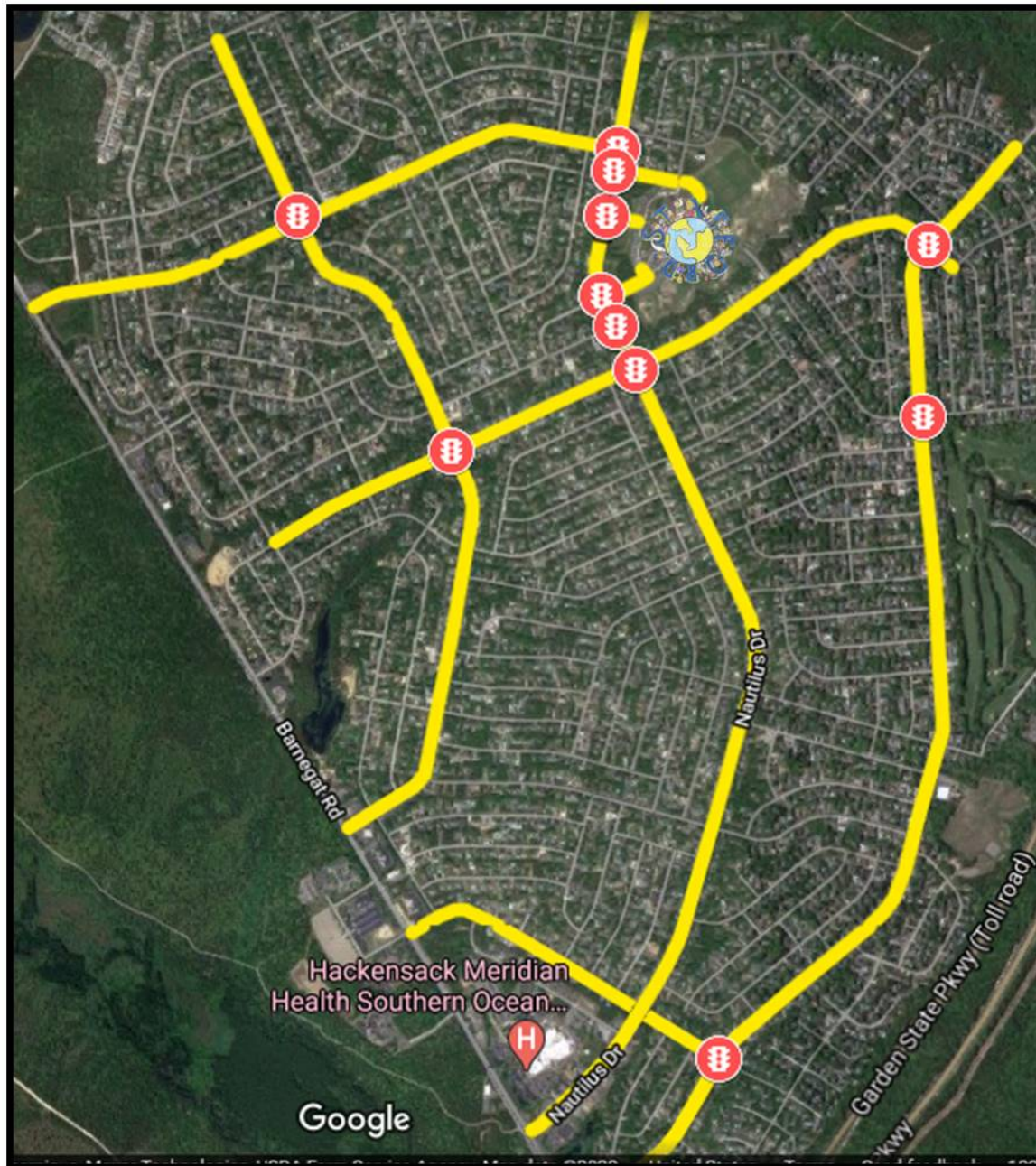
Yellow lines represent walking/biking facilities, such as a sidewalk or path. Red traffic symbols represent crossing improvements, such as a rapid flashing beacon, pedestrian hybrid beacon, or traffic signal. See Engineering table (p.40) for detailed descriptions.

Source: Google Maps



## Proposed Neighborhood Improvements

Fig. 9 Overview of Ocean Acres community -Proposed Improvements



Yellow lines represent walking/biking facilities, such as a sidewalk or path. Red traffic symbols represent crossing improvements, such as a rapid flashing beacon, pedestrian hybrid beacon, or traffic signal. See Engineering table (p.40) for detailed descriptions.

*Source: Google Maps*



**Fig. 10 Example On-street Bike/Walk facilities**



Example of a two-way biking/walking facility on one side of a neighborhood street, from Quebec.



**Fig. 11 Example On-street Bike/Walk facilities – Advisory Bike Lanes**



Advisory bike lanes or edge lanes are appropriate for low speed/volume neighborhood roads, like Atlantis Avenue. For more information and further examples, see:

<https://www.advisorybikelanes.com/>

**Fig 12 Example Pedestrian Crossing - Rectangular Rapid-Flashing Beacon**



A solar powered pedestrian-activated rapid-flashing beacon (under the yellow pedestrian diamond sign) improves crosswalk visibility by flashing a yellow blinking LED light in an alternating pattern, see:

<https://www.fhwa.dot.gov/publications/research/safety/pedbike/11039/009.cfm>

## Goals and Actions:

This plan of action is intended to increase safety for students on their walk to and from school and when appropriate, encourage more students to walk. The table below identifies those actions, a responsible party for implementing them, a time frame, and a level of cost. Many actions identified as “short-term” and “low cost” can make a big difference in a shorter time frame and can be accomplished with the help of local partners. This “low-hanging fruit” can be prioritized for greater impact in a shorter period of time. However, traffic calming measures are key items to address allowing students more time to cross and greater visibility (larger driver field of vision at slow speeds).

Cost estimates are for planning purposes only – a professional engineer should prepare the actual estimates used for grant application. These estimates were prepared using the SRTS Implementation Cost sheet prepared in 2017 by NV5 to support the grant application process.<sup>1</sup>

| Engineering                                                                                                                                                                         |                |             |                                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-------------|--------------------------------------------|
| Action                                                                                                                                                                              | Responsibility | Time Frame  | Cost Estimates                             |
| “Slow School Zone” improve signage and add pavement markings                                                                                                                        | Township       | Short term  | \$500                                      |
| Campus internal sidewalk additions                                                                                                                                                  | School Board   | Medium Term | \$60/ft *<br>1508 ft =<br>\$90,480         |
| ADA truncated domes at multiple sidewalk junctions within campus                                                                                                                    | School Board   | Short Term  | \$250 ea.                                  |
| Sidewalks (both sides) and bike lanes from SR72 to Barnegat Twp Line on both Nautilus/CR111 and Lighthouse/CR105                                                                    | County         | Medium Term | \$96.60/ft *<br>23,232 ft =<br>\$2,825,000 |
| Improved pedestrian crossings on Nautilus/CR111 at Atlantis, Yeoman, Quadrant and Neptune (high visibility crosswalks with pedestrian-activated Rectangular Rapid Flashing Beacons) | County         | Short Term  | \$160,000                                  |
| Improved pedestrian crossing at Nautilus/CR111 and Buccaneer (high visibility crosswalk with pedestrian-activated Pedestrian Hybrid Beacon)                                         | County         | Medium Term | \$100,000                                  |
| Improved pedestrian crossings on Lighthouse/CR105 at Atlantis (RRFB, high visibility crosswalk),                                                                                    | County         | Short Term  | \$100,000                                  |

<sup>1</sup> <http://www.saferoutesnj.org/wp-content/uploads/2013/07/SRTS-Costs-August-2017-update.pdf>



|                                                                                                        |          |             |             |
|--------------------------------------------------------------------------------------------------------|----------|-------------|-------------|
| Buccaneer(RRFB), Barnacle (high visibility crosswalk, pedestrian signal heads)                         |          |             |             |
| Improved pedestrian crossings on Neptune at Mermaid (RRFB, high visibility crosswalks)                 | Township | Short Term  | \$40,000    |
| Improved pedestrian crossings on Mermaid at Atlantis (RRFB, high visibility crosswalks)                | Township | Short Term  | \$40,000    |
| Sidewalks on Neptune, Mermaid, Atlantis and Barnacle                                                   | Township | Long Term   | \$1,004,725 |
| (Alternate) Multi-use paths on Neptune, Mermaid, Atlantis and Barnacle                                 | Township | Long Term   | \$1,590,815 |
| (Alternate) On-street painted paths w/ flexible delineators on Neptune, Mermaid, Atlantis and Barnacle | Township | Medium Term | \$71,170    |

| Education                                                                                                                                                                                                   |                         |                      |      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|----------------------|------|
| Action                                                                                                                                                                                                      | Responsibility          | Time Frame           | Cost |
| Educate students, family members, bus drivers, and school employees about drop-off/ pick up zones. Make sure everyone knows the best way to keep students safe and to quickly dismiss students from school. | School, School District | Short Term / Ongoing | Low  |
| Increase community outreach about the health benefits of walking and biking to school.                                                                                                                      | School, PTOs            | Short Term           | Low  |
| Conduct community wide outreach about Safe Routes to School actions such as walking and biking safety.                                                                                                      | School, GMTMA           | Short Term/ Ongoing  | Low  |
| Establish a program to encourage students to walk and/or bike to school. Examples: Golden Sneaker Award, Walking Wednesday, Walking School Bus, Bike Train                                                  | School, GMTMA           | Short Term/ Ongoing  | Low  |

|                                                                                         |              |                        |     |
|-----------------------------------------------------------------------------------------|--------------|------------------------|-----|
| Educate community and responsible parties about snow removal on sidewalks near schools. | Public Works | Short Term/<br>Ongoing | Low |
|-----------------------------------------------------------------------------------------|--------------|------------------------|-----|

| Encouragement                                                                                                                                      |                                       |            |              |
|----------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|------------|--------------|
| Action                                                                                                                                             | Responsibility                        | Time Frame | Cost         |
| Establish main walking routes, safety corridors, walking school buses – safety in numbers.                                                         | School, PTOs, GMTMA, Community Groups | Ongoing    | Low          |
| Conduct student and parent surveys to see what actions and rewards could encourage them to walk to school more – and feel safer walking to school. | School, PTOs, GMTMA                   | Short Term | Low          |
| Conduct Street Smart safety campaigns.                                                                                                             | Police, GMTMA, Township               | Ongoing    | Low / Medium |

| Enforcement                                                                                                                                                                                   |                |            |              |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|------------|--------------|
| Action                                                                                                                                                                                        | Responsibility | Time Frame | Cost         |
| Enforce speed limits (in general and specifically in school zones), pedestrians walking safely, drivers watching for pedestrians especially at times when students are going to/ from school. | Police         | Ongoing    | Low / Medium |
| Add more crossing guards to improve the safety of walking or biking to school                                                                                                                 | Police         | Ongoing    | Low / Medium |
| Enforce motorist compliance with crossing guard instructions                                                                                                                                  | Police         | Ongoing    | Low / Medium |
| Enforce parking laws                                                                                                                                                                          | Police         | Ongoing    | Low /        |

| Evaluation                                     |                               |            |      |
|------------------------------------------------|-------------------------------|------------|------|
| Action                                         | Responsibility                | Time Frame | Cost |
| Conduct student travel tallies on annual basis | School                        | Annual     | Low  |
| Conduct bikeability audit of walking area      | School,<br>Township,<br>GMTMA | Short Term | Low  |

\*Explanation of funding- Greater Mercer TMA is funded through the New Jersey Department of Transportation to offer advice and assistance in starting Safe Routes to School programs and projects. Greater Mercer TMA can help with walk and bike to school events, walking school bus programs, youth bicycle and pedestrian education, school travel plans, and surveys that provide evaluation and feedback on local programs.

## Evaluation

### Task Force Timeline

Greater Mercer TMA will be in discussion with participating organizations about implementation progress.

## Conclusions

Residential areas with students are limited in the adjacent areas of the schools campus, but biking and walking improvements within the campus will benefit all students, while proposed improvements in the surrounding neighborhood will encourage biking and walking to school, parks, and shopping.

The Covid-19 pandemic presents significant challenges to the education community, including maintaining social distance inside the buildings and when getting to and from school by bus. For those students whose parents may not feel comfortable sending their children on the bus, safe biking and walking improvements may provide acceptable social distancing as well as improved cost and convenience, compared to driving students to school. The district may want to consider encouraging biking and walking to school as an option to address this concern. While the pandemic is a rare occurrence, the duration of its impact on our way of life could be for several years. In any case it does highlight the need for resiliency planning that provides infrastructure to accommodate all modes of travel safely, including walking and biking.



## Appendix A: Stafford Twp Pedestrian and Cyclist Crashes from New Jersey Department of Traffic and Highway Safety, 2006-2016

| Crash ID | Date               | Crash Type   | Crash Location              |
|----------|--------------------|--------------|-----------------------------|
| 6908053  | January 11, 2006   | Pedestrian   | OCEAN COUNTY 50             |
| 6908448  | March 2, 2006      | Pedestrian   | GARDEN STATE PARKWAY        |
| 6908054  | April 1, 2006      | Pedalcyclist | US 9                        |
| 6908149  | May 16, 2006       | Pedestrian   | EAST BAY AVENUE             |
| 6908240  | September 23, 2006 | Pedestrian   | NJ 72                       |
| 6908281  | October 11, 2006   | Pedestrian   | ROUTE 539                   |
| 6908310  | October 27, 2006   | Pedalcyclist | NAUTILUS DRIVE              |
| 7212495  | January 12, 2007   | Pedestrian   | OCEAN COUNTY 50             |
| 7212497  | January 14, 2007   | Pedalcyclist | NJ 72                       |
| 7212574  | March 1, 2007      | Pedestrian   | NAUTILUS DR                 |
| 7212599  | March 21, 2007     | Pedestrian   | NJ 72                       |
| 7212605  | March 24, 2007     | Pedestrian   | 733 ROUTE 72 WEST           |
| 7212640  | April 18, 2007     | Pedestrian   | 25 ROUTE 9 SOUTH            |
| 7212670  | May 5, 2007        | Pedestrian   | 626 ROUTE 72 EAST           |
| 7212704  | May 20, 2007       | Pedalcyclist | NJ 72                       |
| 7212468  | June 28, 2007      | Pedalcyclist | NJ 72                       |
| 7212813  | July 3, 2007       | Pedestrian   | NAUTILUS DRIVE              |
| 7212815  | July 5, 2007       | Pedestrian   | 591 ROUTE 72 WEST           |
| 7212816  | July 6, 2007       | Pedestrian   | 297 ROUTE 72 WEST           |
| 7212872  | July 27, 2007      | Pedalcyclist | NJ 72                       |
| 7212960  | August 24, 2007    | Pedalcyclist | FORECASTLE ROAD             |
| 7212971  | August 28, 2007    | Pedestrian   | 525 ROUTE 72 WEST           |
| 7212467  | October 24, 2007   | Pedestrian   | US 9                        |
| 7213117  | November 9, 2007   | Pedestrian   | FLOAT AVENUE                |
| 7213185  | December 12, 2007  | Pedestrian   | NAUTILUS DRIVE              |
| 7213219  | December 26, 2007  | Pedalcyclist | WEST BAY AVENUE             |
| 7517727  | February 1, 2008   | Pedalcyclist | OCEAN COUNTY 50             |
| 7517913  | May 23, 2008       | Pedestrian   | MILL CREEK RD               |
| 7517936  | June 2, 2008       | Pedestrian   | EAST BAY AVENUE             |
| 7517960  | June 15, 2008      | Pedestrian   | 245 STAFFORD PARK BOULEVARD |
| 7518170  | September 1, 2008  | Pedestrian   | DANIELS DRIVE               |
| 7518239  | October 10, 2008   | Pedestrian   | OCEAN COUNTY 111 (NAUTILUS) |
| 7518343  | December 12, 2008  | Pedestrian   | SHOP RITE-297 ROUTE 72 WEST |
| 7818288  | January 22, 2009   | Pedestrian   | 209 STAFFORD PARK BOULEVARD |
| 7818293  | January 27, 2009   | Pedestrian   | EXXON-555 ROUTE 72 WEST     |
| 7818306  | January 31, 2009   | Pedestrian   | WALMART-525 ROUTE 72 WEST   |

|         |                    |              |                               |
|---------|--------------------|--------------|-------------------------------|
| 7818381 | March 26, 2009     | Pedestrian   | 733 ROUTE 72 WEST             |
| 7818461 | May 11, 2009       | Pedestrian   | 600 ROUTE 9 NORTH-SRHS 9-10   |
| 7818483 | May 20, 2009       | Pedestrian   | 1364 ROUTE 72 WEST-STAFFORD   |
| 7818497 | May 25, 2009       | Pedalcyclist | NJ 72                         |
| 7818556 | June 17, 2009      | Pedalcyclist | US 9                          |
| 7818576 | June 26, 2009      | Pedalcyclist | MANAHAWKIN POST OFFICE 525    |
| 7818597 | July 3, 2009       | Pedalcyclist | MCKINLEY AVENUE               |
| 7818625 | July 17, 2009      | Pedalcyclist | MORRIS BLVD                   |
| 7818628 | July 18, 2009      | Pedestrian   | NJ 72                         |
| 7818656 | July 30, 2009      | Pedalcyclist | MERMAID DRIVE                 |
| 7818673 | August 5, 2009     | Pedestrian   | NJ 72                         |
| 7818716 | August 18, 2009    | Pedestrian   | OCEAN COUNTY 50               |
| 7818779 | September 14, 2009 | Pedalcyclist | EAST BAY AVENUE               |
| 7818886 | November 9, 2009   | Pedestrian   | NJ 72                         |
| 7818901 | November 19, 2009  | Pedestrian   | NJ 72                         |
| 7818934 | December 6, 2009   | Pedalcyclist | NJ 72                         |
| 3537778 | January 19, 2010   | Pedestrian   | OCEAN COUNTY 105              |
| 3537781 | January 20, 2010   | Pedestrian   | SPINNAKER AVENUE              |
| 3537850 | February 28, 2010  | Pedalcyclist | WAWA-1400 ROUTE 72 WEST       |
| 3537906 | April 6, 2010      | Pedestrian   | BROADWAY BOUND DANCE          |
| 3537911 | April 7, 2010      | Pedestrian   | EXXON-555 ROUTE 72 WEST       |
| 3538031 | May 28, 2010       | Pedalcyclist | BJ'S EXIT/ENTRANCE            |
| 3538140 | July 2, 2010       | Pedestrian   | OCEAN COUNTY 111              |
| 3538713 | July 5, 2010       | Pedalcyclist | GARDEN STATE PARKWAY          |
| 3538223 | July 29, 2010      | Pedalcyclist | OCEAN COUNTY 50               |
| 3538234 | August 1, 2010     | Pedestrian   | 1504 ROUTE 72 WEST            |
| 3538349 | September 5, 2010  | Pedestrian   | STAFFORD SQUARE-297 ROUTE 72  |
| 3538379 | September 18, 2010 | Pedestrian   | LIGHTHOUSE DR                 |
| 3538385 | September 20, 2010 | Pedalcyclist | ATLANTIS AVE                  |
| 3538439 | October 13, 2010   | Pedalcyclist | EAST BAY AVENUE               |
| 3538519 | November 15, 2010  | Pedestrian   | OXYCOCUS ROAD                 |
| 3538520 | November 15, 2010  | Pedestrian   | SOUTHERN REGIONAL HS 9-10-600 |
| 3832867 | February 3, 2011   | Pedestrian   | WALMART PARKING LOT-525       |
| 3833002 | April 23, 2011     | Pedestrian   | OCEAN COUNTY 605              |
| 3833068 | May 26, 2011       | Pedestrian   | STAFFORD PARK BOULEVARD       |
| 3833094 | June 4, 2011       | Pedalcyclist | OCEAN COUNTY 50               |
| 3833098 | June 6, 2011       | Pedalcyclist | NJ 72                         |
| 3833102 | June 6, 2011       | Pedalcyclist | NJ 72                         |
| 3833172 | July 3, 2011       | Pedestrian   | BJS WHOLESALE CLUB-321 MARTIN |
| 3833196 | July 10, 2011      | Pedalcyclist | MILL CREEK ROAD               |
| 3833196 | July 10, 2011      | Pedalcyclist | MILL CREEK ROAD               |
| 3833284 | August 7, 2011     | Pedestrian   | SHOP RITE - 297 ROUTE 72 WEST |
| 3833606 | September 21, 2011 | Pedestrian   | MERMAID DR                    |
| 3833407 | September 26, 2011 | Pedalcyclist | EAST BAY AVENUE               |

|          |                    |              |                                |
|----------|--------------------|--------------|--------------------------------|
| 4119367  | January 4, 2012    | Pedestrian   | 321 MARTIN TRUEX JR BOULEVARD  |
| 4119447  | February 27, 2012  | Pedestrian   | RIDGEWAY AVE                   |
| 4119519  | March 29, 2012     | Pedestrian   | NJ 72                          |
| 4119540  | April 10, 2012     | Pedestrian   | 245 STAFFORD PK BLVD (COSTCO   |
| 4119654  | June 5, 2012       | Pedalcyclist | DOC CRAMEL BALL FIELDS-430 DOC |
| 4119656  | June 6, 2012       | Pedalcyclist | US 9                           |
| 4119687  | June 15, 2012      | Pedalcyclist | 209 STAFFORD PARK BOULEVARD    |
| 4119841  | July 5, 2012       | Pedestrian   | 43 HONEYSUCKLE DRIVE           |
| 4119890  | July 21, 2012      | Pedalcyclist | US 9                           |
| 4119892  | July 22, 2012      | Pedalcyclist | STAFFORD PARK BOULEVARD        |
| 4119984  | August 21, 2012    | Pedestrian   | 489 NAUTILUS DRIVE             |
| 4119985  | August 22, 2012    | Pedestrian   | NJ 72                          |
| 4120033  | September 11, 2012 | Pedestrian   | 525 ROUTE 72 WEST              |
| 4120104  | October 10, 2012   | Pedestrian   | 309 EAST BAY AVENUE            |
| 4120196  | November 17, 2012  | Pedalcyclist | US 9                           |
| 4120249  | December 11, 2012  | Pedestrian   | 321 MARTIN TRUEX JR BOULEVARD  |
| 4120279  | December 24, 2012  | Pedestrian   | 297 ROUTE 72 WEST              |
| 4120286  | December 28, 2012  | Pedestrian   | WASHINGTON AVE                 |
| 4403959  | January 30, 2013   | Pedestrian   | LIGHTHOUSE DRIVE               |
| 4403974  | February 6, 2013   | Pedalcyclist | US 9                           |
| 4403975  | February 6, 2013   | Pedestrian   | 1140 ROUTE 72 WEST             |
| 4404000  | February 18, 2013  | Pedestrian   | 601 WASHINGTON AVENUE          |
| 4404068  | April 5, 2013      | Pedalcyclist | EAST BAY AVENUE                |
| 4404068  | April 5, 2013      | Pedalcyclist | EAST BAY AVENUE                |
| 4404179  | May 26, 2013       | Pedestrian   | NJ 72                          |
| 4404280  | June 27, 2013      | Pedalcyclist | NJ 72                          |
| 4404475  | August 21, 2013    | Pedalcyclist | OCEAN COUNTY 50                |
| 4404521  | September 5, 2013  | Pedestrian   | 321 MARTIN TRUEX JR BLVD       |
| 4404744  | December 4, 2013   | Pedestrian   | 321 MARTIN TRUEX JR BOULEVARD  |
| 8086487  | January 4, 2014    | Pedestrian   | 297 ROUTE 72 WEST              |
| 8086641  | April 5, 2014      | Pedestrian   | 297 ROUTE 72 EAST              |
| 8086666  | April 16, 2014     | Pedestrian   | 244 ROUTE 72 WEST              |
| 8086730  | May 17, 2014       | Pedestrian   | MERMAID DRIVE                  |
| 8128134  | May 17, 2014       | Pedestrian   | NJ HIGHWAY 72                  |
| 8086738  | May 21, 2014       | Pedalcyclist | MILL CREEK ROAD                |
| 8086754  | May 27, 2014       | Pedestrian   | NJ 72                          |
| 8128169  | July 5, 2014       | Pedalcyclist | NJ HIGHWAY 72                  |
| 8128219  | July 28, 2014      | Pedalcyclist | OCEAN CTY 50                   |
| 8344075  | September 12, 2014 | Pedalcyclist | OCEAN COUNTY 50                |
| 11830275 | January 7, 2015    | Pedalcyclist | STAFFORD PARK BOULEVARD        |
| 11830372 | April 11, 2015     | Pedalcyclist | US 9                           |
| 11830536 | July 13, 2015      | Pedestrian   | US 9                           |
| 11830620 | August 9, 2015     | Pedalcyclist | ROUTE 539                      |
| 11830704 | September 27, 2015 | Pedalcyclist | OCEAN COUNTY 105               |



|          |                    |              |                       |
|----------|--------------------|--------------|-----------------------|
| 11830724 | October 11, 2015   | Pedalcyclist | US 9                  |
| 11830767 | November 6, 2015   | Pedestrian   | NJ 72                 |
| 14874623 | April 23, 2016     | Pedestrian   | MILL CREEK ROAD       |
| 14874669 | May 28, 2016       | Pedestrian   | MAYETTA LANDING ROAD  |
| 14874692 | June 9, 2016       | Pedalcyclist | CLAUDIA LANE          |
| 14874908 | October 14, 2016   | Pedestrian   | NJ 72                 |
| 14874957 | November 18, 2016  | Pedalcyclist | NEPTUNE DRIVE         |
| 14874988 | December 7, 2016   | Pedalcyclist | BEACH LANE            |
| 8997993  | January 19, 2017   | Pedestrian   | US 9                  |
| 8998002  | February 8, 2017   | Pedestrian   | MATEY AVENUE          |
| 8995024  | March 8, 2017      | Pedestrian   | 600 NORTH MAIN STREET |
| 9028970  | May 2, 2017        | Pedalcyclist | OCEAN COUNTY 50       |
| 8995943  | May 16, 2017       | Pedalcyclist | OCEAN COUNTY 50       |
| 9066563  | August 4, 2017     | Pedalcyclist | OCEAN COUNTY 111      |
| 9168243  | October 20, 2017   | Pedalcyclist | EAST BAY AVENUE       |
| 9626374  | September 14, 2018 | Pedalcyclist | NJ 72                 |
| 9637314  | September 19, 2018 | Pedestrian   | OCEAN COUNTY 50       |
| 9752534  | January 18, 2019   | Pedestrian   | 297 ROUTE 72 WEST     |
| 9952192  | July 9, 2019       | Pedestrian   | 601 ROUTE 72 EAST     |
| 9948432  | July 10, 2019      | Pedalcyclist | BUCCANEER LN          |
| 10018433 | July 27, 2019      | Pedestrian   | MURIEL DR             |
| 10065024 | August 31, 2019    | Pedalcyclist | NJ 72                 |
| 10097596 | October 10, 2019   | Pedalcyclist | NJ 72                 |
| 10139242 | December 18, 2019  | Pedalcyclist | MERMAID DR            |
|          |                    |              |                       |

1140 Rt 72 West = Hackensack Meridian Health & SouthernOcean Medical Ctr

1504 Rt 72 West = Barnegat Rd & Breakers Drive = “K” convenience store (and Western Union)

# Appendix B: FHWA Proven Safety Countermeasures

## Appendix B: FHWA Proven Safety Countermeasures

The Federal Highway Administration is promoting safety through proven roadway design features.

For a full list, see: <https://safety.fhwa.dot.gov/provencountermeasures/>

The following local examples show bicycle and pedestrian safety features from the list of countermeasures and should be considered when analyzing traffic safety solutions.

### Refuge Islands

Link: [https://safety.fhwa.dot.gov/provencountermeasures/ped\\_medians/](https://safety.fhwa.dot.gov/provencountermeasures/ped_medians/)



- Reduces pedestrian crossing distance
- Greater pedestrian visibility
- Narrower lanes reduces driver speeding
- Flashing beacon alerts drivers
- Islands can be landscaped

*Clarksville Rd, CR638, West Windsor NJ*

### Roundabouts

Link: <https://safety.fhwa.dot.gov/provencountermeasures/roundabouts/>



- Raised splitter island raised to form a pedestrian refuge
- Reduction in severe crashes
- Urban, rural, suburban options

*George Dye Rd and Estates Blvd, Hamilton NJ*

## Hybrid Pedestrian Beacon (HAWK Signal)

Link:

[https://safety.fhwa.dot.gov/provencountermeasures/ped\\_hybrid\\_beacon/](https://safety.fhwa.dot.gov/provencountermeasures/ped_hybrid_beacon/)



- Pedestrians can cross midblock or uncontrolled intersections
- Pedestrians activate the signal
- Motorists stop completely

*State Road 35, Seaside Heights NJ*

## Road Diet

Link: [https://safety.fhwa.dot.gov/provencountermeasures/road\\_diets/](https://safety.fhwa.dot.gov/provencountermeasures/road_diets/)



- Reconfigure four general travel lanes:
  - Two general travel
  - Center turn lane
  - Bike lanes

*West Windsor, NJ*

## Walkways

Link: <https://safety.fhwa.dot.gov/provencountermeasures/walkways/>



- Shared-use paths
- Streetscaping opportunities

*Nassau Street, Princeton NJ*

## Leading Pedestrian Interval

Link: [https://safety.fhwa.dot.gov/provencountermeasures/lead\\_ped\\_int/](https://safety.fhwa.dot.gov/provencountermeasures/lead_ped_int/)



- Pedestrian given time prior to motorist green signal

*Nassau Street, Princeton NJ*