
# Ogre Drive Speed & Traffic Calming Study, Ocean View, DE

Prepared by

CENTURY ENGINEERING

September 3, 2020

For:

GREAT SEAL OF THE TOWN OF OCEAN VIEW, DELAWARE

# Ogre Drive Speed & Traffic Calming Study, Ocean View, DE



## Content

# Ogre Drive Speed & Traffic Calming Study, Ocean View, DE



## Study Background/Overview

- Traffic Engineering Services Task 6 involving a traffic study for Ogre Road in the Town of Oceanview
- Ogre Drive is an approximately 0.6-mile north-south municipal maintained road within the Oceanview Estates Development with 15 mph posted speed
- Ogre Drive intersects with West Avenue/Muddy Neck Road (S361) at the south end & W Riga Drive at the north end
- This study aims to address speeding issues and potential traffic calming measures
- It involves obtaining vehicular speed, vehicular volumes (vehicles per hour [vph]), average daily traffic (ADT vehicles per day, [vpd]) and vehicle classification for the purpose of addressing the problems
- Ascertain whether potential cut-through traffic is a problem

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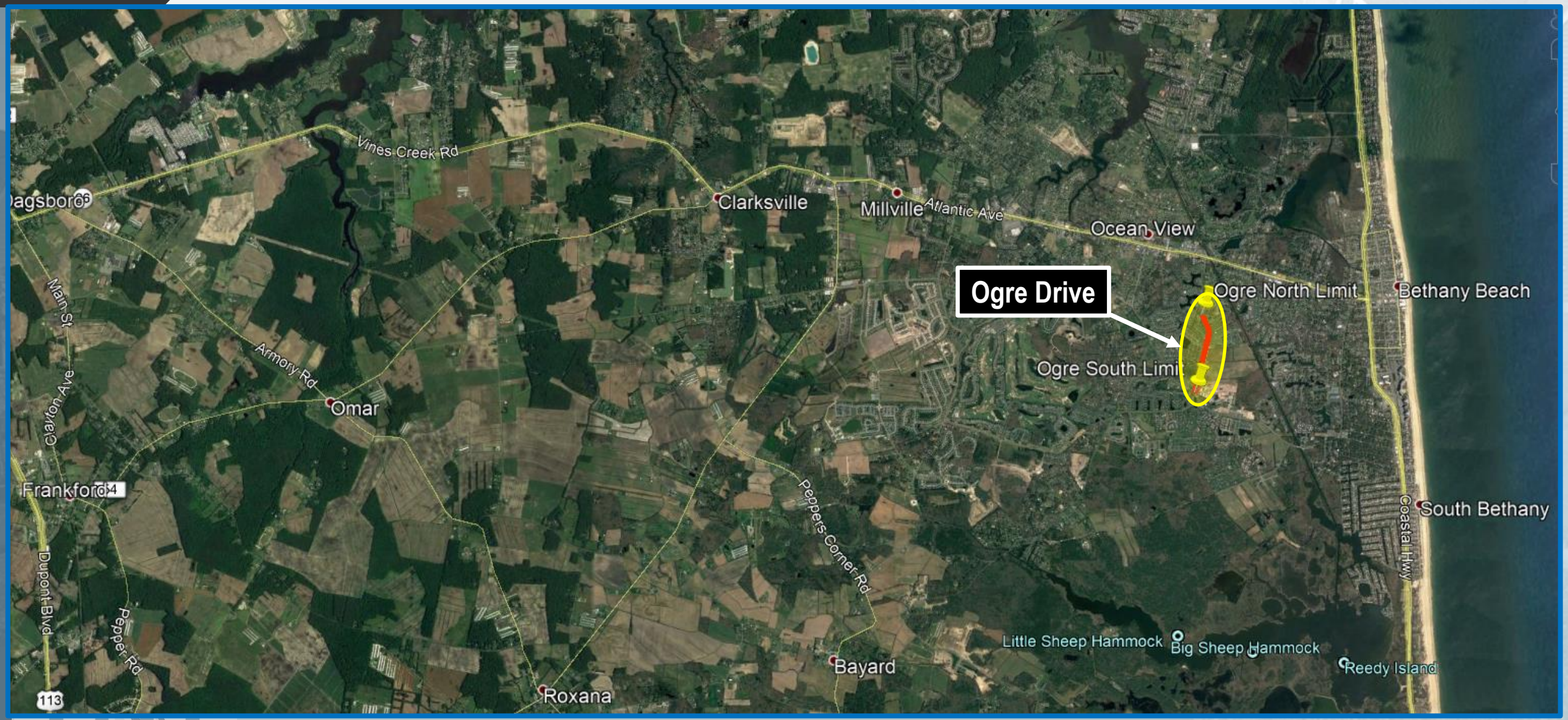
## Location Map



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# Field Data Collection

Vehicular speed and traffic volume/classification data, included in the Appendix, was obtained for two separate study periods using automatic traffic recorders (ATR) with pneumatic road tubes

- Study Period 1 – Average conditions
  - 7-Day period beginning at 12:00 A.M. Wednesday March 4, 2020 through 11:59 P.M. Tuesday March 11, 2020
- Study Period 2 – Summer conditions
  - 7-Day period beginning at 12:00 A.M. Tuesday July 28, 2020 through 11:59 P.M. Monday August 3, 2020

<u>Geometric and Signing Data was obtained during Study Period 2</u>

- Typical roadway cross section
- Video of existing traffic signs

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## Existing Conditions and Observations

### Vehicular Speed

- Average and 85th percentile speed (speed at or below which 50% and 85% respectively of all vehicles were travelling, were recorded
- Study Period 1: 19 mph average speed and 24 mph 85th percentile speed
- Study Period 2: 17 mph average speed and 22 mph 85th percentile speed

### Traffic Volume and Classification Data

- Federal Highway Administration (FHWA) 13 vehicle category classification as illustrated on the next page was used
- Study Period 1 (Average Conditions)
  - ADT = 222 vpd
  - Highest peak hour volumes: 19 veh/hr from 11:00 a.m. to 12:00 p.m. and 19 veh/hr from 4:00 p.m. to 5:00 p.m (typical two clearly defined peaks for residential)
  - Ogre Road is not a high-volume road

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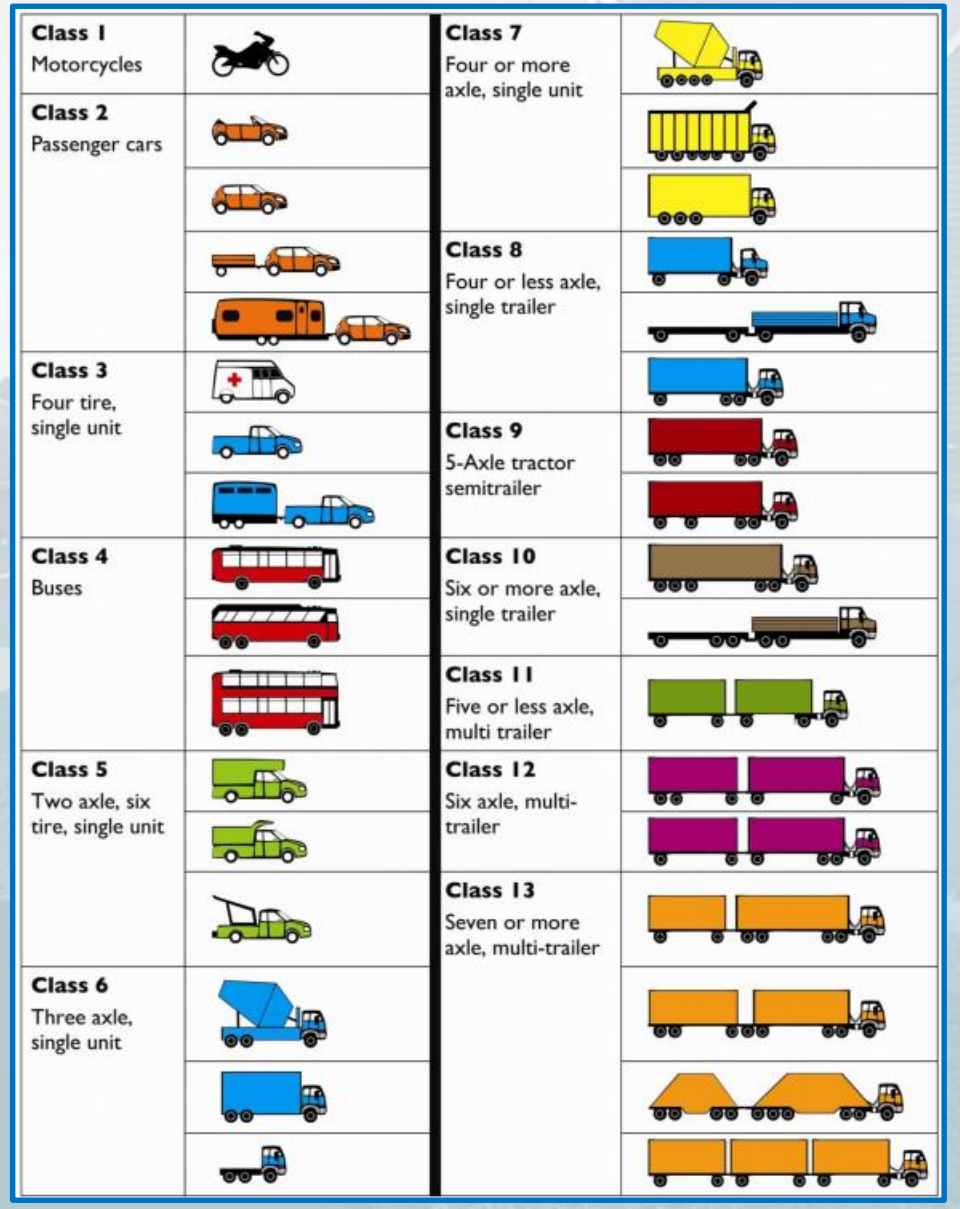
## Existing Conditions and Observations (Continued)

### Traffic Volume and Classification Data (Continued)

- Study Period 1 (continued):
  - Bikes, cars & trailers = 75% of all vehicles
  - 99% of all vehicles fall in the Class 1 to 5 category
  - Ogre Road is not a high truck volume road
- Study Period 2 (Summer):
  - ADT = 444 vpd (double average ADT)
  - Highest peak hour volumes: 38 veh/hr from 11:00 a.m. to 12:00 p.m. and 36 veh/hr from 12:00 p.m. to 1:00 p.m (atypical midday peaking)
  - Ogre Road is not a high-volume road
  - Bikes, cars & trailers = 77% of all vehicles
  - 99% of all vehicles were within the Class 1 to 5 category
  - Ogre Road is not a high truck volume road



# Existing Conditions and Observations (Continued)

## Geometric Measurements

- Ogre Drive has no shoulders and is approximately 20' in overall cross-section
- No pavement markings (center & edge line) exist to define lane widths as of the time of Study Period 2

## Roadway Signing

- Existing roadway signing and their approximate locations documented on video in December 2019 are presented on the following pages and include:
  - Two 15 mph Posted Speed Limit signs (R2-1) northbound & one southbound
  - Three "No Parking Any Time" signs (R7-1) northbound & two southbound
  - Two "Stop" signs (R1-1) each northbound southbound - the northbound sign at Riga Drive has a very low mounting height

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## Existing Conditions and Observations (Continued)

### Roadway Signing (continued)

Northbound Ogre Drive (2019)


120 feet north of Muddy Neck Rd


1175 feet north of Muddy Neck Rd


1860 feet north of Muddy Neck Rd


At Milda Dr


At Riga Dr

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## Existing Conditions and Observations (Continued)

### Roadway Signing (continued)

**Southbound Ogre Drive (2019)**


At Milda Dr


110 feet south of Velta Dr


790 south of Velta Dr


At Muddy Neck Rd

# Existing Conditions and Observations (Continued)

## Roadway Signing (continued)

- Existing roadway signing and their approximate locations documented on video in August 2020 are the same as those documented in 2019 except:
  - "No Parking Any Time" sign "B" (northbound) and "H" (southbound) have been replaced with Radar Speed Signs
  - Northbound, a new "Now Leaving the Corporate Limits of Ocean View" sign (I-2-DE2) has been installed approximately 140' north of Velta Drive southbound
  - Southbound, a new "Entering the Corporate Limits of Ocean View" sign (I-2-DE1) has been installed approximately 110' south of Milda Drive southbound
  - Northbound, the speed Limit sign at Milda Road on sign assembly "D" has been renewed/replaced to include a border
- The roadway signing as of August 2020 are presented on the next two pages and are generally adequate for a municipal road

# Ogre Drive Speed & Traffic Calming Study, Ocean View, DE

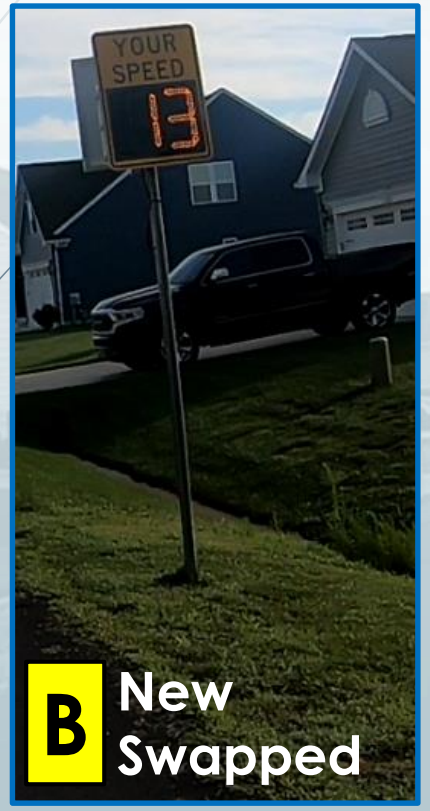


## Existing Conditions and Observations (Continued)

### Roadway Signing (continued)

**Northbound Ogre Drive (2020)**


100 feet north of Muddy Neck Rd




1175 feet north of Muddy Neck Rd


1860 feet north of Muddy Neck Rd


140 feet north of Velta Dr


At Milda Dr


At Riga Dr

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## Existing Conditions and Observations (Continued)

### Roadway Signing (continued)

**Southbound Ogre Drive (2020)**


At Milda Dr


110 feet south of Milda Dr


110 feet south of Velta Dr


790 feet south of Velta Dr


At Muddy Neck Rd

# Crash Data Evaluation

- For the 3-year period from August 24, 2017 to August 24, 2020 only one (1) crash was reported for Ogre Drive with details as follow:
  - Crash date – February 12, 2020
  - Crash severity – Property damage only
  - Collision type – Sideswipe, same direction with a mailbox
  - Lighting – Dark with unknown lighting
  - Weather conditions – Unknown
  - Surface conditions – Dry pavement surface
  - Primary cause of crash – Unknown
  - No crash pattern can be identified.

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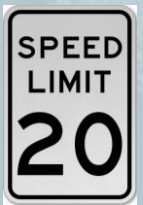
# FHWA USLIMITS2 Speed Zoning Analysis

- This is a tool to determine an appropriate speed limit for roadway segments based on roadway geometry, crash history, AADT, etc.
  - Same 3-Year crash data utilized
  - National crash rates for similar residential subdivision roads were the basis for comparison
  - For average AADT conditions, the crash rate of 686 per 100 million vehicle miles (MVM) is more than 30% above similar roads (292) but below the critical rate of 1,371
  - For summer AADT conditions, the crash rate of 343 per 100 million vehicle miles (MVM) is within 30% of similar roads (292)
- USLIMITS2 recommends a speed limit of 20 mph for both average and summer traffic conditions
- Analysis reports are included in the Appendix



# Suitable Traffic Calming Measures

For this residential subdivision road with limiting cross section options and other characteristics presented, Non-Construction Measures are the most suitable and lowest cost traffic calming options:

## Option 1 - Radar Speed/Regulatory Speed Signs and Enforcement

- Radar speed sign plus the legal posted speed limit sign installed directly below on the same signpost(s) for comparison
  - Promotes safety by constantly reminding drivers when their speeds are excessive/above the legal limit
- "Strictly Enforced" (W21-12P-DE) sign (in conformance with §701 of Title 21 of the Delaware Code) addition to the first posted speed sign northbound and southbound to enhance compliance
- Random speed checks/enforcement by Ocean View Police Department to enhance compliance

# Suitable Traffic Calming Measures (Continued)

## Option 2 – Pavement Markings

- 4-Inch double yellow centerline pavement markings
  - Effective in speed reduction by channelizing traffic
- 4-Inch edge line pavement markings
  - Effective for speed reduction in residential areas by creating narrower travel lanes
- Striping of the centerline as stand-alone on Ogre Drive would result in approximately 9-foot travel lanes in each direction of travel
- Striping of the centerline plus edge lines would result in approximately 8.5-foot travel lanes in each direction of travel
- Periodic maintenance of the pavement markings will be necessary with this option

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## Deductions and Conclusions

- Due to the location and residential nature of Ogre Drive, the doubling of AADT for Study Period 2 and the atypical midday peaking can reasonably be attributed to cut-through traffic during the summer, although it remains a low volume road
- The road does not experience high truck volume with 99% of all documented vehicles falling within FHWA Class 1 to Class 5
- The 2-mph reduction in average and 85$^{th}$ percentile speeds from 19 and 24 to 17 and 22 respectively may be attributed to the installed radar speed sign – Studies in Delaware show observed reductions of approximately 3 mph
- Additional roadway signing and enforcement may help maximize speed reduction potential
- Although seemingly negligible with only one reported crash and no identifiable crash pattern for the most recent 3-year study period, the USLIMITS2 crash rate for average AADT conditions is however more than 30% above similar roadways nationally – a result of the low AADT for Ogre Drive

# Deductions and Conclusions (Continued)

- USLIMITS2 Speed Zoning Analysis recommends 20 mph speed zone, which is within 5 mph of the existing posted speed, however, the analysis is for guidance only and does not constitute a standard, specification or regulation
- A 20-mph posted speed limit, while close to the observed average and 85$^{th}$ percentile speeds, which is usually the goal, and while suitable for residential areas, may in this case defeat the purpose of maintaining low speeds on Ogre Drive by resulting in increased speeds
- Two suitable non-construction traffic calming measures, Option 1 and Option 2, have been identified as the lowest cost and most suitable for the nature and characteristics of Ogre Drive as described in the preceding "*Suitable Traffic Calming Measures*" section of this report.
- The recommendations that follow are based on these deductions and conclusions

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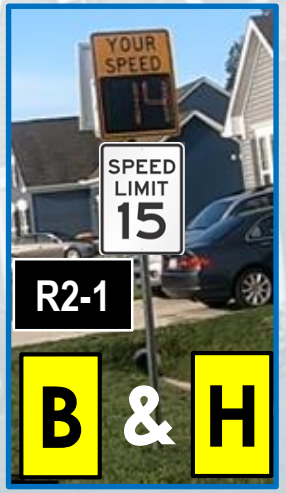
## Recommendations

- It is recommended that Option 1 traffic calming measures be implemented as follows to help reduce speed on Ogre drive to or below 15 mph:
  - Install a new 15-mph regulatory speed limit sign directly below the existing northbound radar speed sign located on the east side of Ogre Drive approximately 1175 feet from Muddy Neck Road.
  - Install a new 15-mph regulatory speed limit sign directly below the existing southbound radar speed sign located on the west side of Ogre Drive approximately 790 feet from Velta Drive.
- Install a new "Strictly Enforced" sign directly below the existing northbound speed limit sign located on the east side of Ogre Drive approximately 100 feet from Muddy Neck Road
  - Relocate existing "No Parking Sign" below the new sign

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## Recommendations (Continued)

- Install a new "Strictly Enforced" sign directly below the existing southbound speed limit sign located on the west side of Ogre Drive approximately 110 feet from Velta Drive
  - Relocate existing "No Parking Sign" below the new sign
- The Town of Ocean View should liaise with the Ocean View Police Department to conduct Random speed check enforcement to reinforce compliance
- It is anticipated that the enforcement of the exceedingly lower speed on Ogre Drive compared to the higher posted speeds on surrounding state-maintained roadways (35 mph on Muddy Neck Road and 30 mph on West Avenue and Kent Avenue), will make them more appealing to motorists as "faster" routes and minimize cut through traffic

# Ogre Drive Speed & Traffic Calming Study, Ocean View, DE



## Recommendations (Continued)

- If in the opinion of the Town & residents, implementation of Option 1 does not achieve the results desired, the Town of Ocean View may in addition to Option 1, implement Option 2 as follows:
  - Install 4-Inch double yellow centerline pavement markings resulting in approximately 9-foot travel lanes in each direction of travel for speed reduction by traffic channelizing
  - If the centerline alone is perceived as insufficient, the Town of Ocean View may install 4-Inch edge line pavement markings on both sides of Ogre Drive resulting in approximately 8.5-foot travel lanes in each direction of travel for speed reduction by creating narrower travel lanes
- The Town will need to perform Periodic maintenance of the pavement markings

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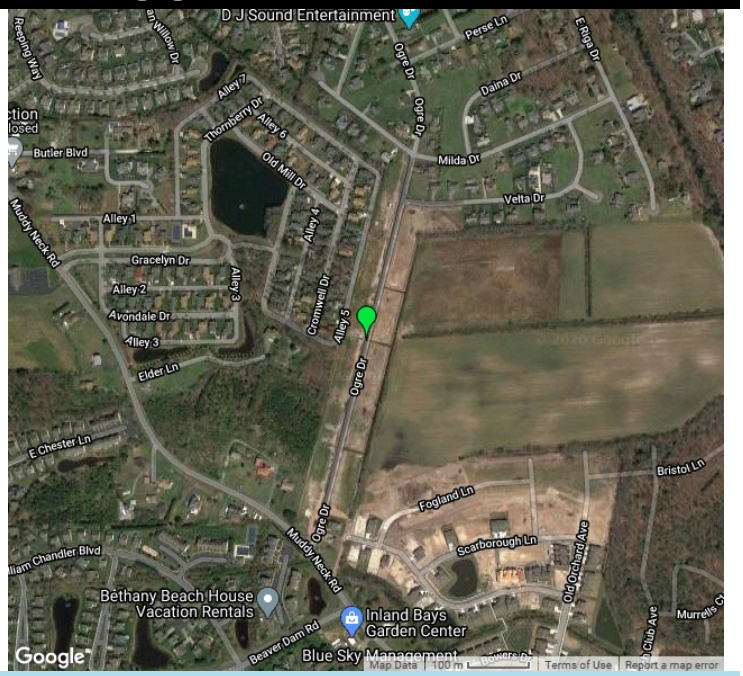
## Appendix

Century Engineering Inc.
550 Bay Road
Dover, De 19901

# SPEED DATA ANALYSIS

## Location

Latitude: 38.531380
Longitude: -75.081995




## Analysis Time Period

| Start | End |
|---|---|
| 3/3/2020 8:54 AM | 3/11/2020 7:48 AM |

## Vehicles Analyzed

1,818

## Speed Limit


15

## Average Speed

19

## 85th Percentile Speed

24