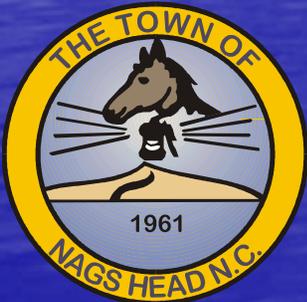


# Town of Nags Head

## Drainage Infrastructure Improvements Year in Review 2013-2014

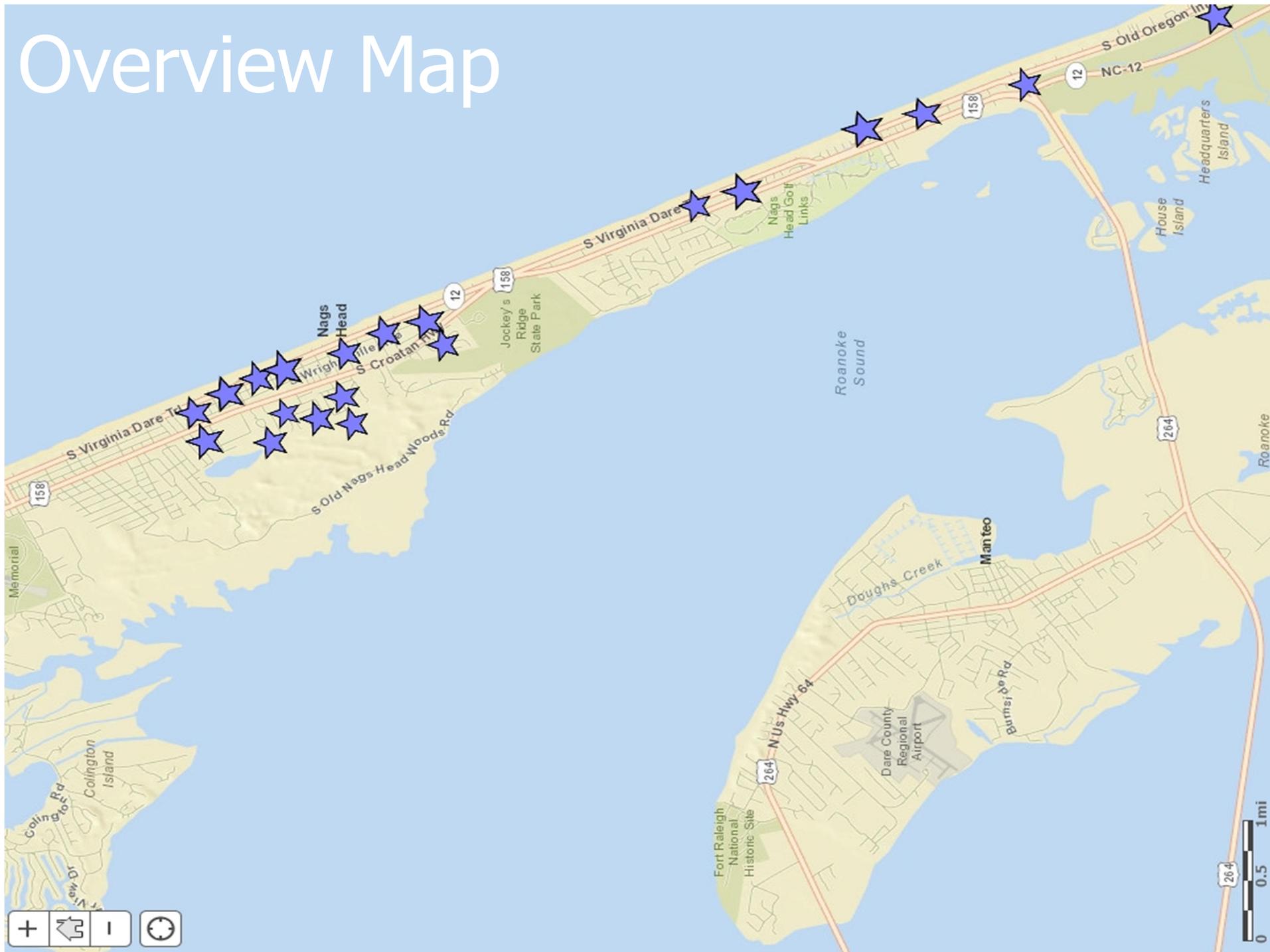


Prepared by:

Department of Public Works

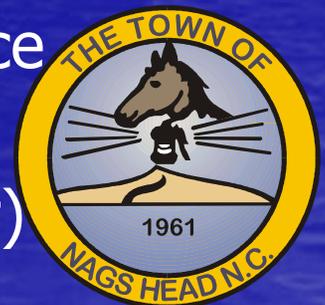
June 11, 2014

# Overview Map



# Vista Colony Subdivision

- Installed approximately 160 l.f. of HDPE drainage pipe within the deeper sections of existing swale network (September 2013 by DPW)
  - Material Cost \$2,500 (Stormwater Funds)
  - Addressed an erosion & maintenance problem in conjunction with a potential public safety issue.
- Enhancements performed on Groundwater Lowering System Pilot project converting “temporary” elements to permanent measures (April 2014-current by DPW)
  - Material Cost \$1,475 (Stormwater Funds)
  - Provides for a more effective and “simplified” method of discharge and disposal.
- Conduct monthly effluent monitoring in accordance w/ state permit requirements (ongoing by DPW)
  - Laboratory Costs \$1,440 annually (Stormwater)



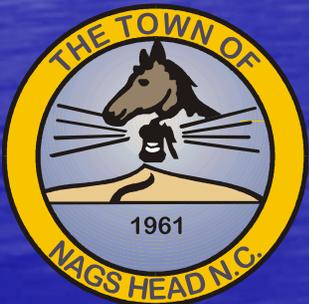
# S. Memorial Ave.-Public/Private Partnership

- Drainage Project which the Town assisted a property owner in finding a solution to a localized flooding problem on private property. (April 2013)
- Provided drainage relief via connectivity to the existing drainage network along the eastern extents of S. Memorial Ave.
- Town Assistance (\$1,100)
  - Stormwater Funds
  - Engineered Design
  - Field Survey Services
  - Contract Assistance
  - Construction Services
- Construction Costs paid for by property owners.
- An alternative approach to a private drainage problem.



# Albatross St.

- Replacement of an aging cross-street drainage pipe .  
(Sept. 2013 by DPW)
- Replaced failing corrugated metal pipe with double wall high-density polyethylene pipe, HDPE.
- Town Provided (\$900)
  - Paid for by Stormwater Funds
- Continued maintenance performed to address ongoing erosion issues.



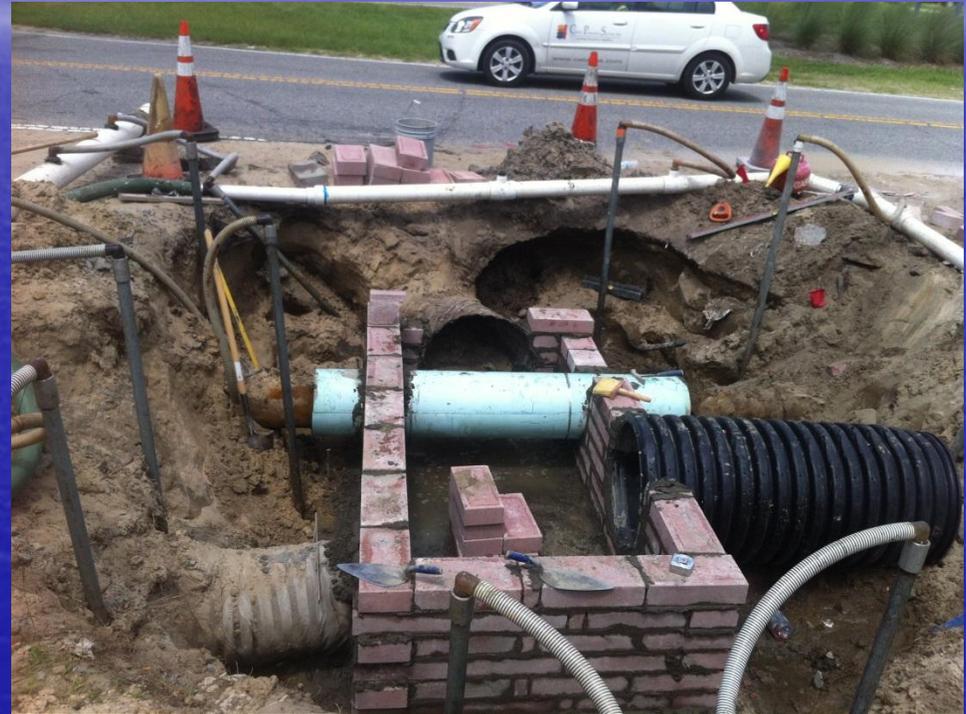
# Village at Nags Head

- Replacement of a cross-street drainage pipe at rear drive to Children's Workshop. (Sept. 2013 by Subcontract)
- Removal of existing 15" dia HDPE pipe and replaced with 30" dia. HDPE cross-drive drainage pipe.
- Removed flow restrictions due to pipe size limitations.
- Project Cost (\$4,350)
  - Paid for by Stormwater Funds



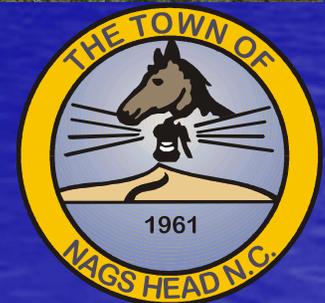
# Whalebone Junction

- Installation of a utility conflict box in the proximity of the Holy Trinity Catholic Church. (Aug. 2013 by Subcontract)
- Provision of protective measures to an existing water main while addressing erosion control and utility maintenance.
- Towns Project Cost (\$2,000)
  - 50% cost share with Church.
  - Paid for by Stormwater Funds



# Nags Head Realty

- Replacement/extension of a 30 yr-old deteriorated drainage pipe spanning from S. Croatan Hwy. to Wrightsville Ave (Jan. 2013 by Subcontract)
- Replaced failing corrugated metal pipe with double wall high-density polyethylene pipe, HDPE.
- Provided drainage connection improvements along a portion of Wrightsville Ave.
- Increased pipe size to improve upstream flow
- Towns Project Cost (\$52,590)
  - Paid for by Stormwater Funds



# Subdivision Drainage

- Nags Head Acres –Relocation of an existing cross street culvert pipe which conflicted with a proposed residential development plan. (May 2014 by Subcontract)

Towns Project Cost (\$9,990)

– Paid for by Stormwater Funds

- Nags Head Pond- Installation of a cross drainage pipe with connecting drainage swale improvements to assist in downstream conveyance.
- Provide a mechanism for water runoff to flow downstream from a localized flooding situation .

Towns Project Cost (\$7,440)

– Paid for by Stormwater Funds



# Roadway Projects

- Carolinian Circle- Peripheral drainage swale network installed with roadway improvements . (Sept. 2013 by Subcontract)
  - Funded by Special Assessment to property owners. (\$43,562)
  - Utilized superelevated roadway/swale section to minimize environmental impacts
- E. Flicker St. – Roadway widening project with peripheral drainage swale installation. (June 2013)
  - Powell Bill Funds (\$49,600)\*
  - \*Includes Nags Head Cove resurfacing work



# Annual Maintenance

- Conduct annual drainage maintenance improvements. (Jan.-March 2013 & Sept. 2013 by DPW)
- Ditch sediment removal, vegetation removal, re-establishing ditch/swale grade lines, culvert cleaning
  - Wrightsville Ave.
  - S. Memorial Ave.
  - Forrest St.
  - Eighth St.
  - Seven Sisters
  - Lark Ave.
  - Station 21 (north side ditch)
  - Town Costs-Equipment, manhour and fuel



# Net Results of Drainage Improvements

- Re-Establish a continuous flowline along existing drainage networks
  - Replace/Realign/Install pipes where appropriate
  - Eliminate impediments in the drainage ditches/pipes which prohibit flow.
- Establish drainage elements in connection with other Town work (i.e. roadway projects)
- Increase Hydraulic Capacity (increasing pipe size and ditch geometry where appropriate)
- Evaluate private development projects and opportunities for drainage improvements.
- Drainage improvements result in increased level of service and increased system efficiency



# Year in Review Summary

- Total Stormwater contracted services related expenditures for FY 13-14 : \$76,370
- Department of Public Works Details (Jan 1, 2013 – Current)
  - Material Cost expenditures (\$4,890 +/-)
  - Man hours: (675 hrs. +/-)
  - Equipment hours: (626 hrs. +/-)
  - Fuel Costs (\$3,983 +/-)
  - Utility & Lab Costs (\$3,940 +/-)



# What's Next

- Red Drum Ocean Outfall Repair (NCDOT)
- South Virginia Dare Trail Drainage Maintenance plan (NCDOT)
- South Nags Head Drainage Ditch Maintenance plan

