

ROUTE 156 WATER MAIN EXTENSION AND FOOD LION WATER SYSTEM IMPROVEMENTS

December 12, 2017

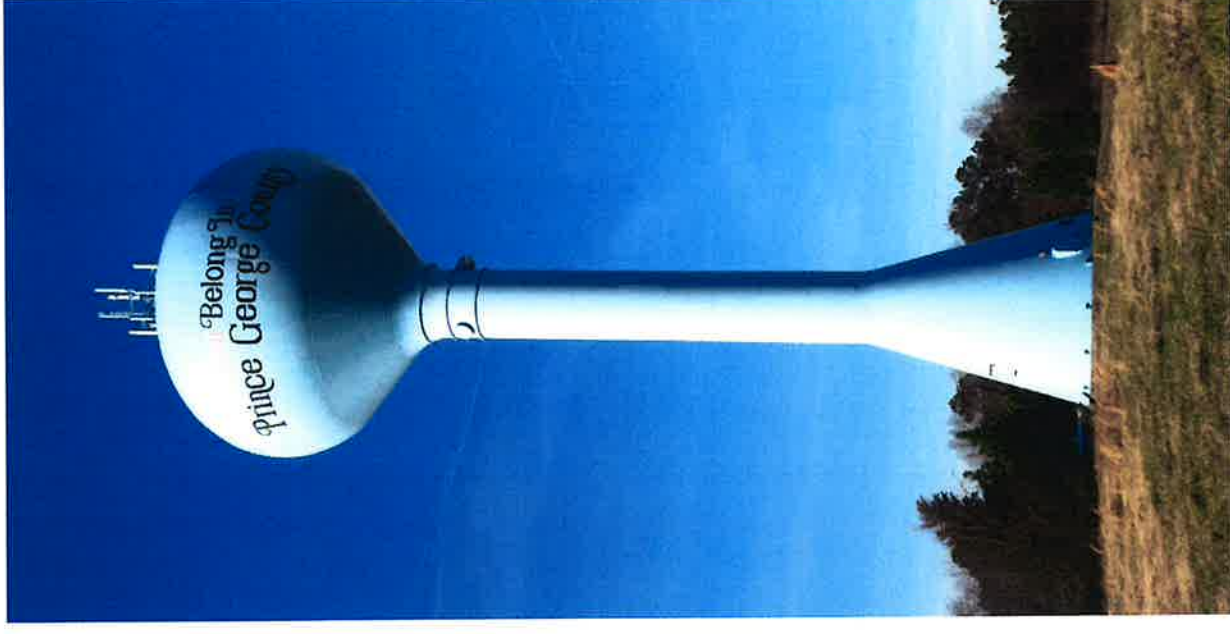
Dan Villhauer, PE

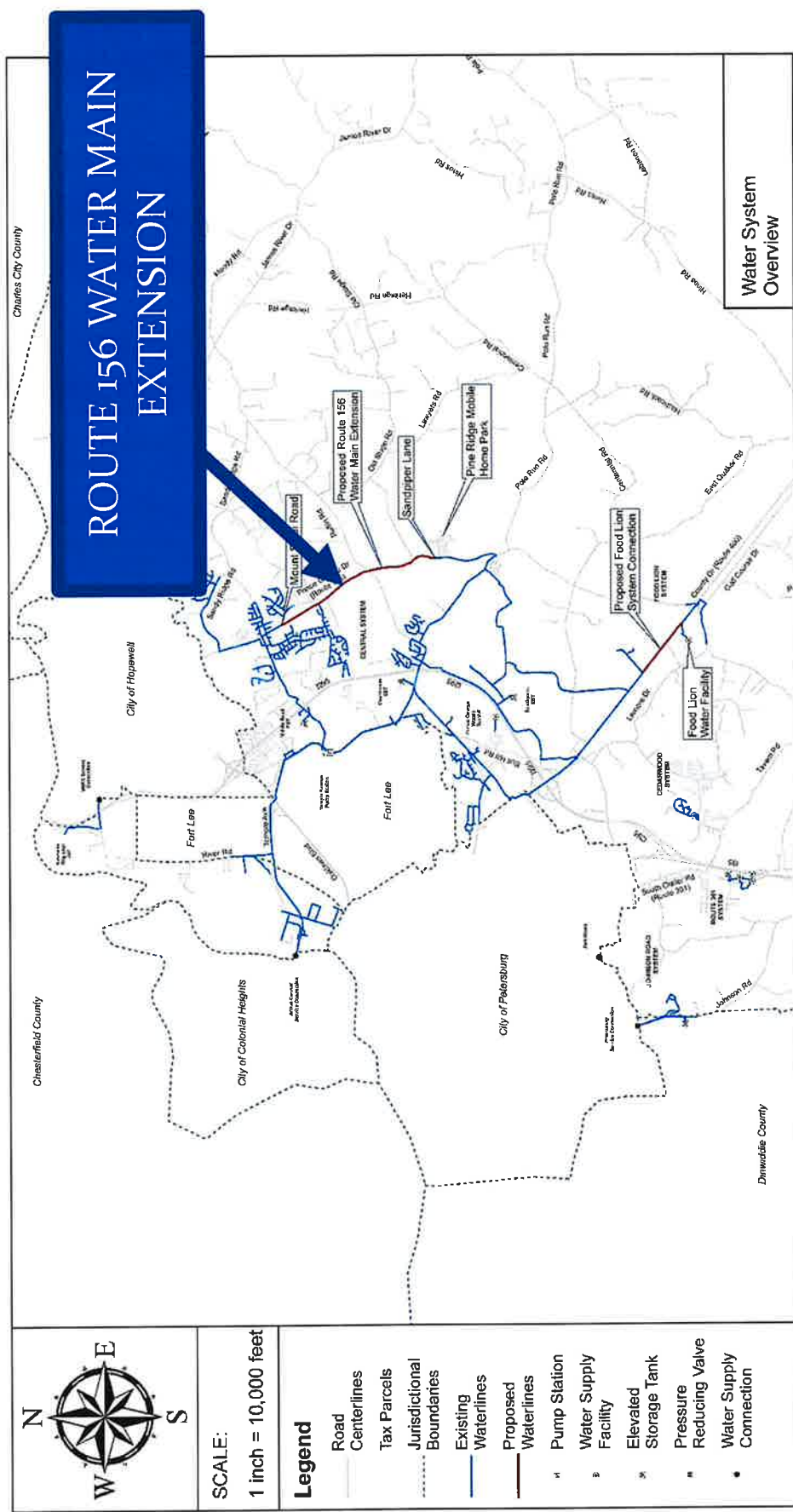
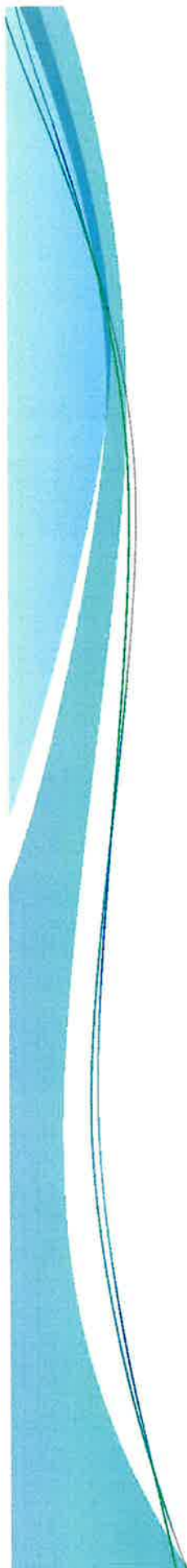




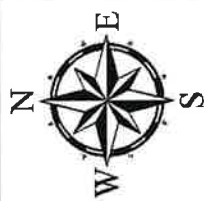
Outline

- Route 156 Water Main Extension
 - Overview of Project
 - Scope of Project
 - Benefits of Project
 - Estimated Project Cost
- Food Lion System Connection
 - Overview of Project
 - Scope of Project
 - Benefits of Project
 - Estimated Project Cost
- Questions





Water System Overview



SCALE:
1 inch = 10,000 feet

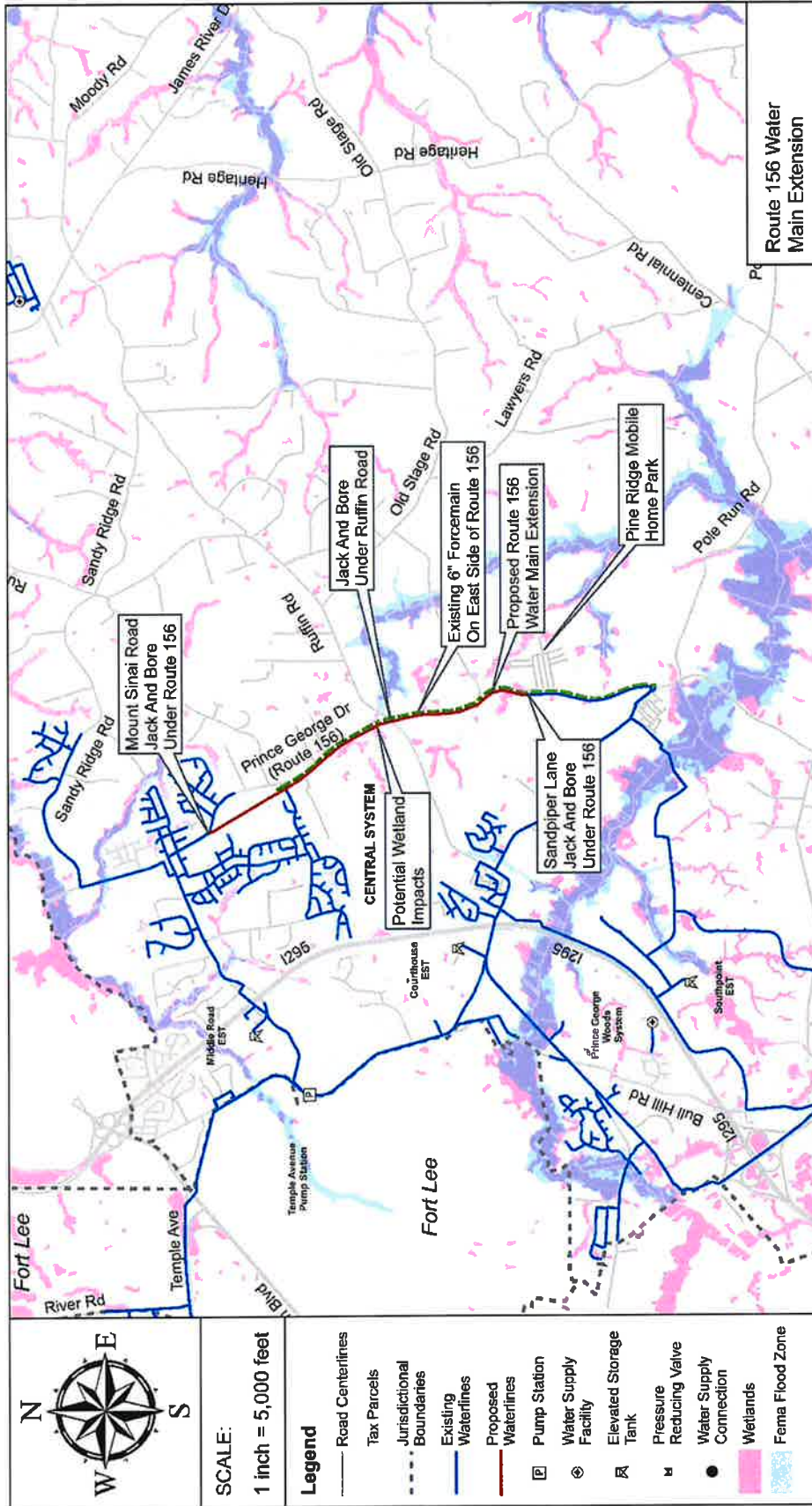
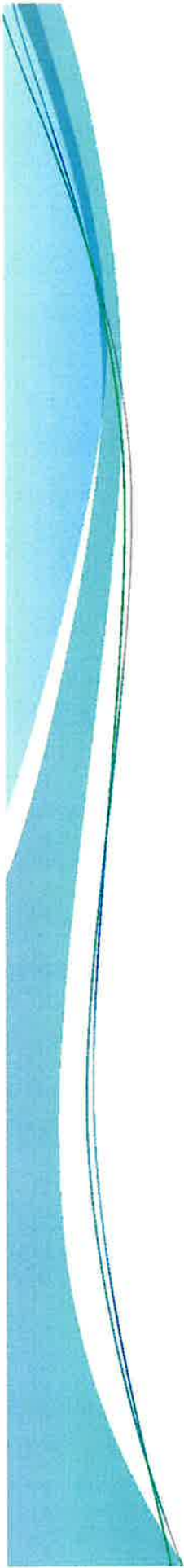
Legend

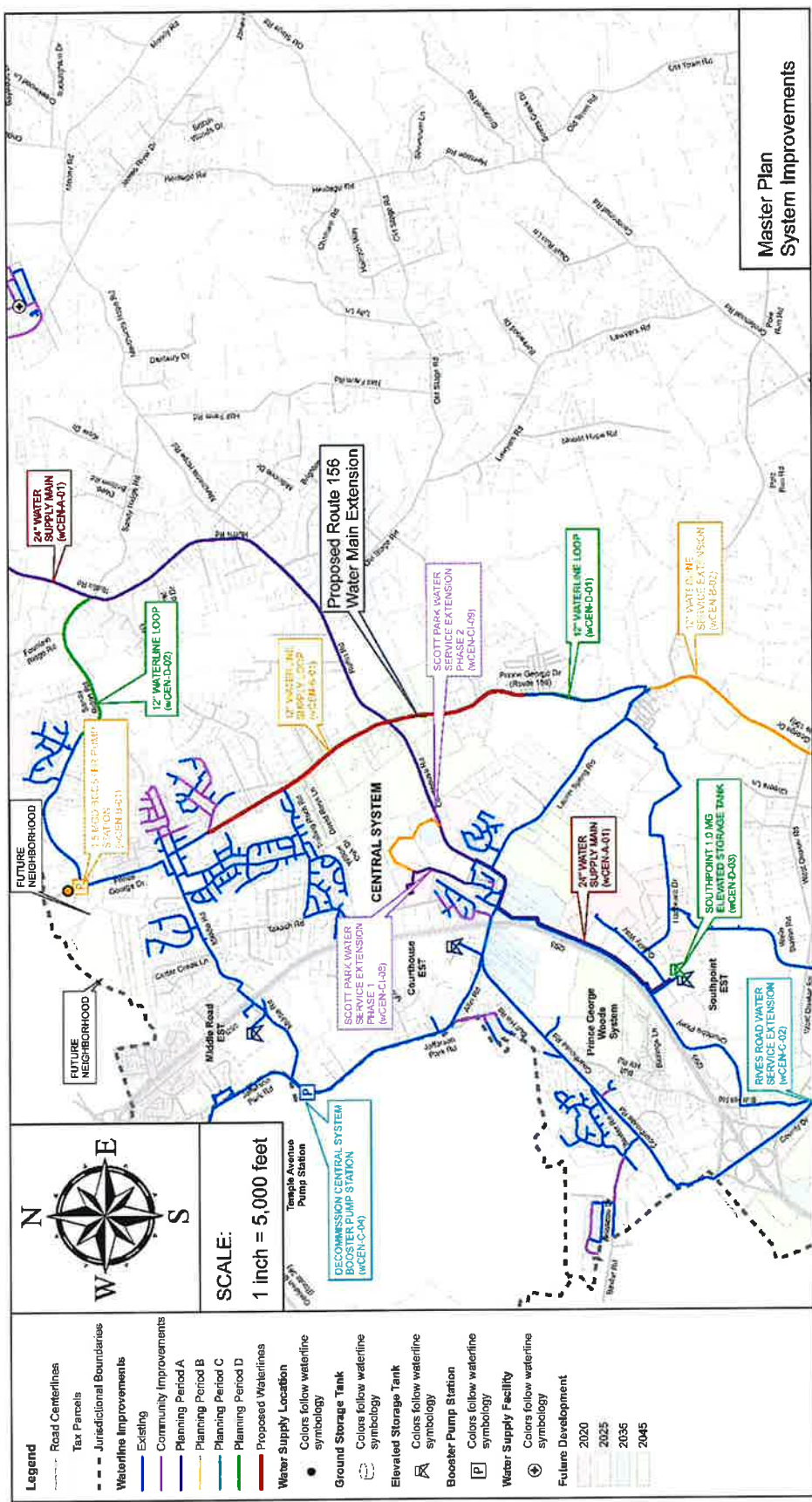
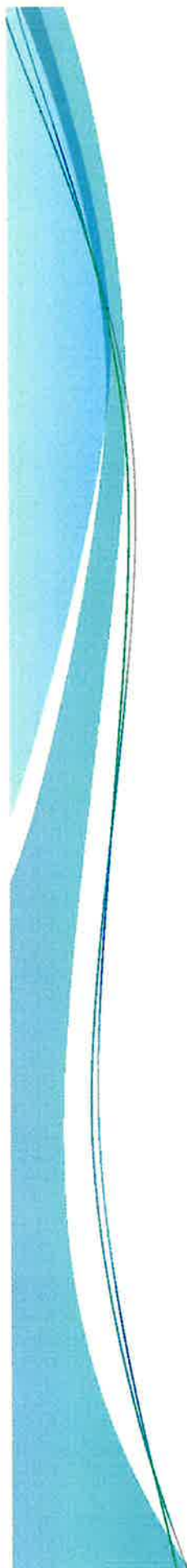
- Road
- Centerlines
- Tax Parcels
- - - Jurisdictional Boundaries
- Existing Waterlines
- Proposed Waterlines
- ⊠ Pump Station
- ⊡ Water Supply Facility
- ⊞ Elevated Storage Tank
- ⊞ Pressure Reducing Valve
- Water Supply Connection



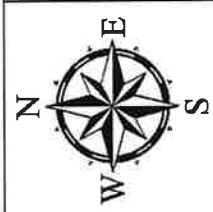
Route 156 Water Main Extension

- A 12-inch waterline along Route 156
- Connects Sandpiper Lane to Mount Sinai Road
 - Approximately 15,000 linear feet
 - Jack and Bore under Ruffin Road
 - Potential wetland impacts
 - Existing utility conflicts



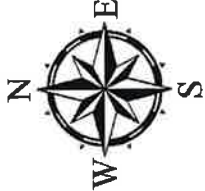
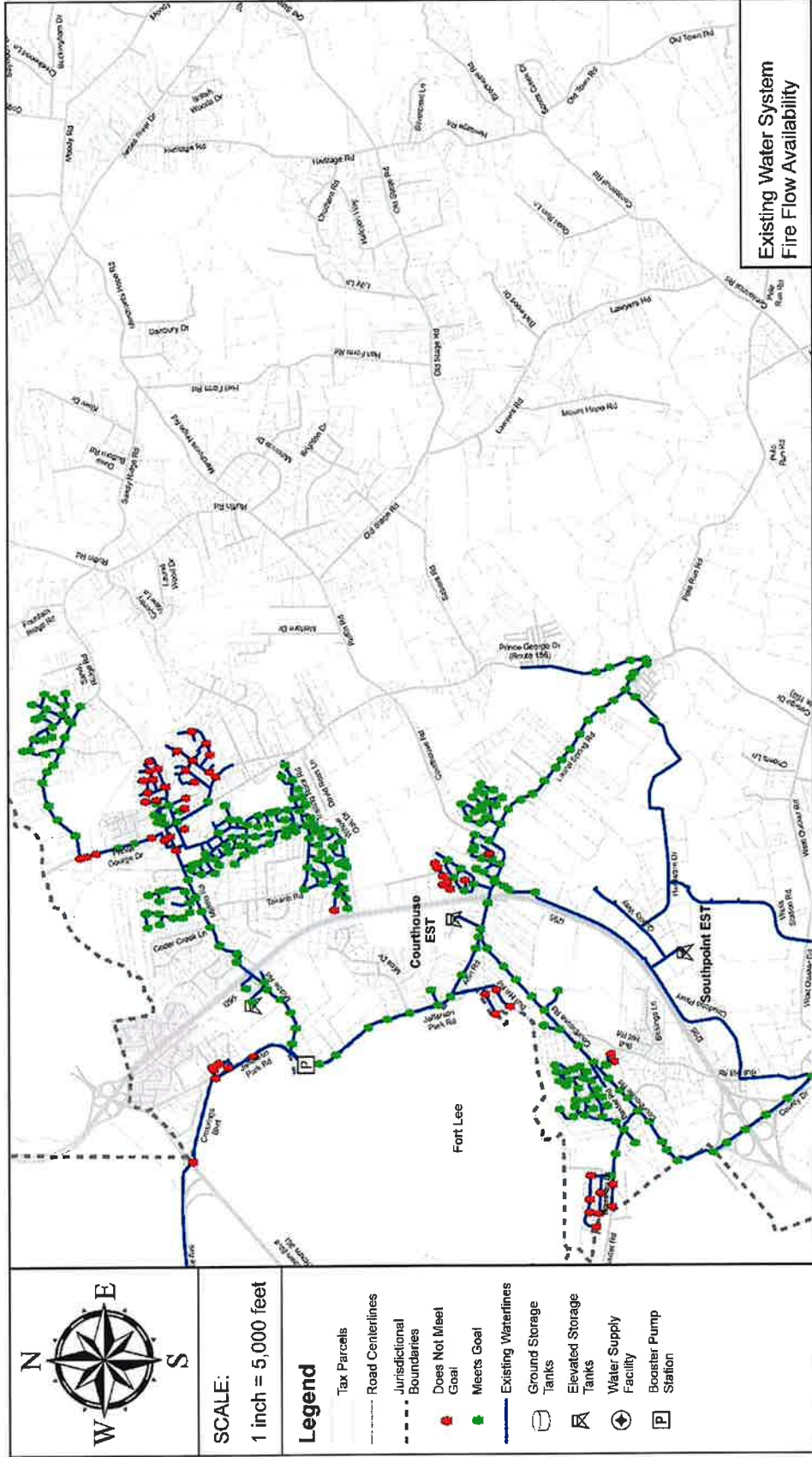
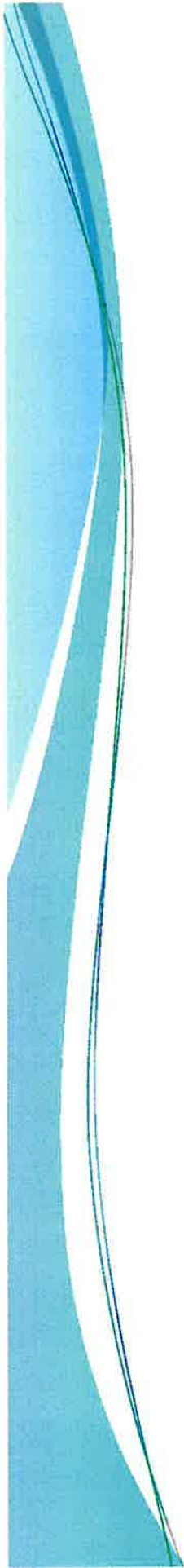


Master Plan System Improvements



SCALE:
1 inch = 5,000 feet

- Legend**
- Road Centerlines
- Tax Parcels
- Jurisdictional Boundaries
- Waterline Improvements**
- Existing
- Community Improvements
- Planning Period A
- Planning Period B
- Planning Period C
- Planning Period D
- Proposed Waterlines
- Water Supply Location
- Colors follow waterline symbology
- Ground Storage Tank
- Colors follow waterline symbology
- Elevated Storage Tank
- Colors follow waterline symbology
- Booster Pump Station
- Colors follow waterline symbology
- Water Supply Facility
- Colors follow waterline symbology
- Future Development**
- 2020
- 2025
- 2035
- 2045

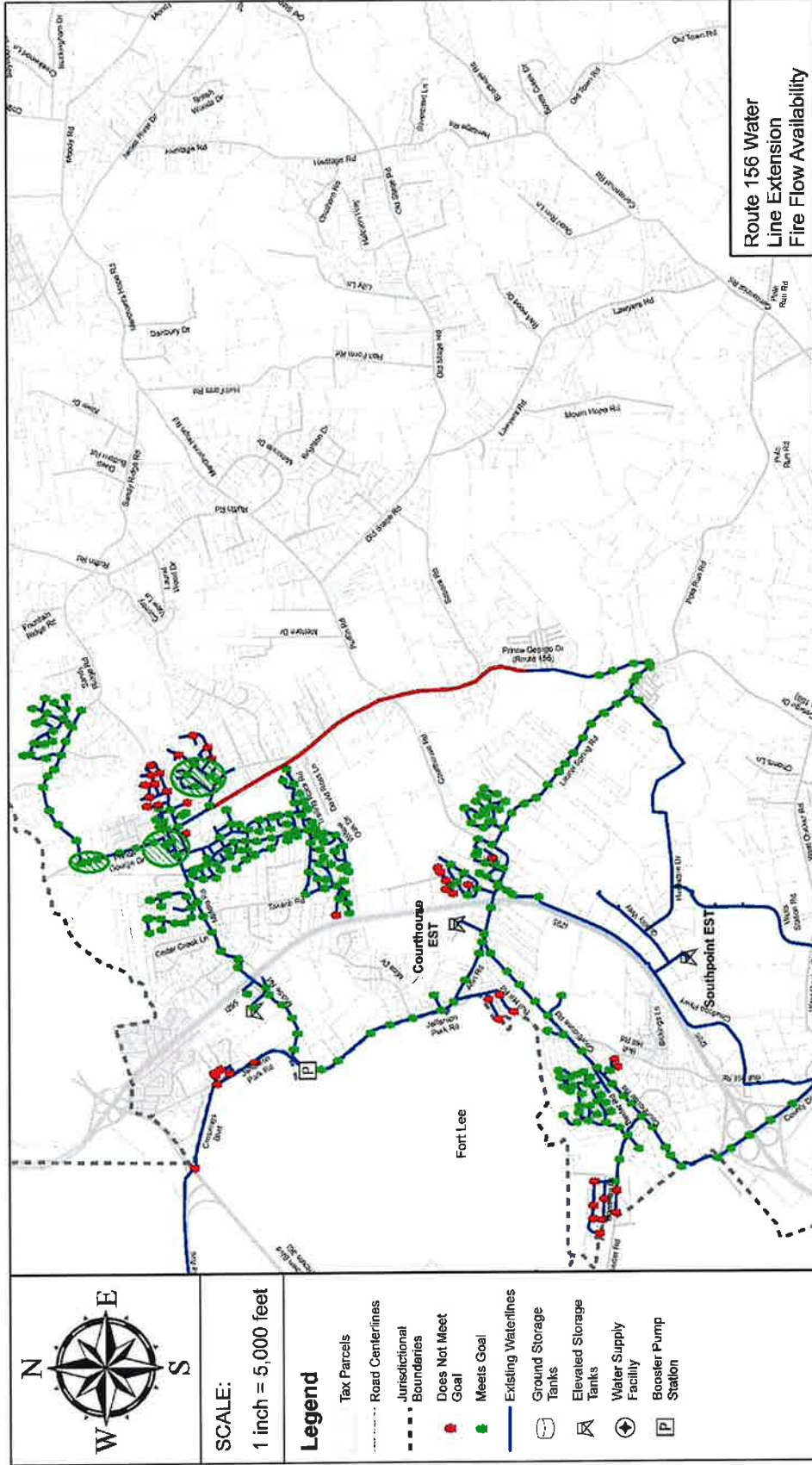
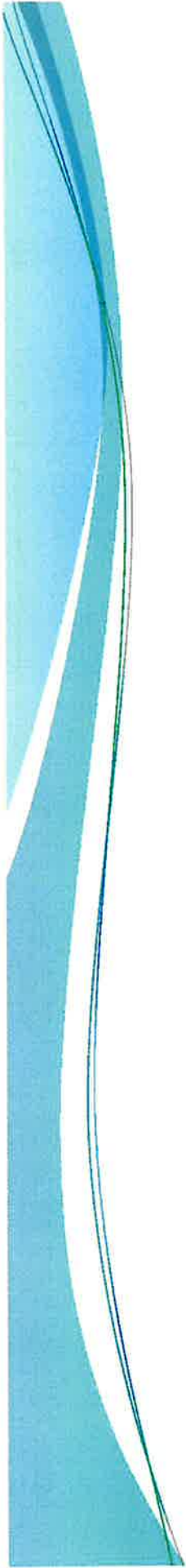


SCALE:
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Legend

- Tax Parcels
- Road Centerlines
- - - Jurisdictional Boundaries
- Does Not Meet Goal
- Meets Goal
- Existing Waterlines
- Ground Storage Tanks
- ▲ Elevated Storage Tanks
- ⊕ Water Supply Facility
- ⊞ Booster Pump Station

**Existing Water System
Fire Flow Availability**





Benefits of Route 156 Water Main

Extension

- Improved Water Age (looping)
- Improved Fire Flow Availability
 - 1000+ GPM increase in some areas
- Additional Redundancy
- Part of Master Plan Recommendations
 - Could assist in providing additional water supply to Southpoint Business Park



Estimated Cost of Route 156 Water

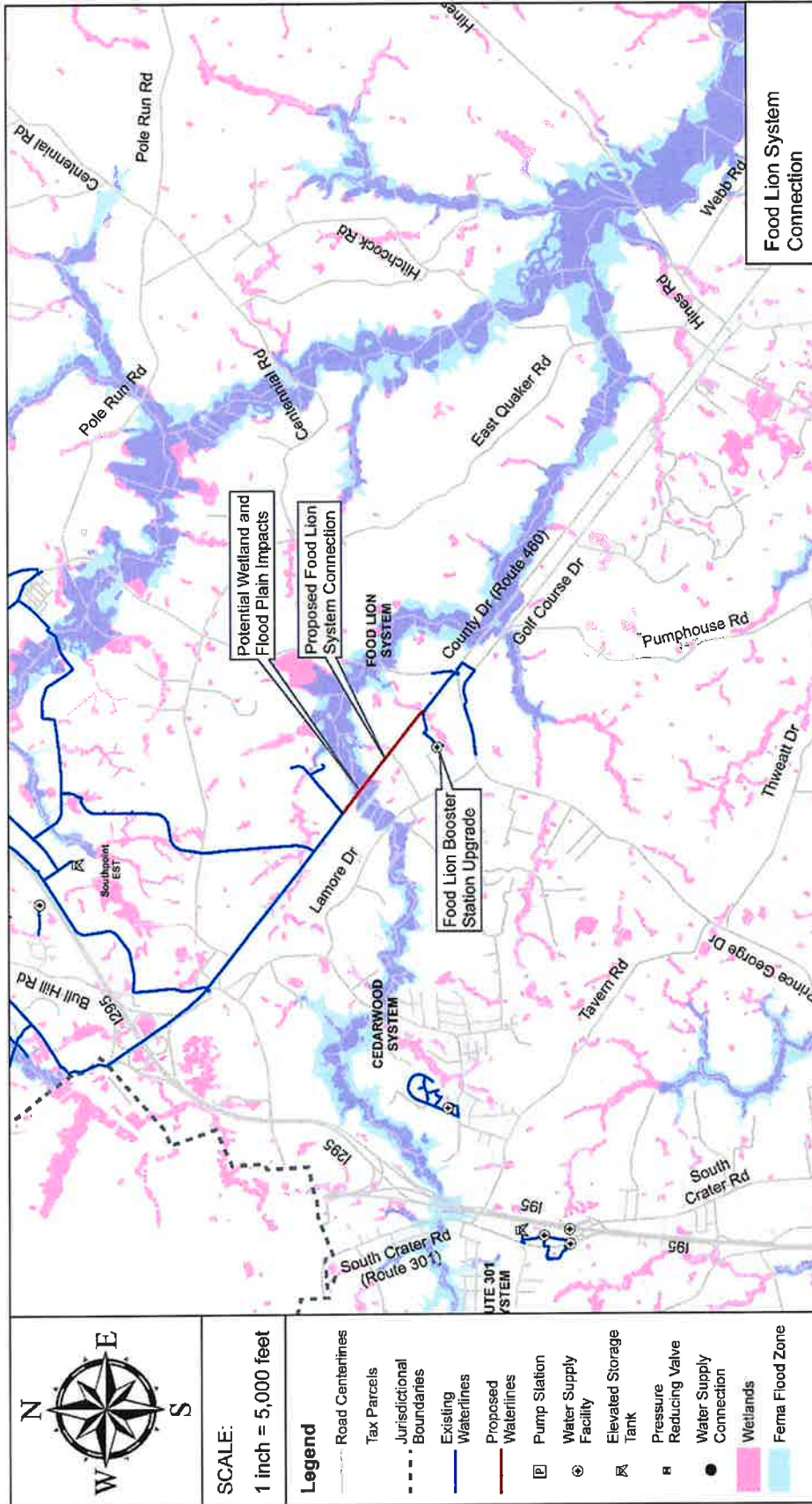
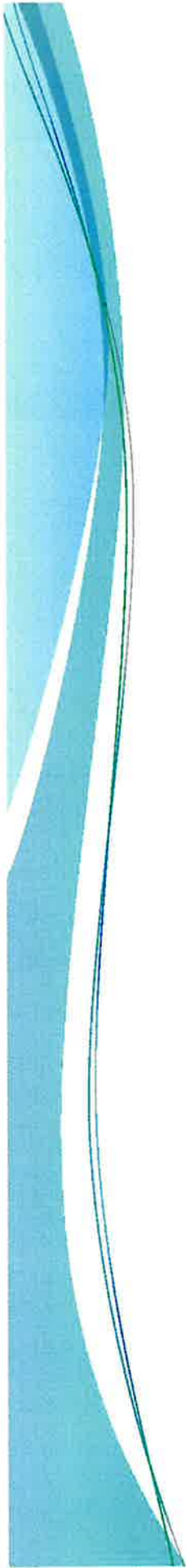
Main Extension

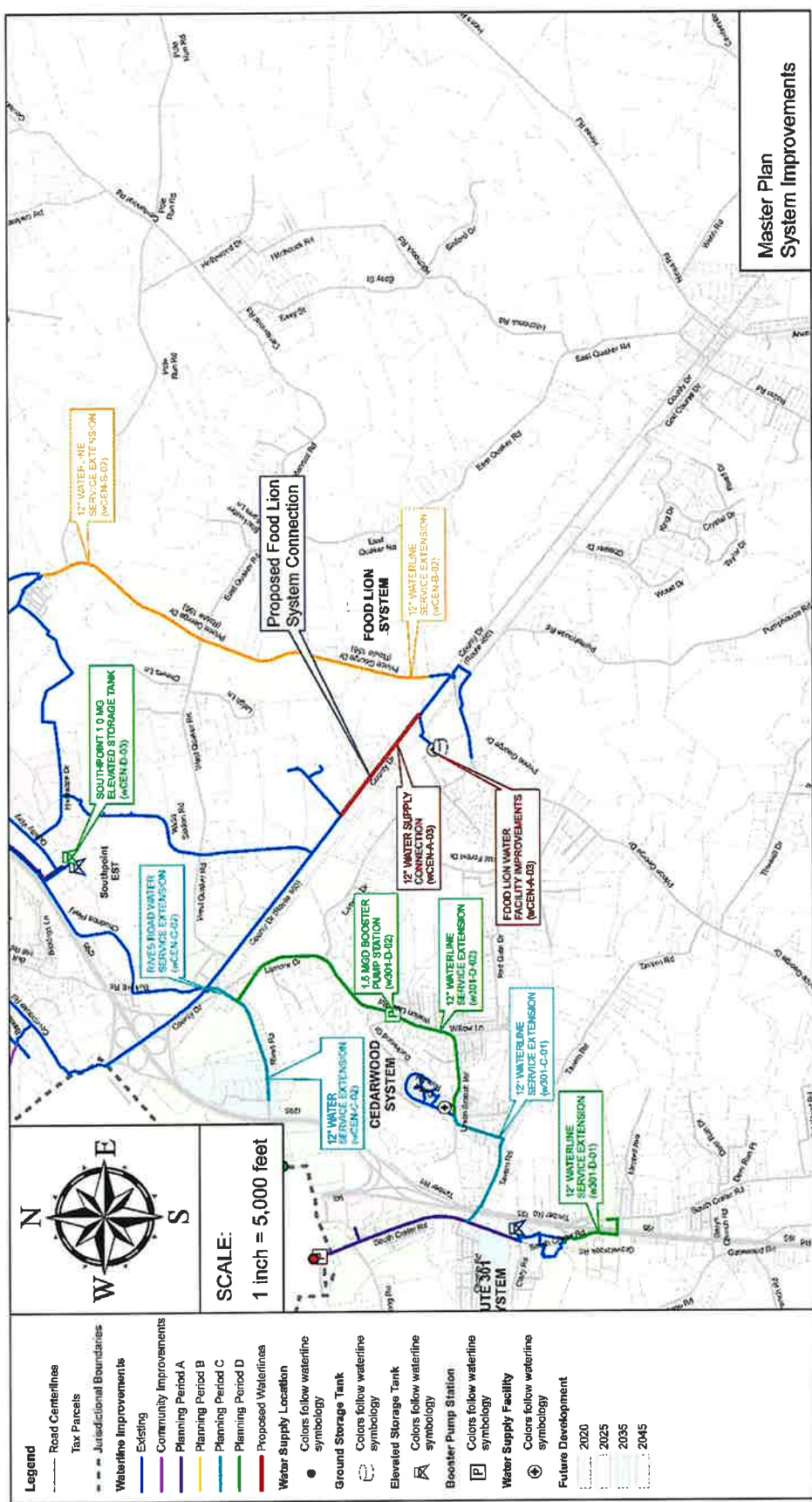
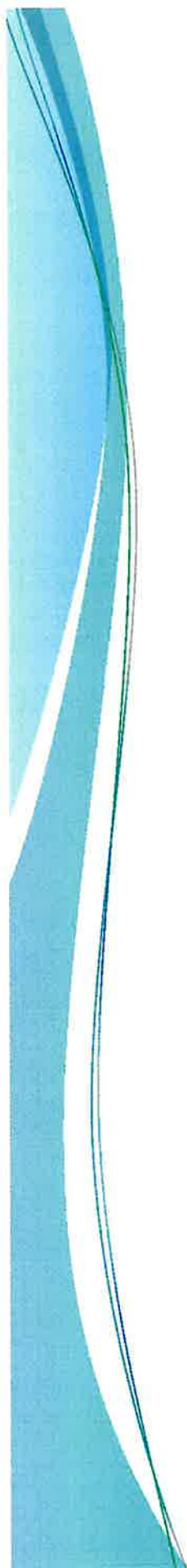
- Engineering Estimate: \$240,000
- Construction Estimate: \$2.4 million
- Typical Revenue Sources
 - Connection Fees
 - New Service Connections
 - General Obligation Bond Issuance



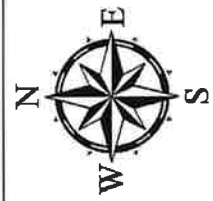
Food Lion System Connection

- Phase 1 – Booster Station Improvements to increase improve fire flow to 2,000 GPM within Food Lion Water System
- Phase 2 - Connect to Central System
- Improvements Include:
 - Phase 1 - Booster Station Upgrades:
 - Replace booster pumps with larger pumps
 - Replace electrical equipment to power larger pumps
 - New piping and valving
 - Building HVAC and electrical upgrades
 - SCADA system
 - Phase 2 - Approximately 5,400 linear feet of 12-inch water main along Route 460 and booster station modifications



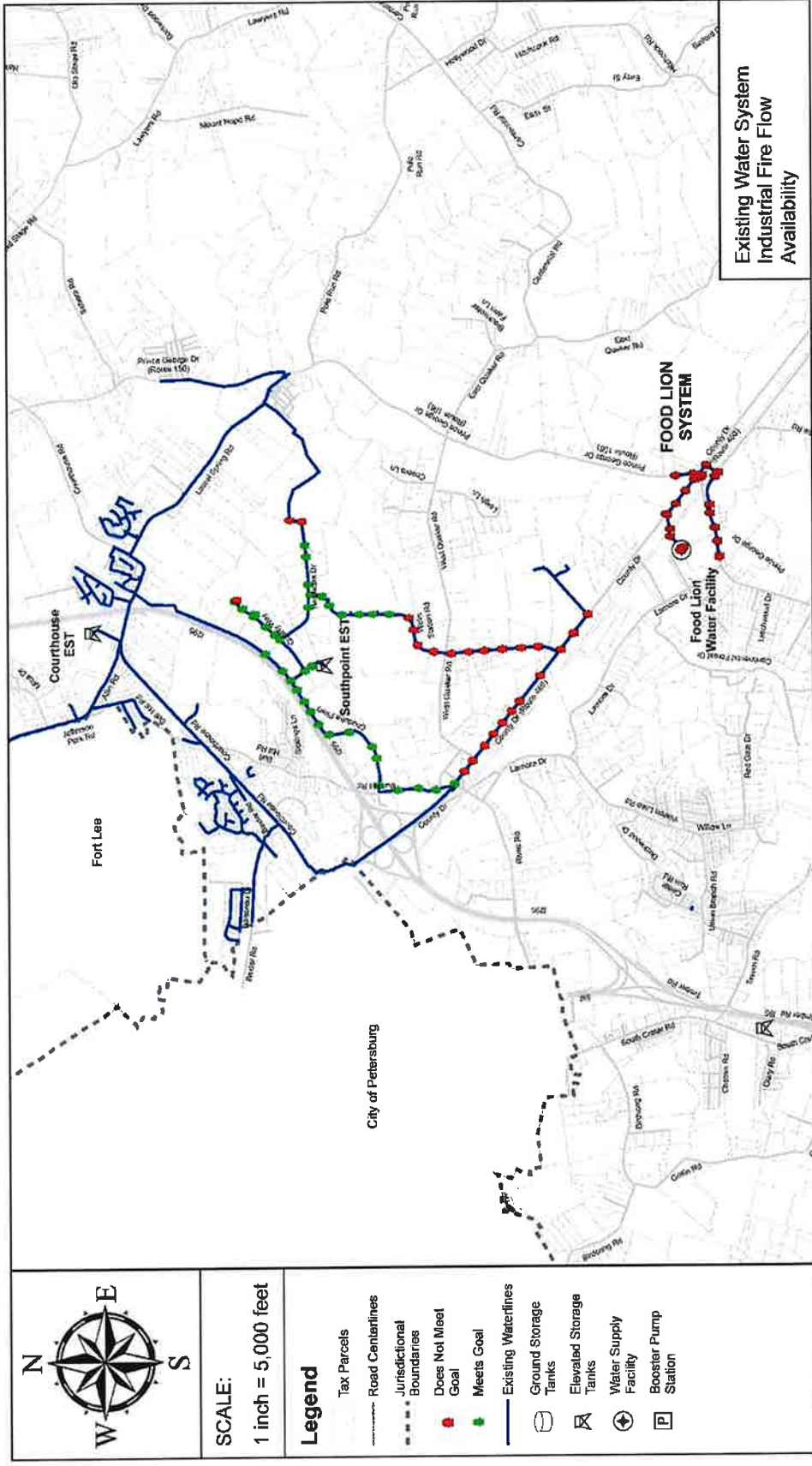
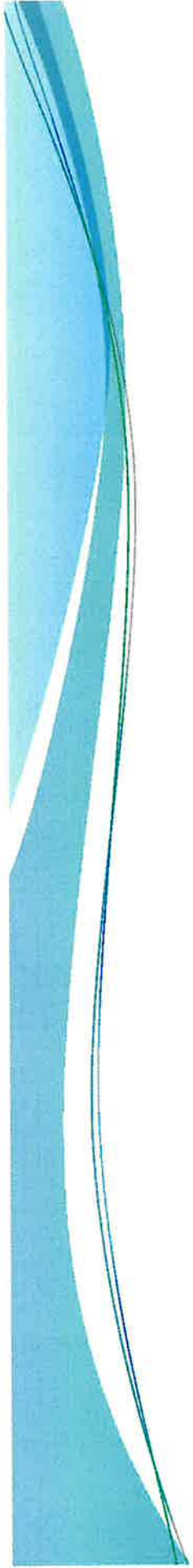


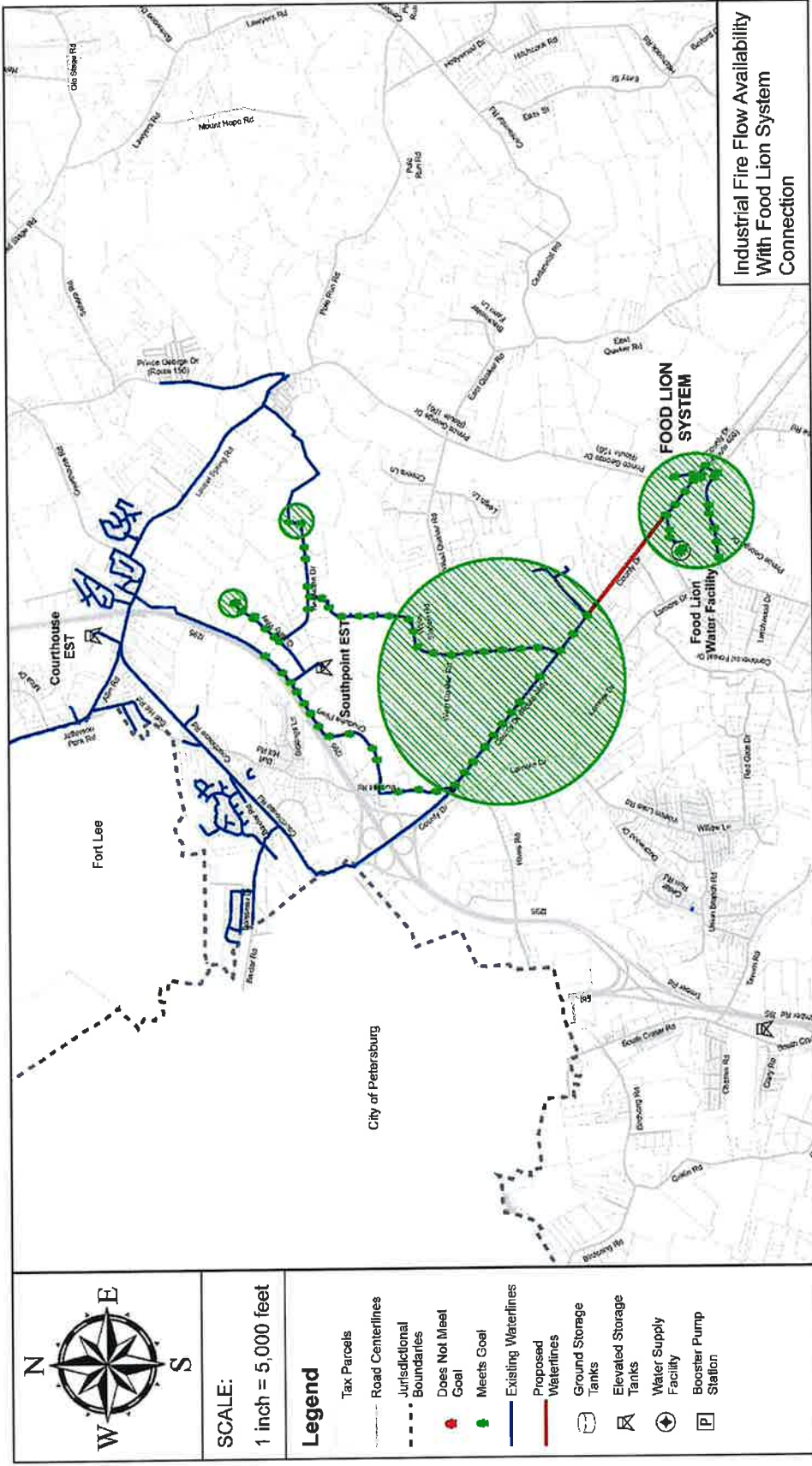
Master Plan System Improvements



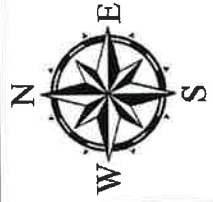
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**Industrial Fire Flow Availability
With Food Lion System
Connection**



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 - Booster Pump Station



Benefits of Food Lion System

Connection

- Improved Fire Flow Availability
 - Allows both Food Lion and Southpoint Business Park to Meet Fire Flow Goals
- Booster Station Upgrade already required to meet Food Lion Water System fire flow requirements
- Additional Redundancy for both systems
- Part of Master Plan Recommendations
 - Allows for 1 MG of additional storage to be available at Southpoint Business Park
 - Eliminates need for a 2nd Elevated Tank (~\$2 million)

Food Lion Water System Upgrades

Estimated Costs

TABLE 1 - CONSTRUCT PROJECTS SEPARATELY

	Phase 1	Phase 2	Total
Engineering Cost	\$100,000	\$200,000	\$300,000
Construction Cost	\$700,000	\$1,250,000	\$1,950,000
Total	\$800,000	\$1,450,000	\$2,250,000

TABLE 2 - CONSTRUCT PROJECTS CONCURRENTLY

	Phase 1	Phase 2	Total
Engineering Cost	\$100,000	\$160,000	\$260,000
Construction Cost	\$675,000	\$1,165,000	\$1,840,000
Total	\$775,000	\$1,475,000	\$2,100,000

\$150K SAVINGS





Questions