

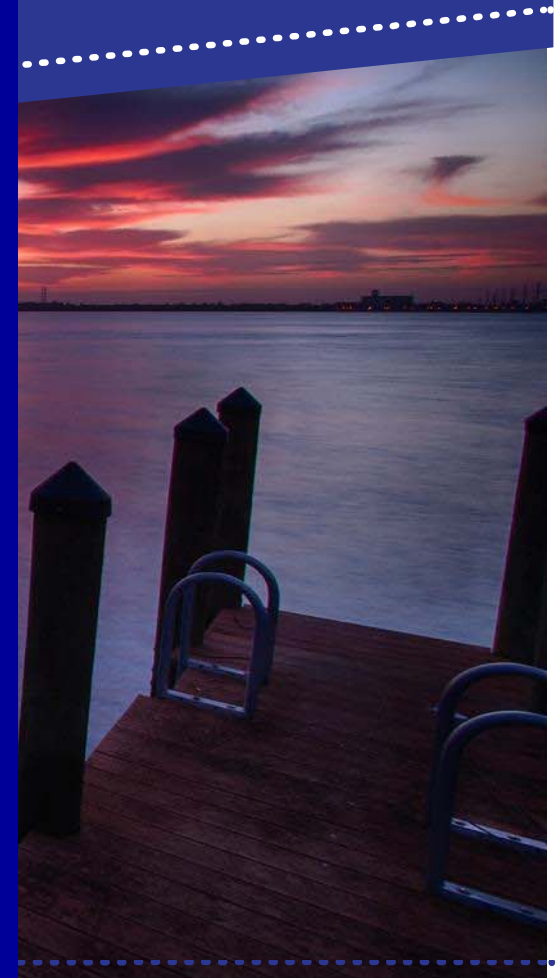
Charlotte Harbor

PROTECTING THE HEART OF CHARLOTTE COUNTY

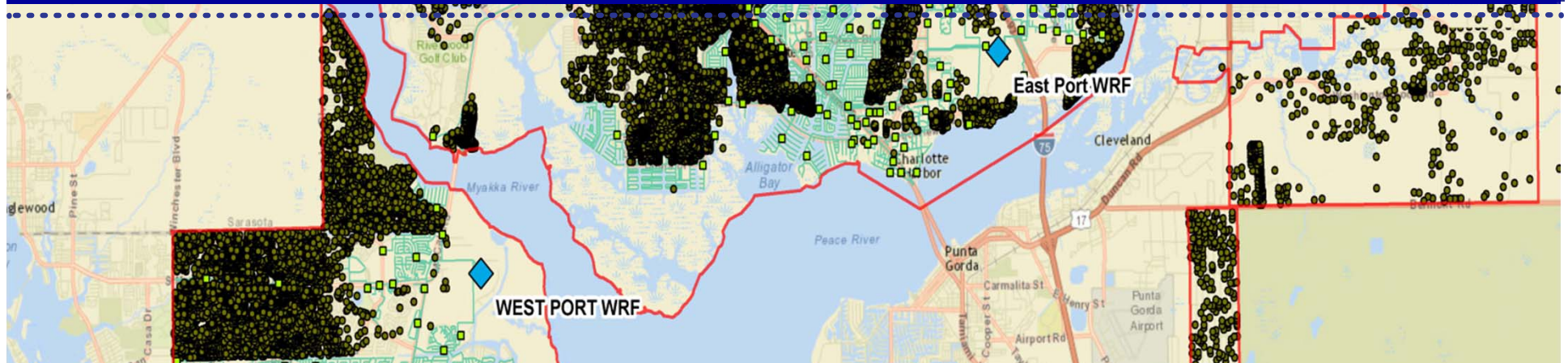


Agenda

- Introduction /Comments
- Prioritization
 - Septic Tanks
 - Methods
 - Environmental vs. Economic
- Sewer Technologies
 - Types: Vacuum, STEP, Gravity
 - Section Process
- Partners
 - Review fact sheet
 - Gather support

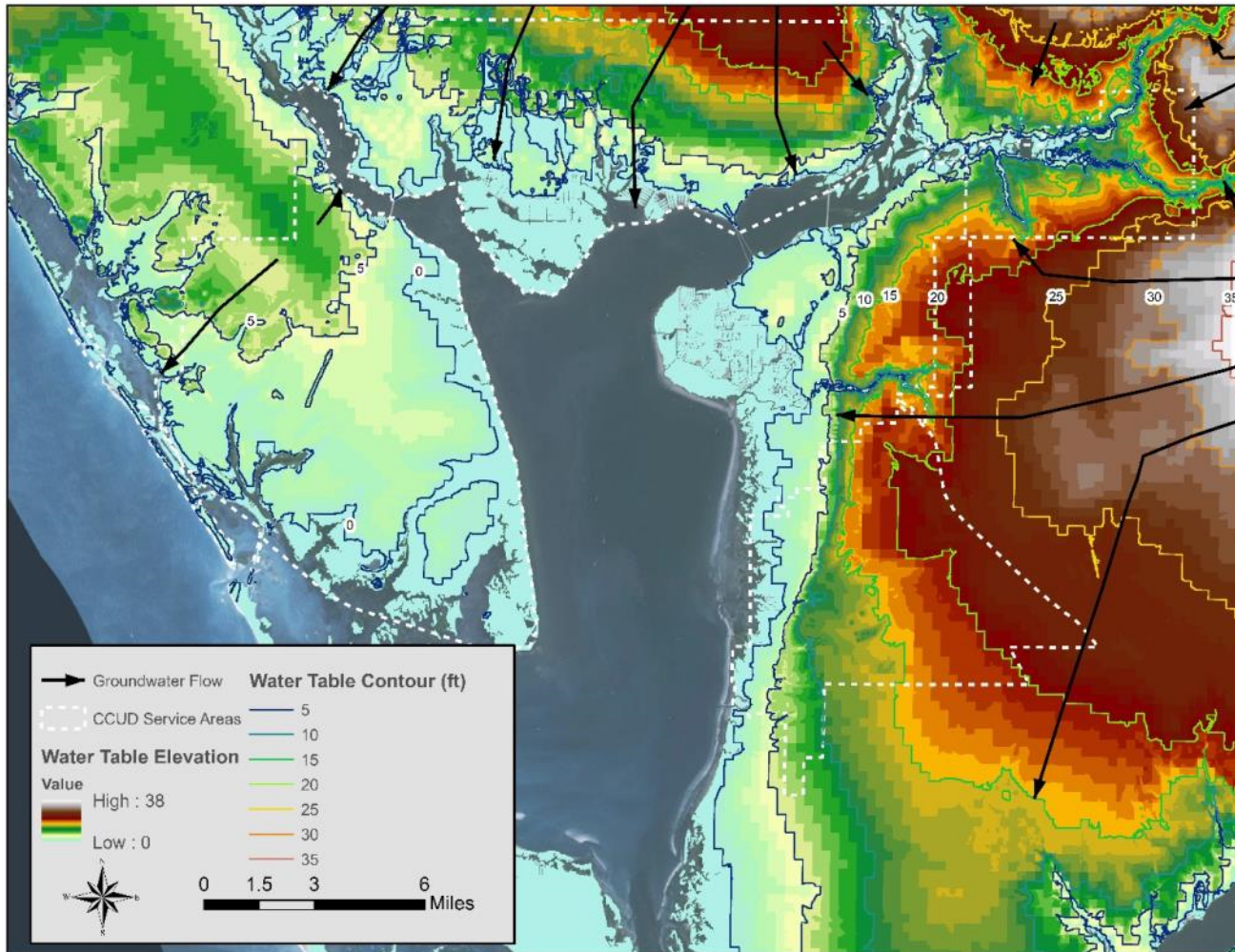


Septic Tanks: A Primary Nutrient Source

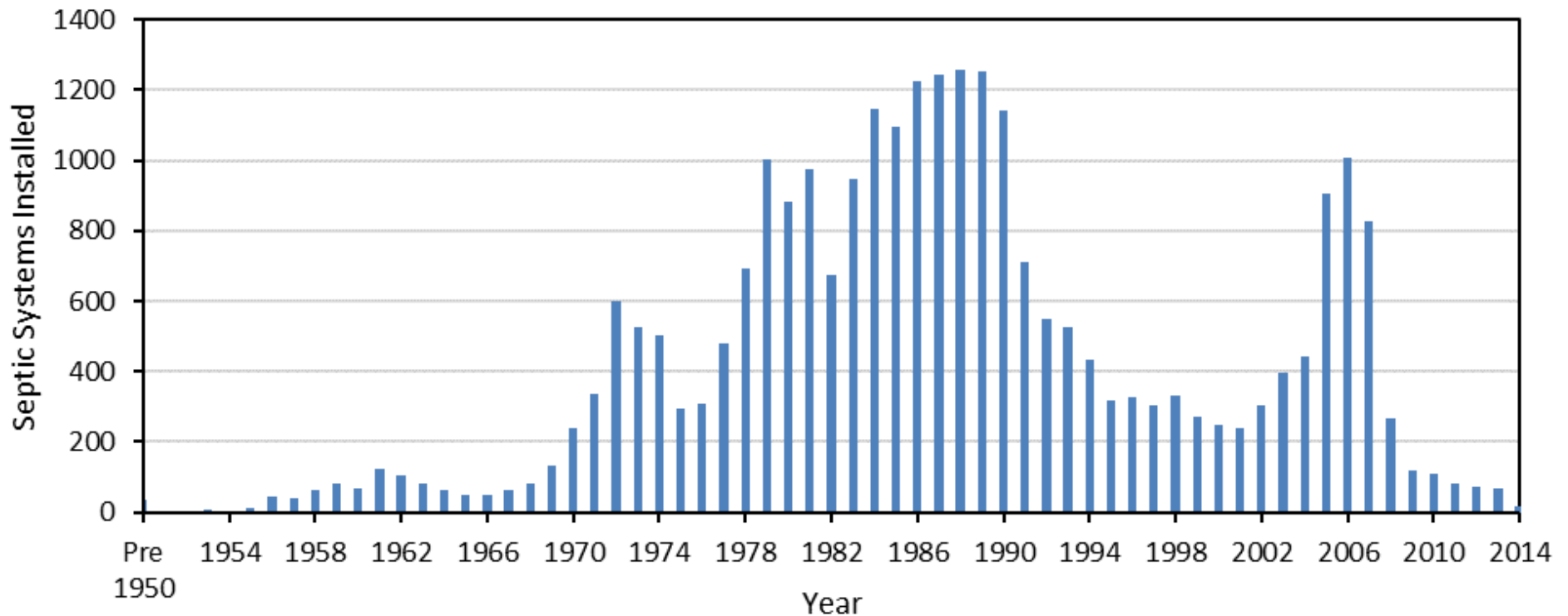


- 28,000 septic tanks
- 96,485 residential lots at risk
- Septic tanks designed to discharge nutrients
- Local water table is close to surface

Septic Tanks: Groundwater Flow

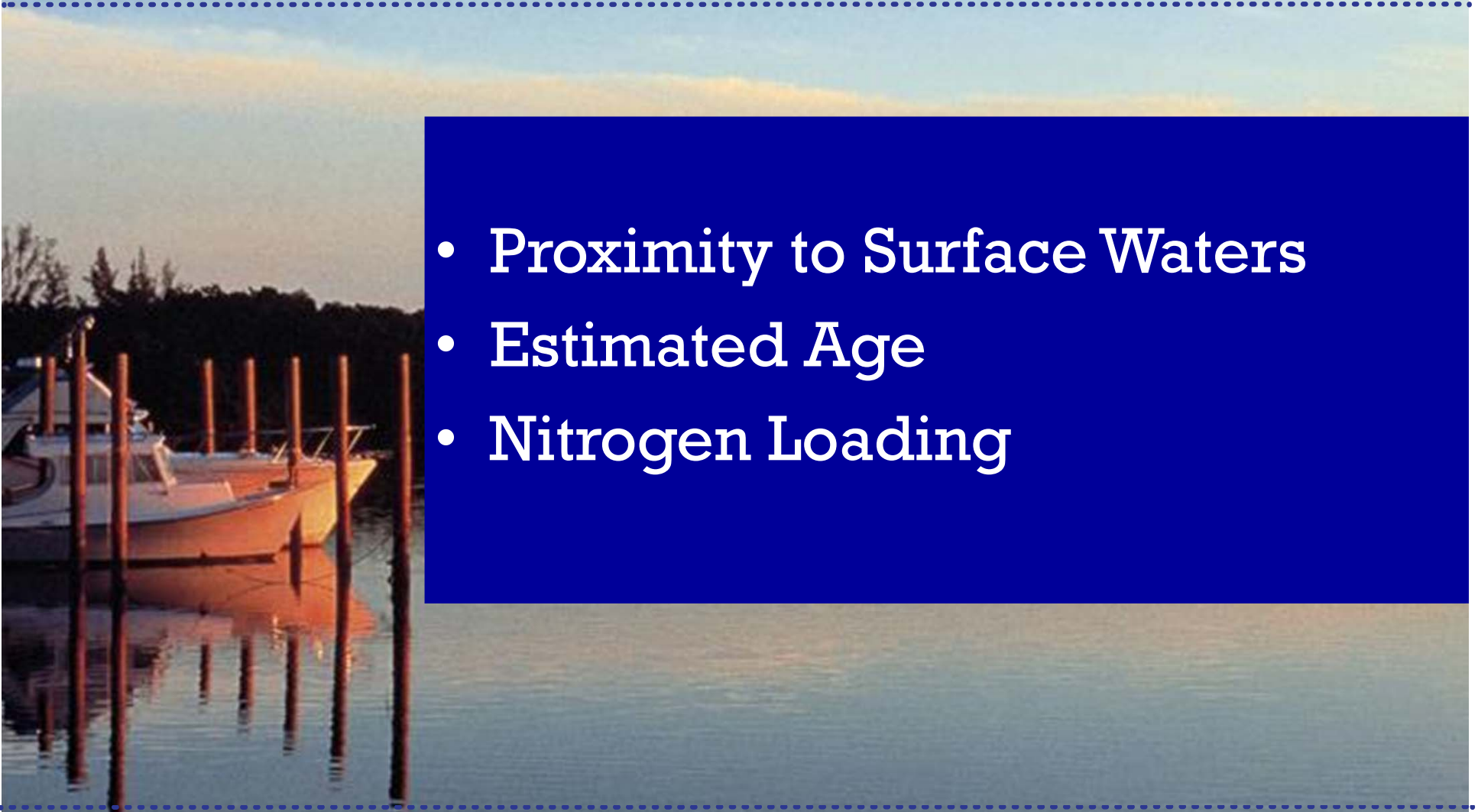


Septic Tanks: Estimated Installation Years

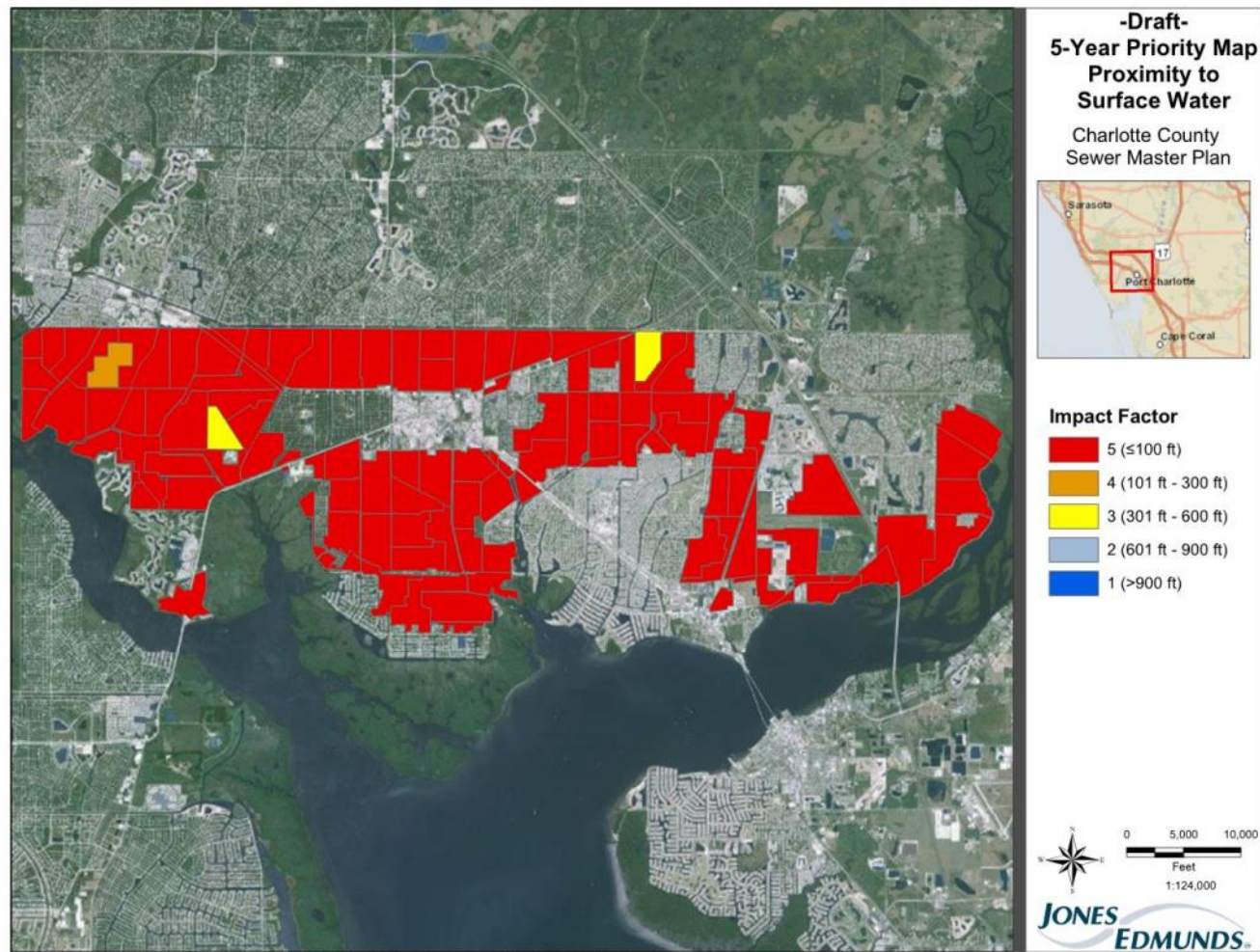


Septic Tanks: Environmental Criteria

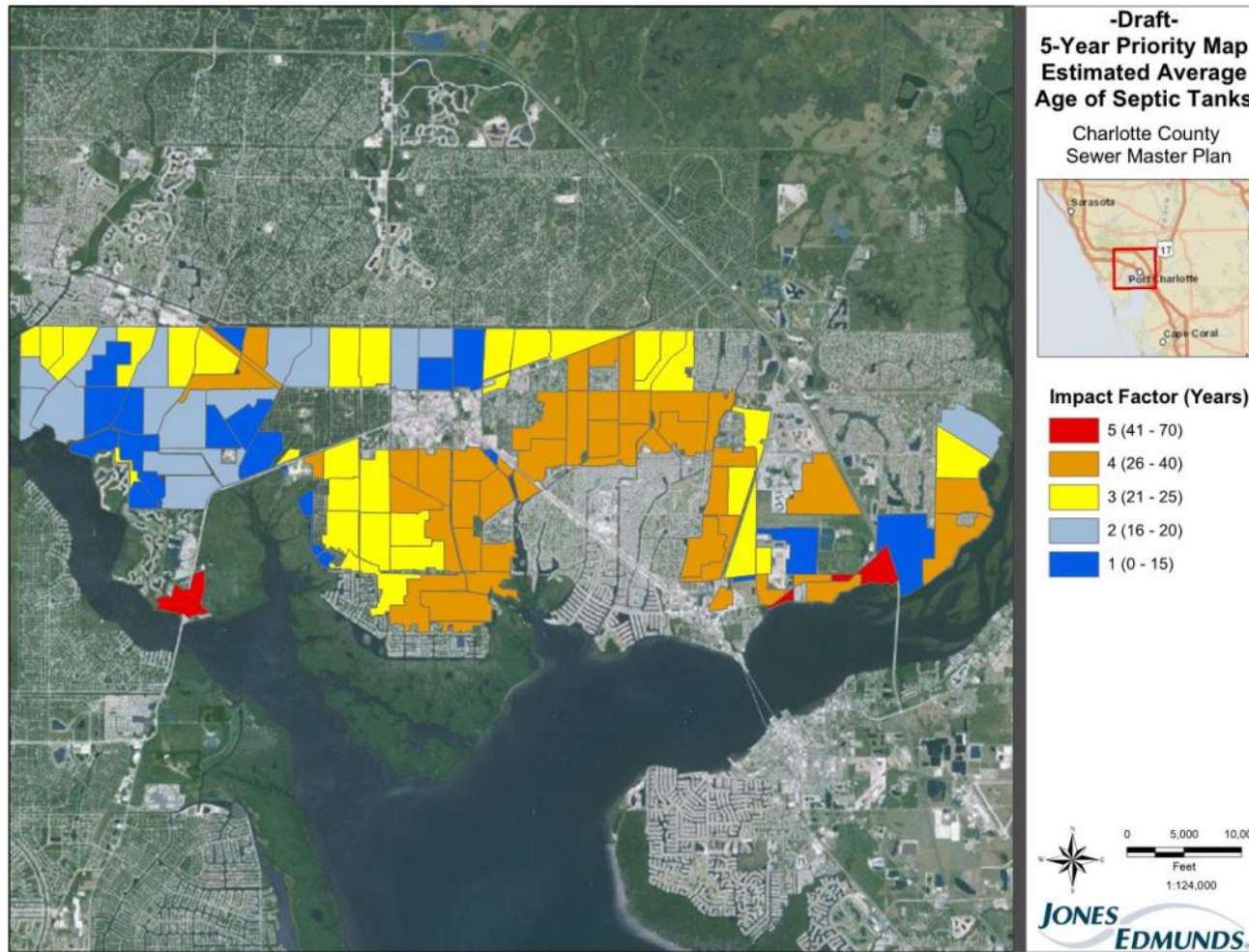
- Proximity to Surface Waters
- Estimated Age
- Nitrogen Loading



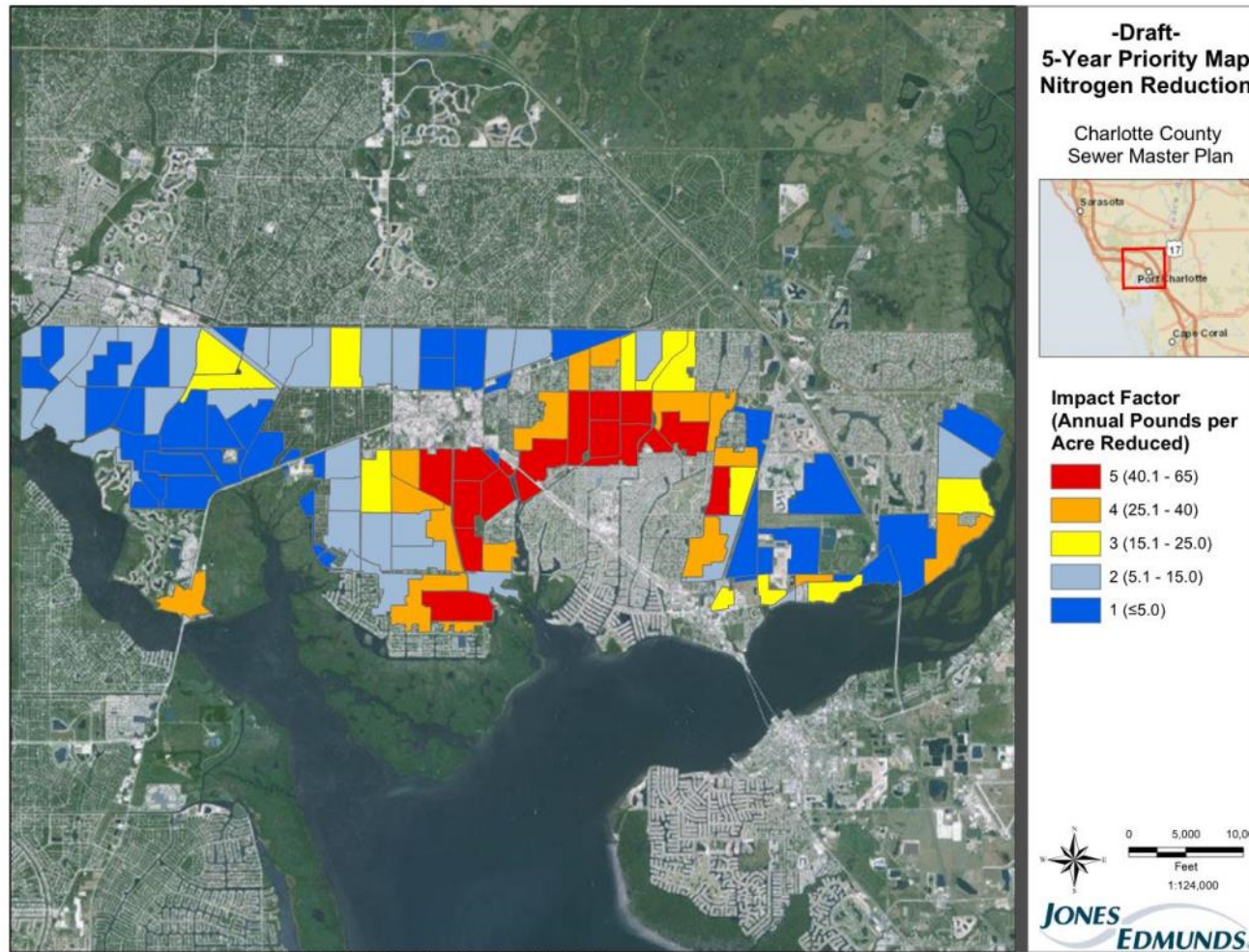
Septic Tanks: Proximity to Surface Waters



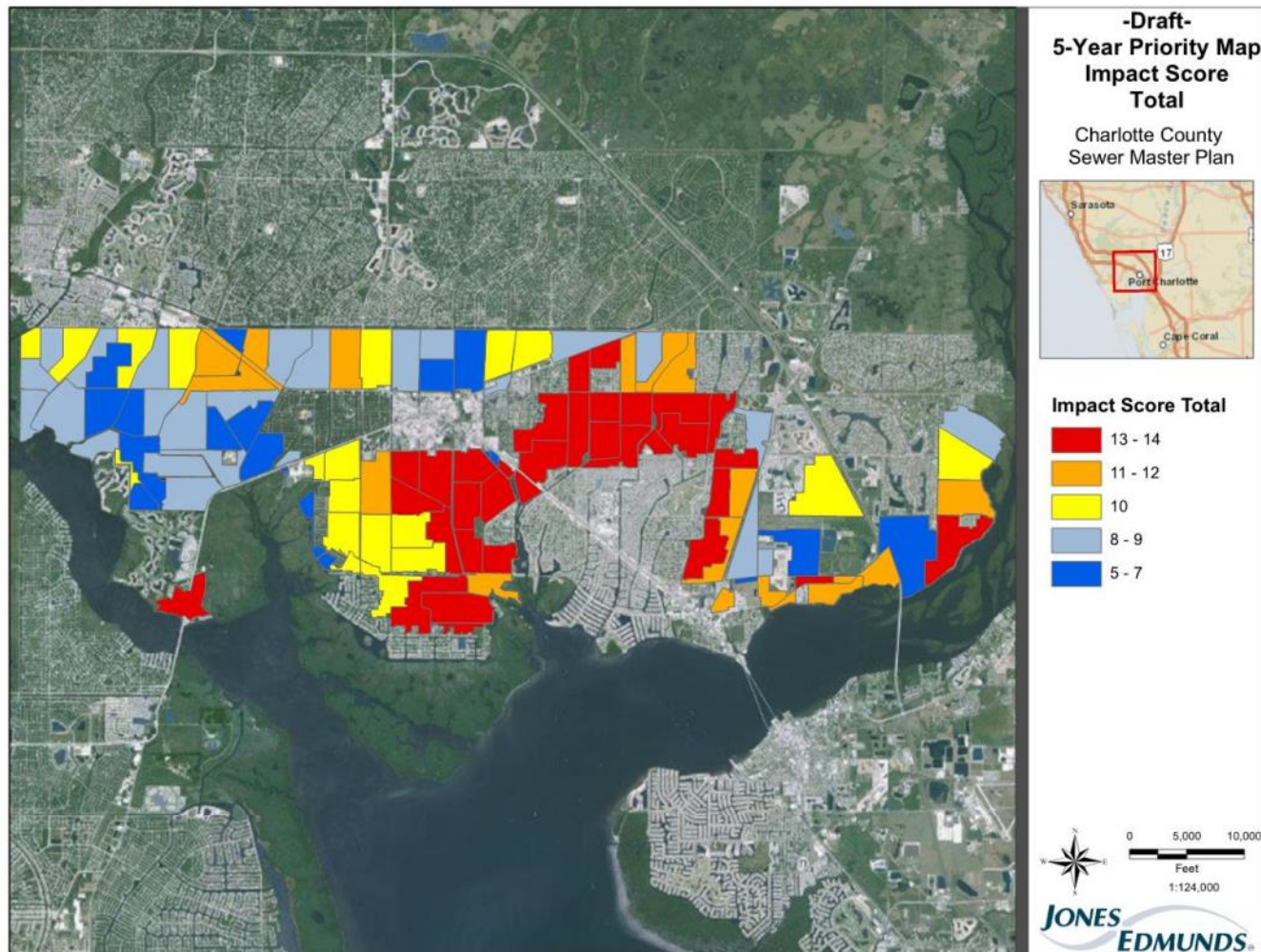
Septic Tanks: Estimated Age



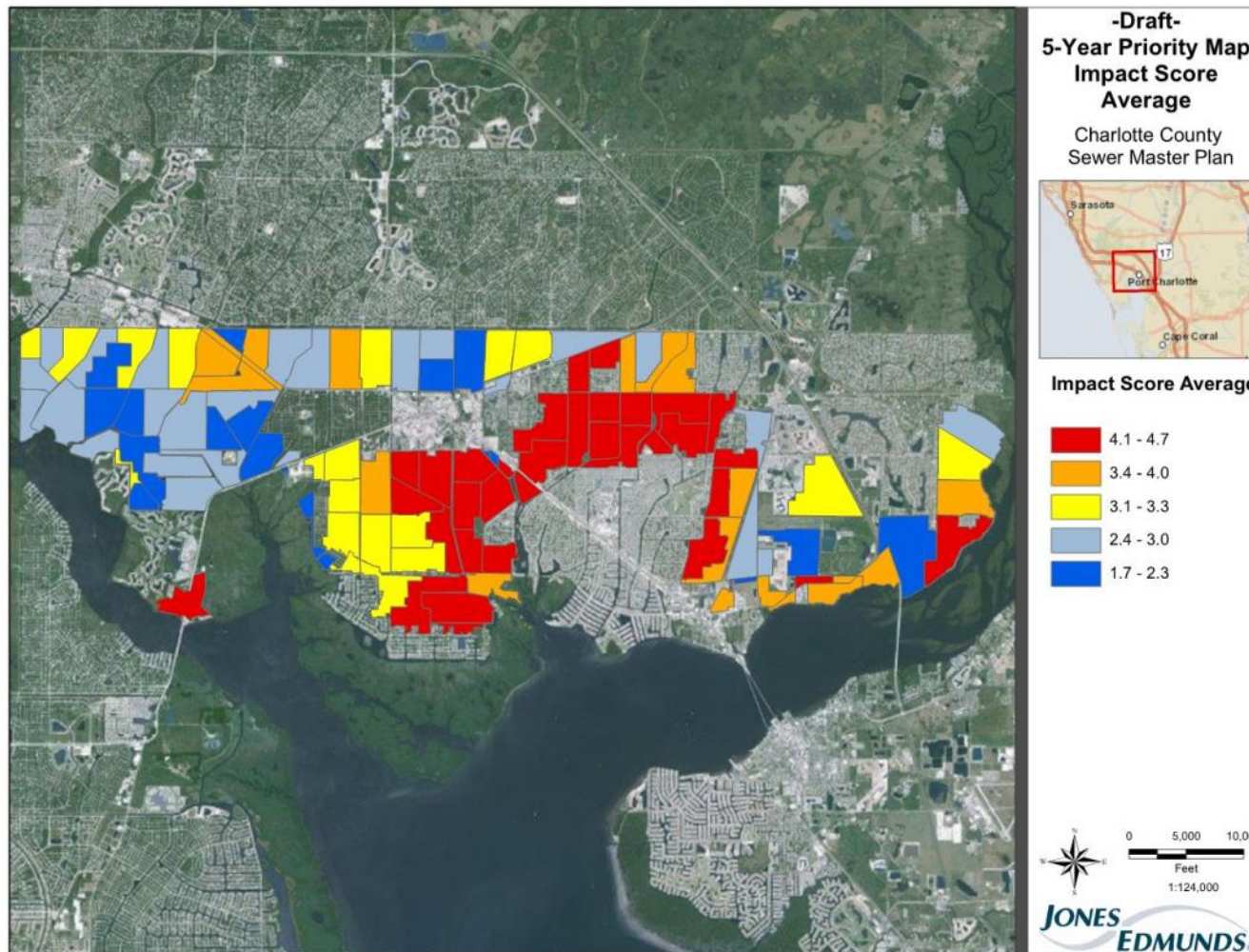
Septic Tanks: Nitrogen Loading



Septic Tanks: Overall Ranking



Septic Tanks: Overall Ranking



Septic Tanks: Environmental & Economics



Environmental Goals

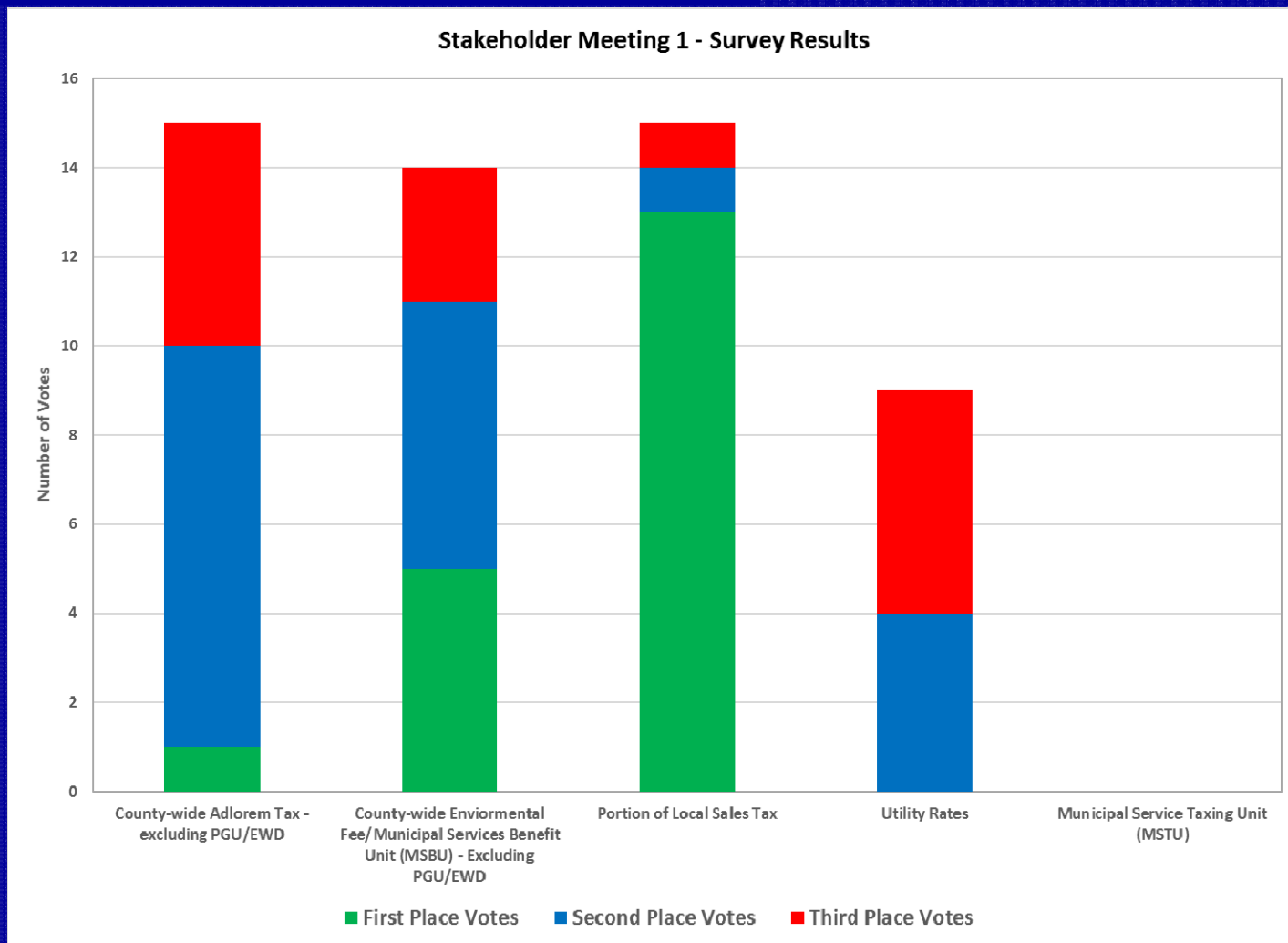
**Customer
Affordability &
Accommodation**



**Fiscal Constraints
(Utility/County)**



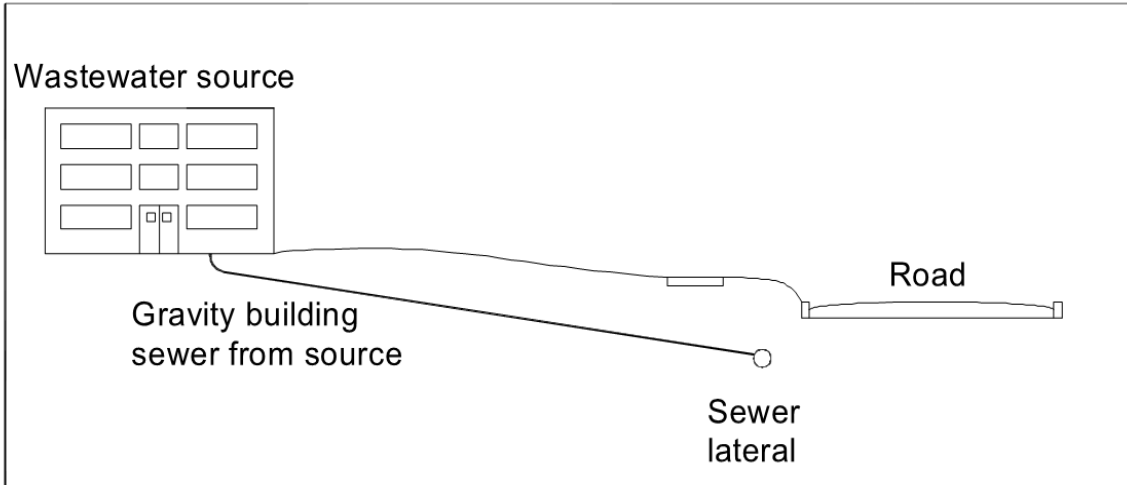
Septic Tanks: Environmental & Economics



Sewer Technologies: Types Considered

- Gravity
- Septic Tank Effluent Pumping (STEP)
- Vacuum

Sewer Technologies: Gravity



- Gravity flow to lift station
- Pipes typically 3' to 12' deep
- Larger pipes
- Highest commuter disturbance

Sewer Technologies: Vacuum



- Flow to vacuum station
- Pipes typically 3' to 5' deep
- Smaller pipes
- Moderate commuter disturbance

Sewer Technologies: STEP



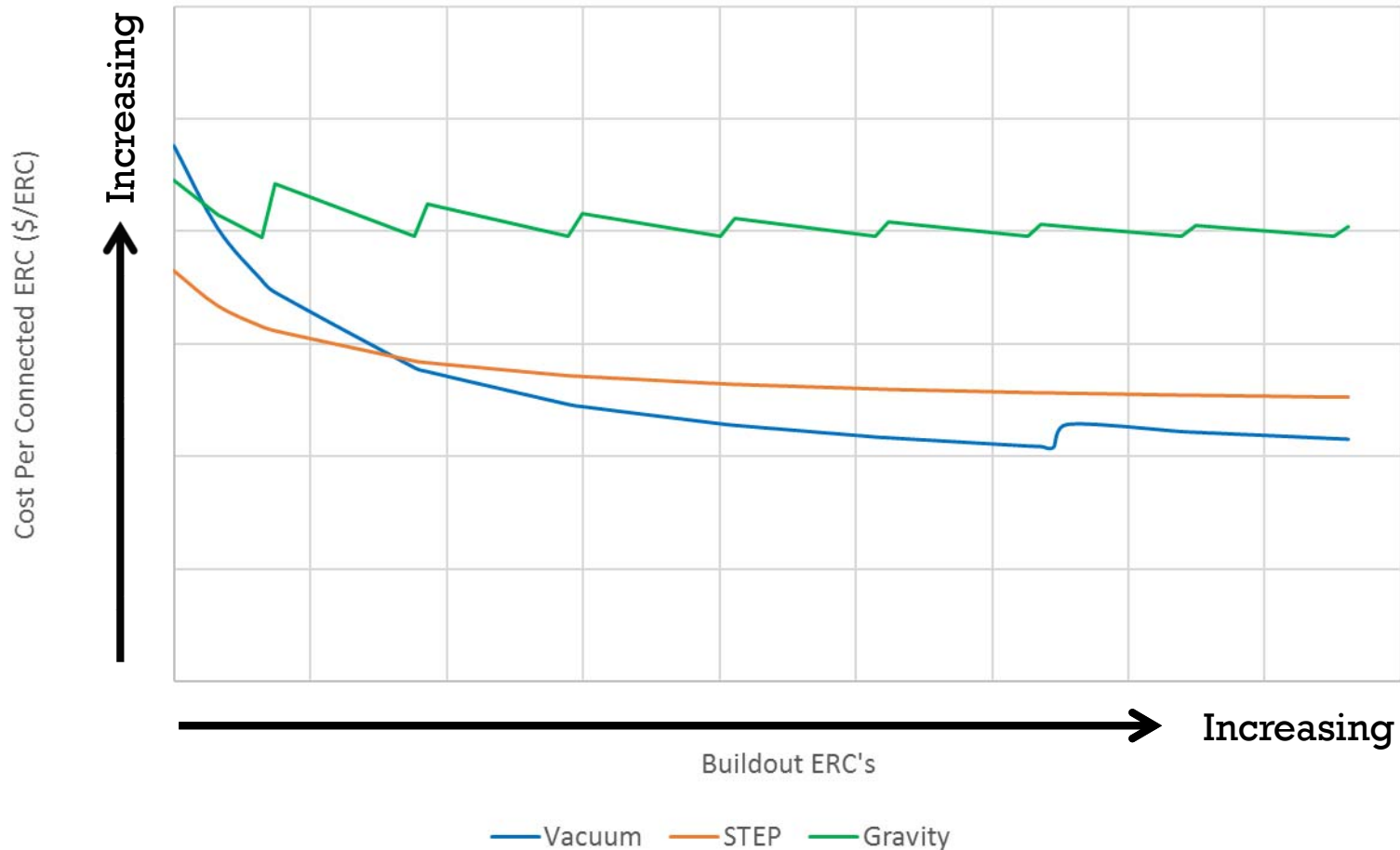
- Pumps septic tank effluent to lift station
- Pipes typically 3' deep
- Smallest pipes
- Moderate commuter disturbance

Sewer Technologies: Selection Process

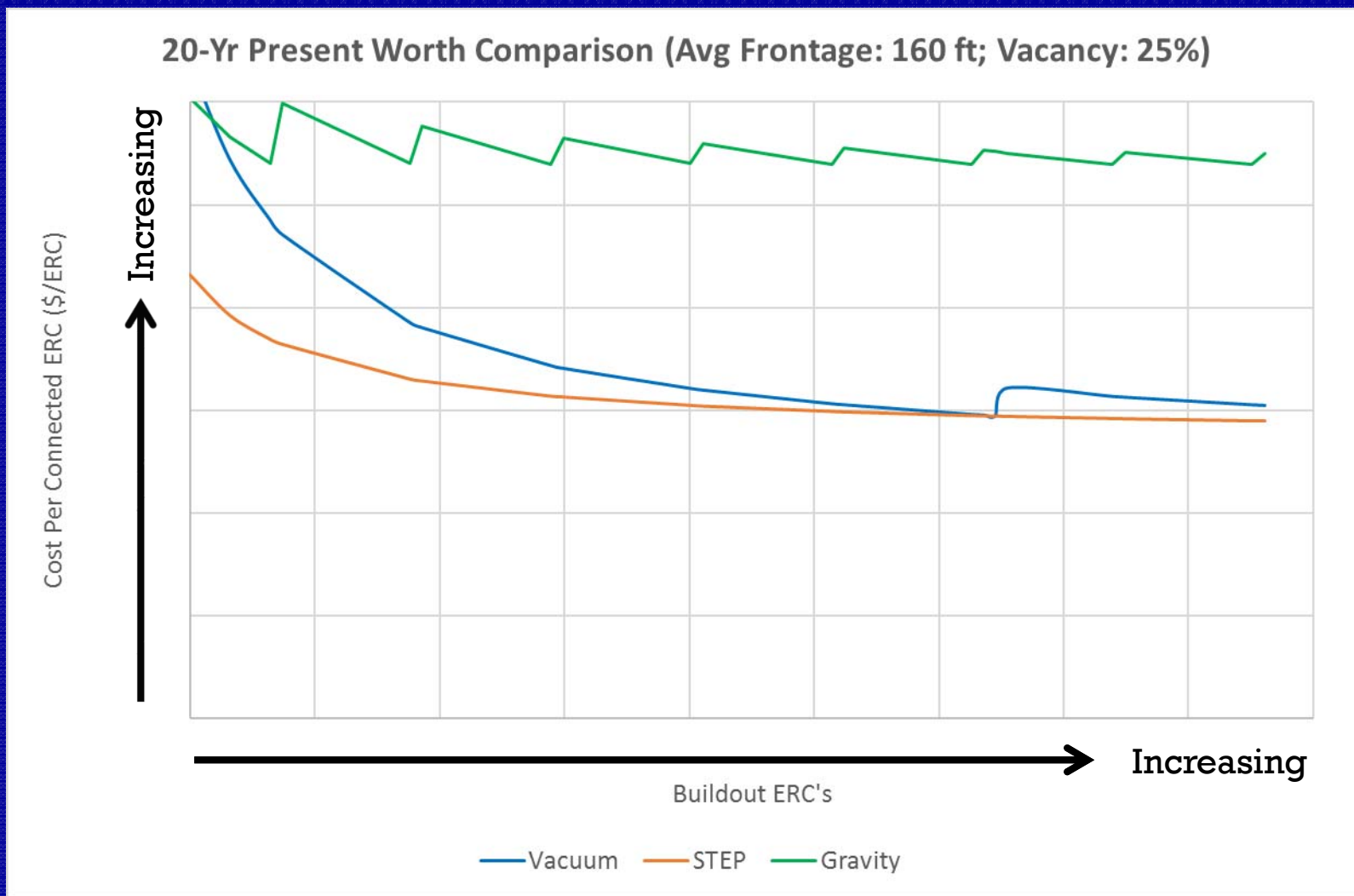
Sewer System Technology	Capital Cost	Annual O&M Cost	20-Yr Present Worth
Gravity	Generally Highest	Lowest	Depends on System
STEP	Generally Lowest	Generally Highest	Depends on System
Vacuum	Generally High (Smaller or Low Density Areas) Generally Low (Larger High Density Areas)	Generally Low	Depends on System

Sewer Technologies: Selection Process

20-Yr Present Worth Comparison (Avg Frontage: 160 ft; Vacancy: 0%)



Sewer Technologies: Selection Process



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Questions