

Thames Street & Wellington Avenue Sewer Rehabilitation Projects

Second Informational Meeting

City of Newport
City Hall Council Chambers

February 25th 2010



Introductions

- **City of Newport – Department of Utilities**
 - Julia Forgue, P.E. – Director of Utilities
- **CH2M HILL Project Team**
 - Peter von Zweck, P.E. – Project Manager
 - Alan Johnson, P.E. – Lead Designer
 - Becky Weig, P.E. – Public Involvement Coordinator
 - Joe Giordano, P.E. - Traffic Control

Agenda

- **Project Overview**
- **Wellington Avenue – Interceptor Replacement**
 - Project Overview
 - Results of Survey from 1st Public Meeting
 - Proposed Improvements
 - Construction Schedule
- **Thames Street – Interceptor Rehabilitation**
 - Results of Survey from 1st Public Meeting
 - Rehabilitation Alternatives and Impacts
 - Vehicular & Pedestrian Traffic Control Options
- **Schedule for Next Public Meeting**
- **Questions & Discussion**

PROJECT OVERVIEW

Components of the Thames Street and Wellington Avenue rehabilitation projects...

Project Drivers

Project Location

Planning & Design Process

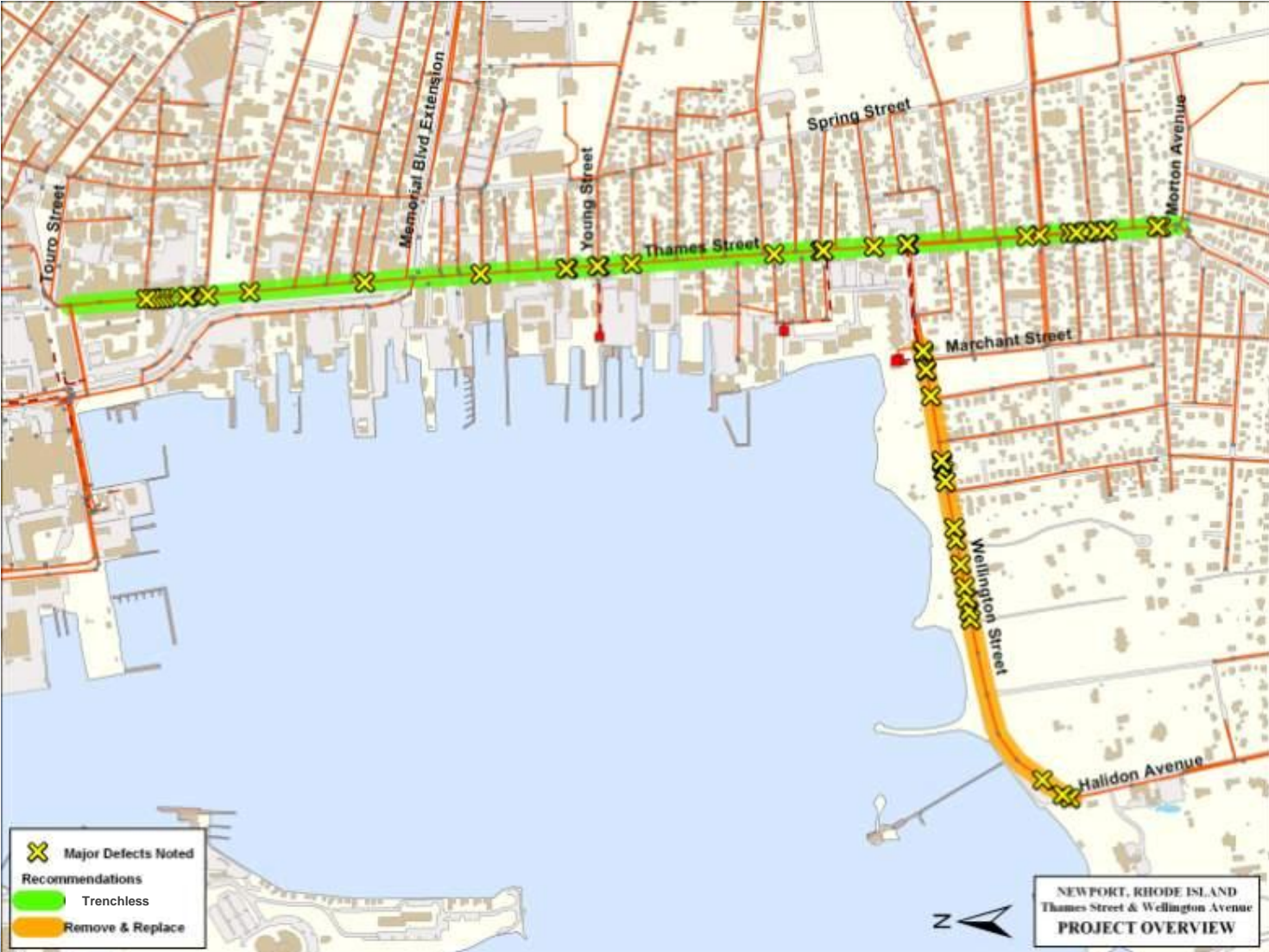
Newport's Critical Sewer Infrastructure

- **The City of Newport owns approximately 97 miles of sanitary sewer pipelines, many of which have been in operation for over 100 years**
 - Originally designed to collect both sanitary and storm water flows
 - The system overflows to receiving waters during wet weather events
 - Overflows violate Clean Water Act

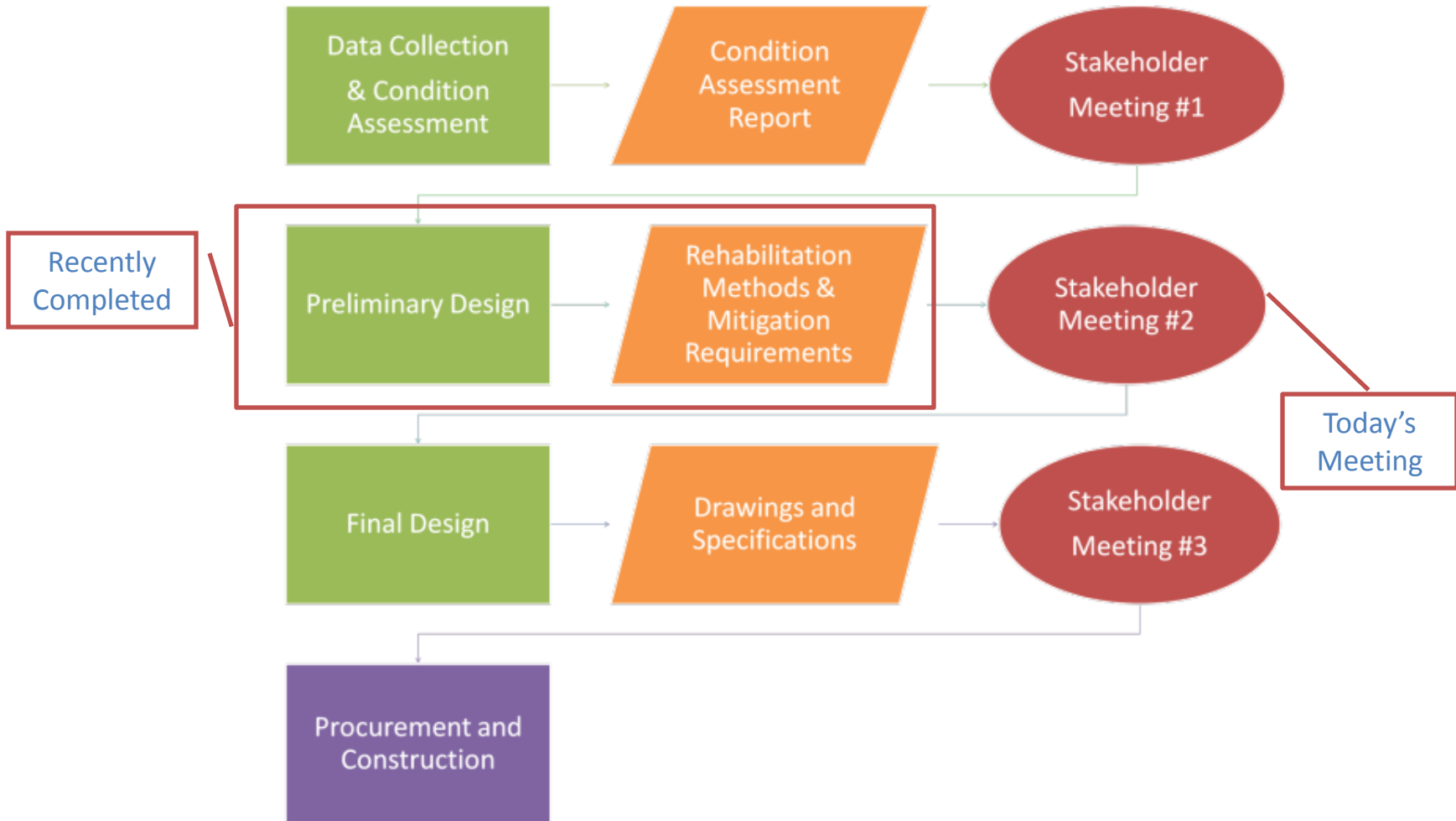


- **Wellington Avenue Interceptor**
 - Primary conduit to Wellington Avenue CSO Facility
 - Poor condition
- **Thames Street Interceptor**
 - +/- 100 year-old brick sewer
 - Runs the length of the Thames Street business district
 - Serves the business district and the southern half of the city's population
- **A loss of either of these sewers could cause:**
 - Significant loss of service for the community
 - High-cost emergency repairs
 - Loss of business revenue
 - Environmental degradation

Thames St. & Wellington Ave. Sewer Rehabilitation Project Location



Overview of the Planning & Design Process



WELLINGTON AVE. INTERCEPTOR REPLACEMENT

Current project status...

Project Overview

Proposed Improvements

Results of Survey from 1st Public Meeting

Anticipated Construction Impacts/Mitigation

Construction Schedule

Wellington Ave. Condition

Observed Defects	Failure Risk	Condition
Spalling pipe	Increased surface roughness, loss of capacity, eventual sewer collapse	Structural
Sags, poor vertical alignment	Reduces pipe capacity, traps debris	Structural and Operations & Maintenance
Break-in service taps	Reduces overall structural integrity of pipeline	Structural
Broken pipe, cracks, and holes in pipe	Reduces overall structural integrity of pipeline, risk of pipe failure	Structural
Inflow and Infiltration (I/I)	Allows storm water into sanitary sewer increasing risk of overflows	Operations & Maintenance and Structural
Mineral deposits, grease, accumulated debris	Reduces pipeline capacity	Operations & Maintenance



Sag, poor vertical alignment

Spalling concrete pipe



Spalling concrete pipe



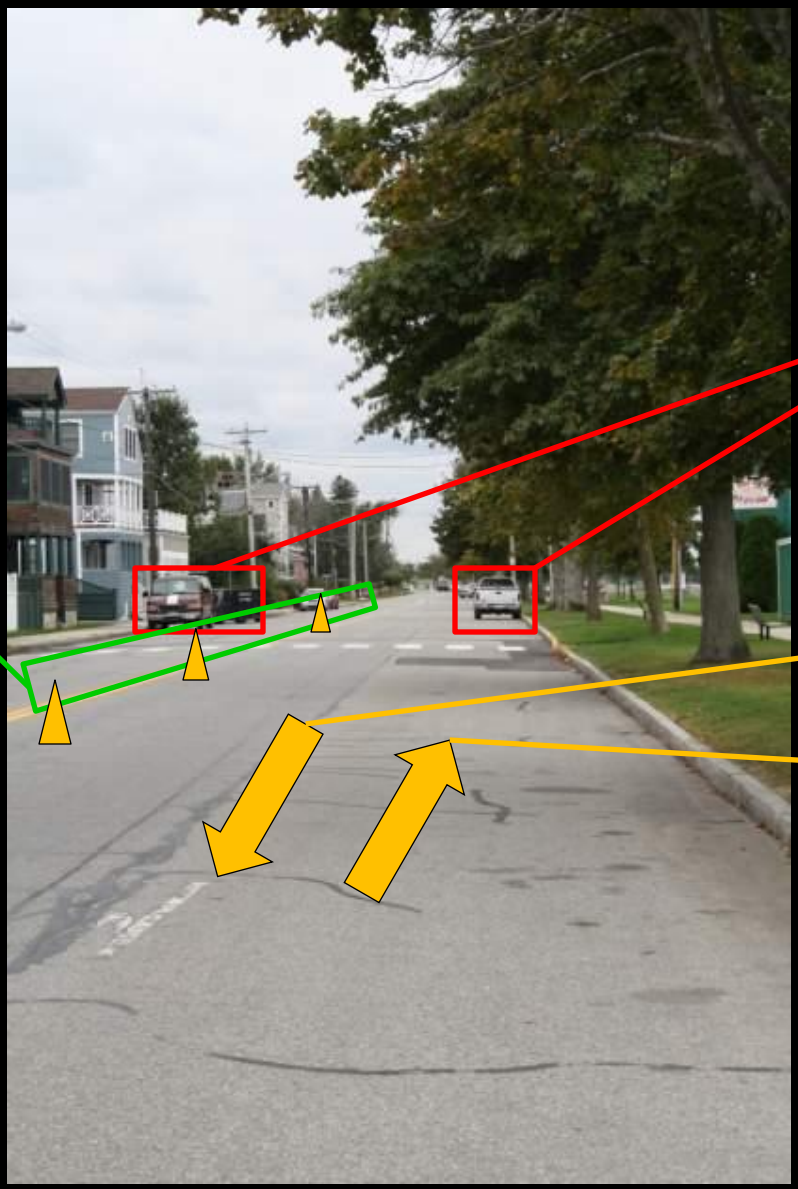
Protruding tap



Wellington Ave. General Construction Process

- **Open-Cut Construction**
 - Relatively shallow depths makes traditional technology economical
 - Trench is excavated, pipe is installed, and opening is backfilled, paving will follow
 - Common construction practices – local contractors may be interested
 - Realign to improve O&M
- **Construction Duration**
 - Major construction activities complete in about 60 working days
 - Project completion in about 90 working days
- **Construction Timing**
 - Standard work day:
 - Mon – Fri
 - 7 AM – 5 PM
- **Safety**
 - Excavations will be closed or covered at the end of each workday
 - OSHA safety practices required
- **Nuisance Control**
 - Contractor required to minimize odors
 - Construction hours restricted to control noise pollution
 - No debris or waste stockpiles to help control litter and pollution
- **Traffic Issues**
 - Space available for 2-way traffic
 - Minimal pedestrian traffic disruption
 - On-street parking will be restricted or eliminated in work zones
 - Provide overnight access to driveways

Wellington Ave. General Construction Processes



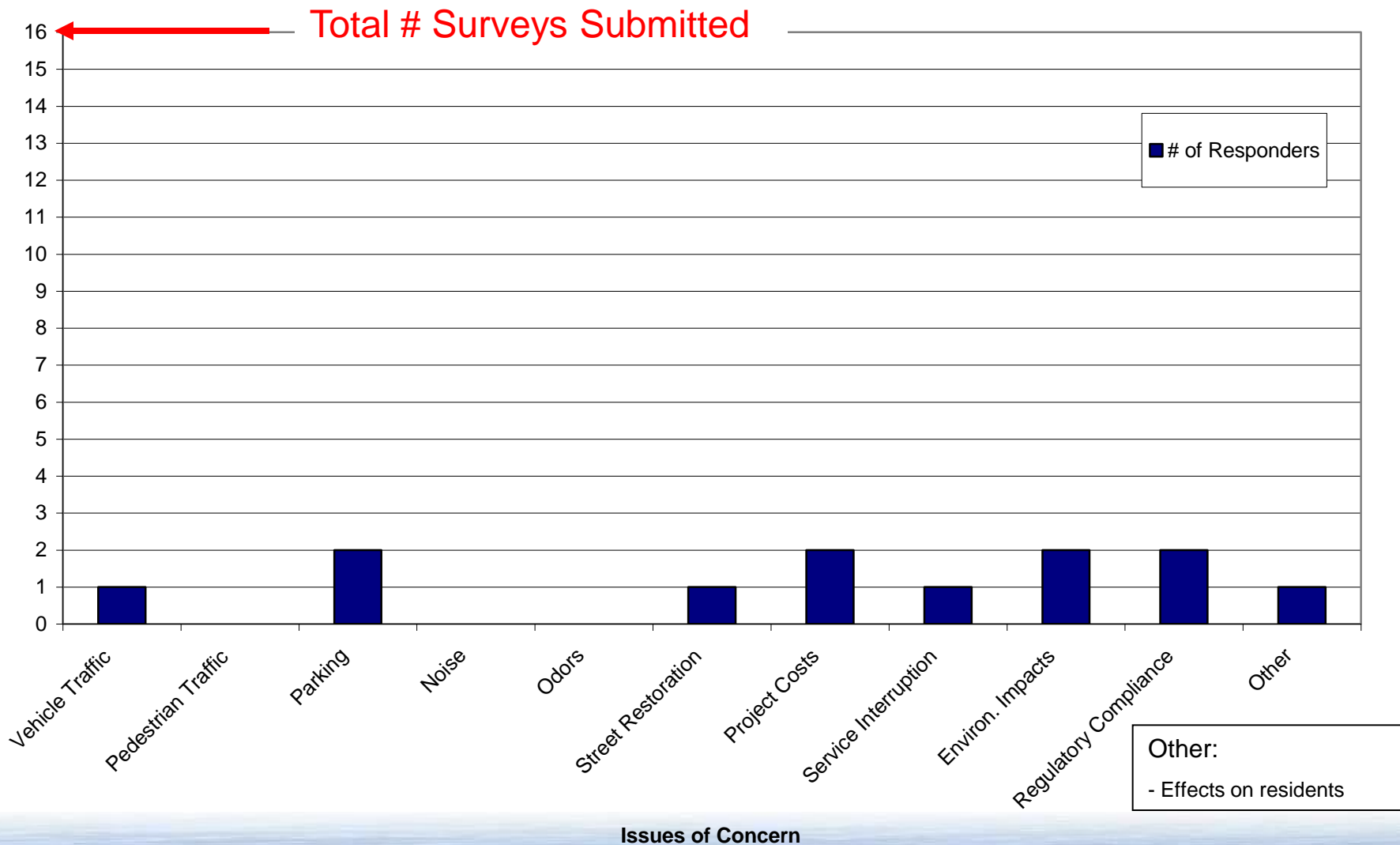
Work zone

Restricted on-street parking in work zone

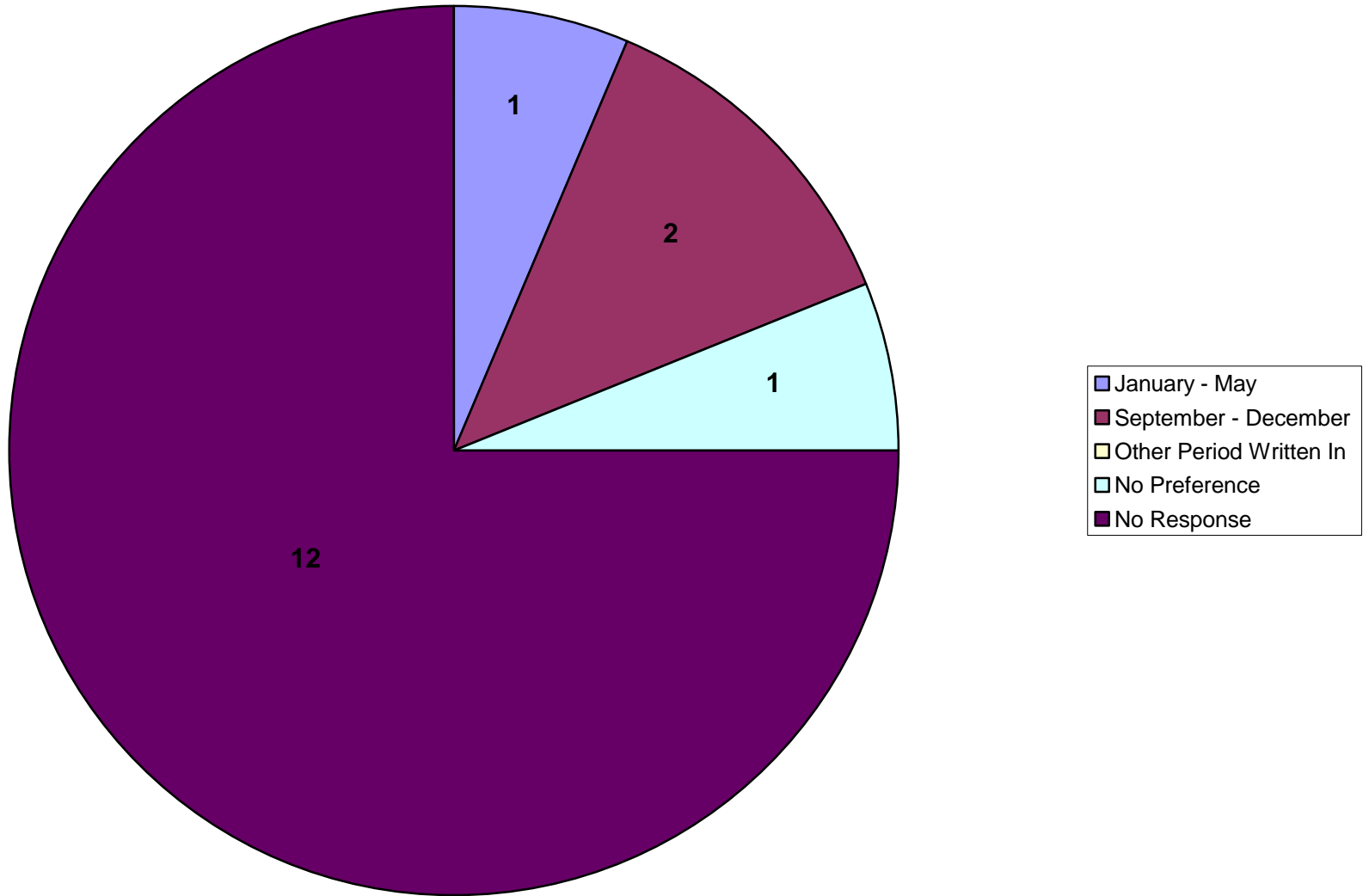
Maintain 2-way traffic

Wellington Ave. Issues of Concern

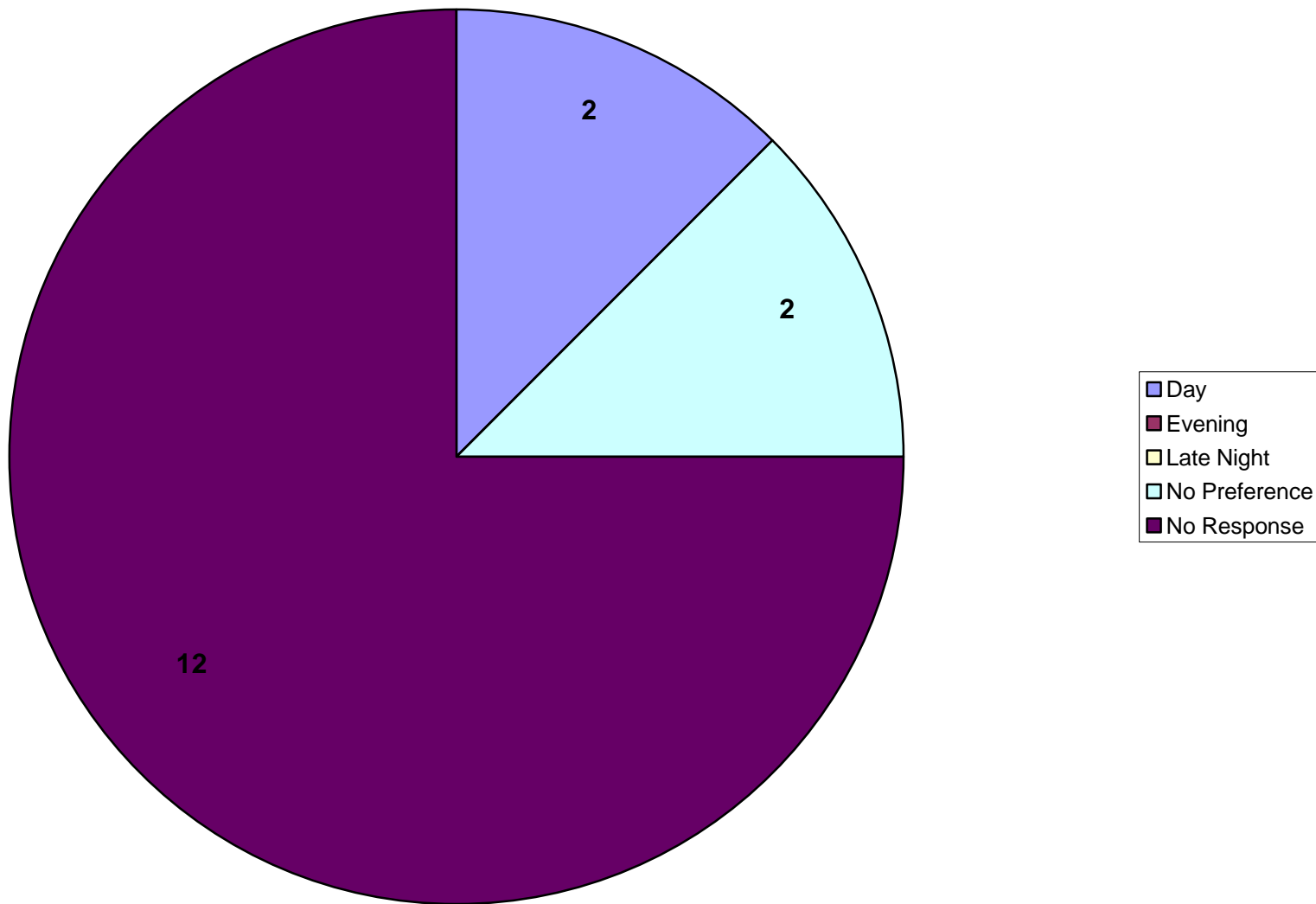
Wellington Ave. Issues of Concern



Wellington Ave. Preferred Construction Season



Wellington Ave. Preferred Construction Hours

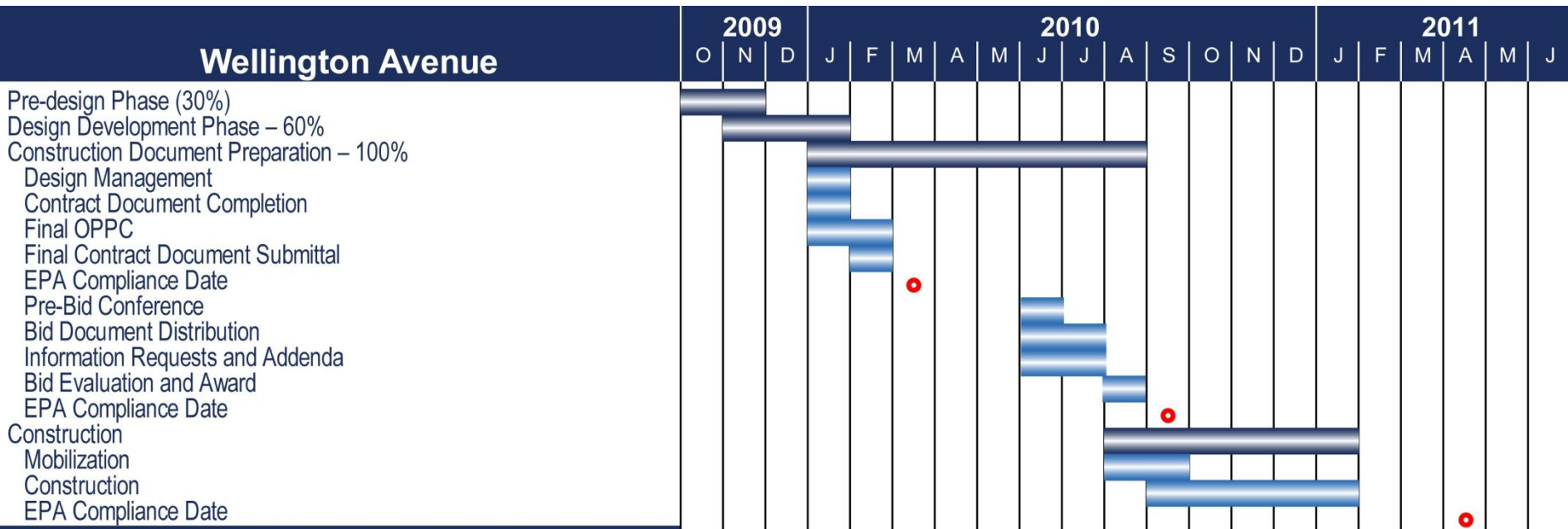


Wellington Ave. Anticipated Construction Impacts/Mitigation

<u>Anticipated Impacts</u>	<u>Mitigation Measures</u>
Traffic disruptions	2-way traffic will be maintained
Parking along Wellington Ave. may be limited	Only parking spots needed to maintain 2-way traffic will be closed
Driveway access for Wellington Ave. residences may be blocked for short periods during the day	<p>Construction schedule updates will be posted on the City's web-site</p> <p>Residents will be notified in person by resident engineer a day prior to driveway blocking so cars can be parked on street</p> <p>Trench will be filled and covered at the end of each work day and driveway access reinstated for overnight hours</p>
Side street access from Wellington Ave. may be limited	Side street traffic will be detoured around Wellington Ave. construction areas

Wellington Ave. Construction Schedule

- Construction Duration: 4 Months
- Construction expected to slide from planned April 2010 start date to Fall 2010 start date
- Must meet EPA compliance date for construction completion



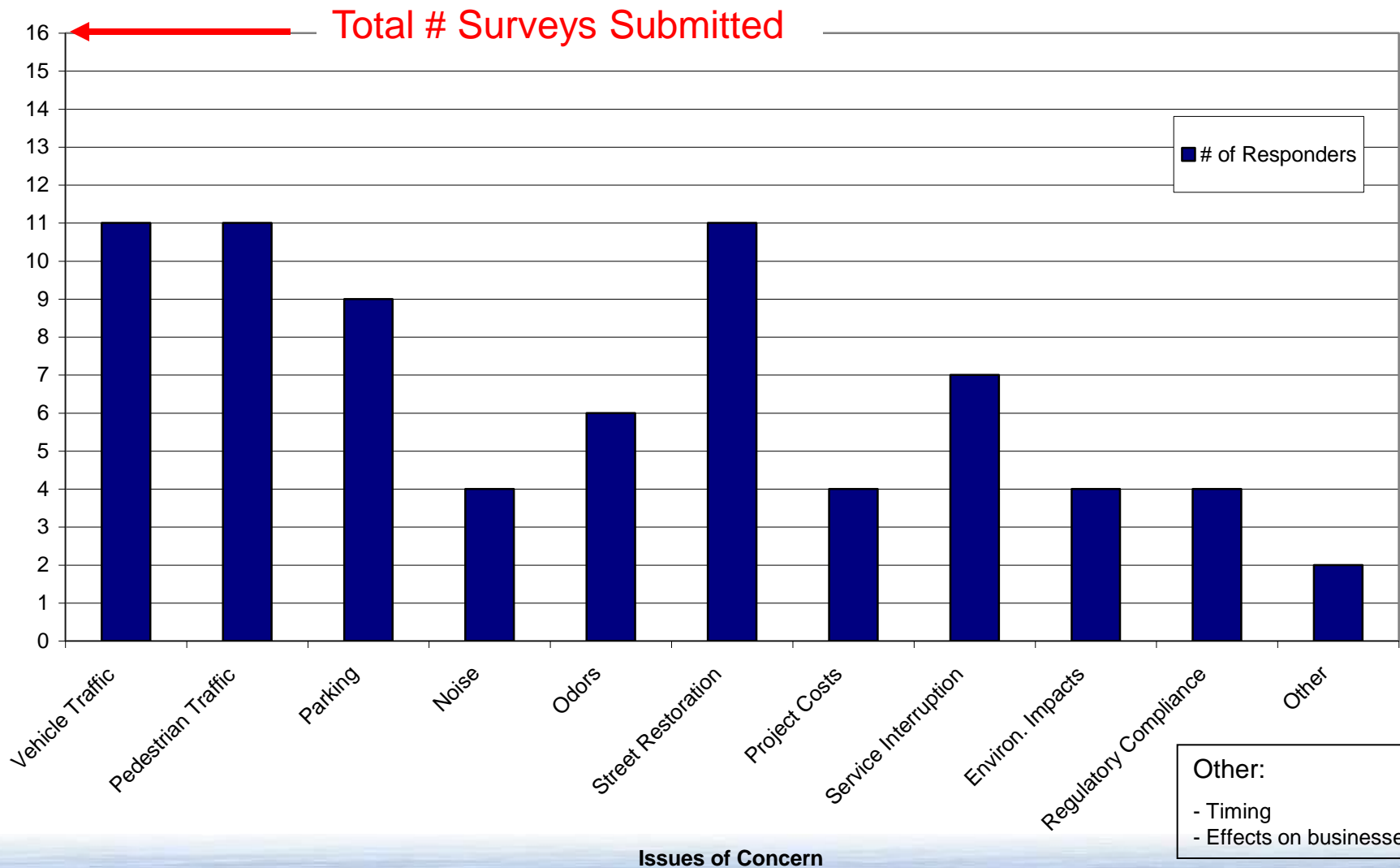
Thames St. Interceptor Rehabilitation

Current project status...

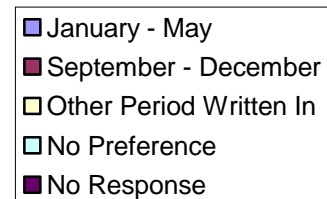
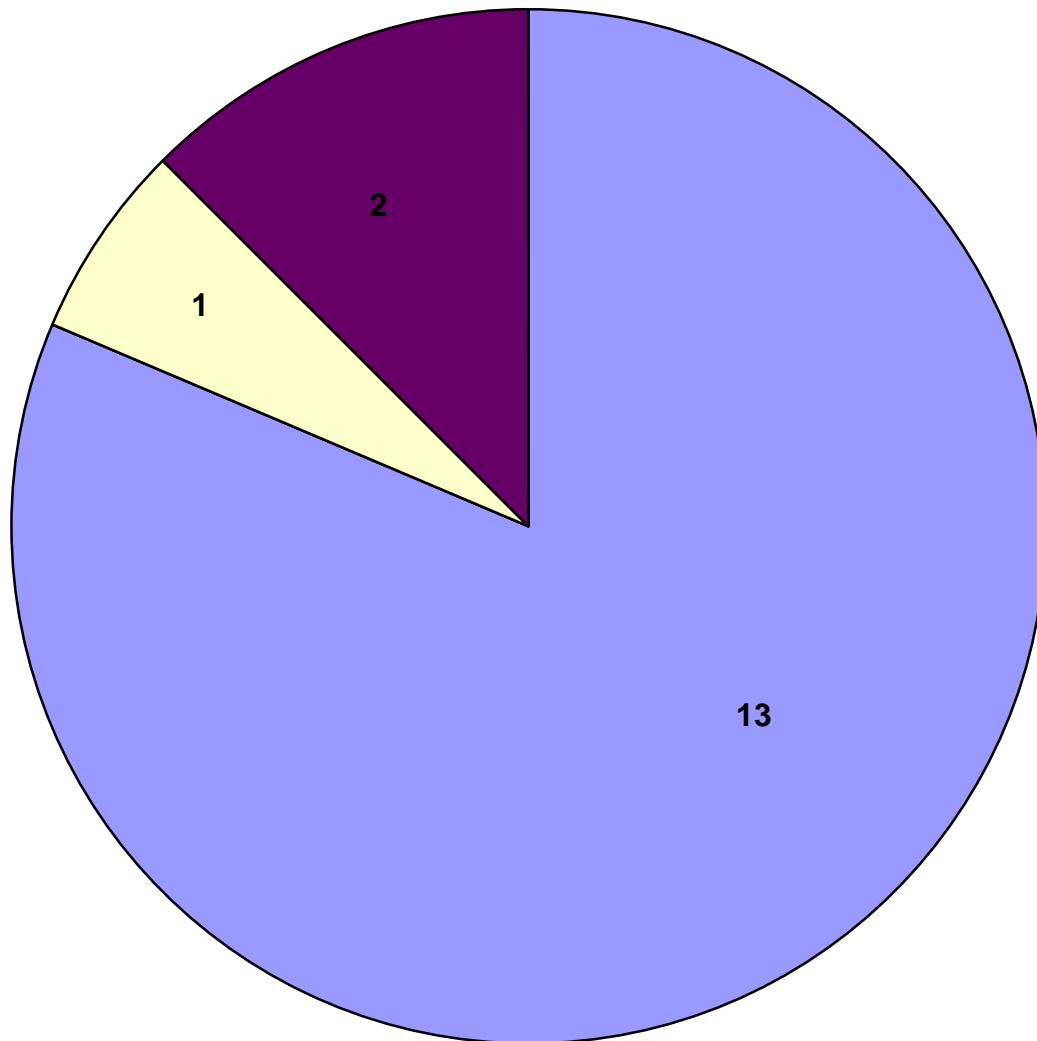
- Results of Survey from 1st Public Meeting
- Project Status Update
- Change in Selected Rehabilitation Technology

Thames St. Issues of Concern

Thames St. Issues of Concern

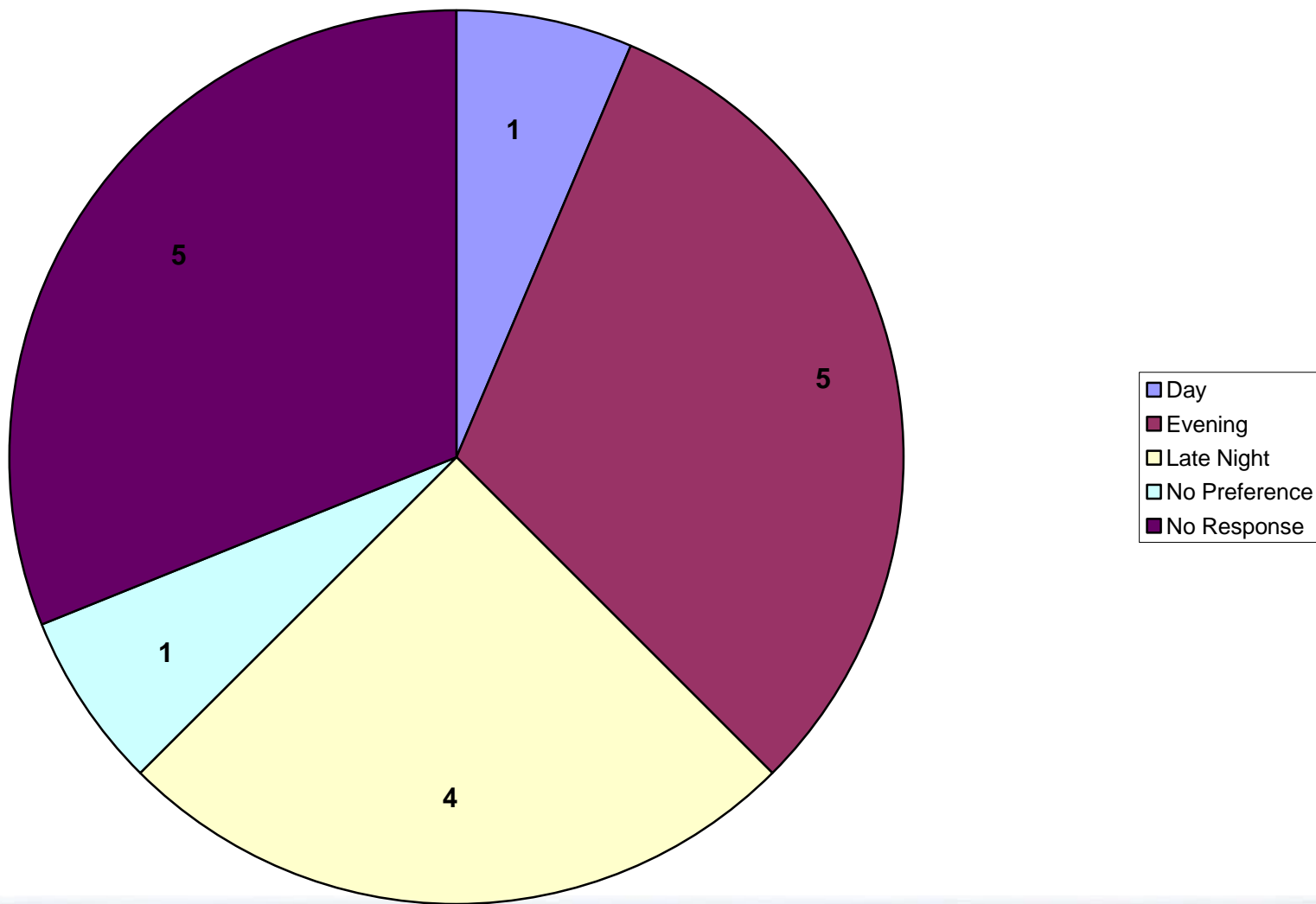


Thames St. Preferred Construction Season



Other period written in:
November - January

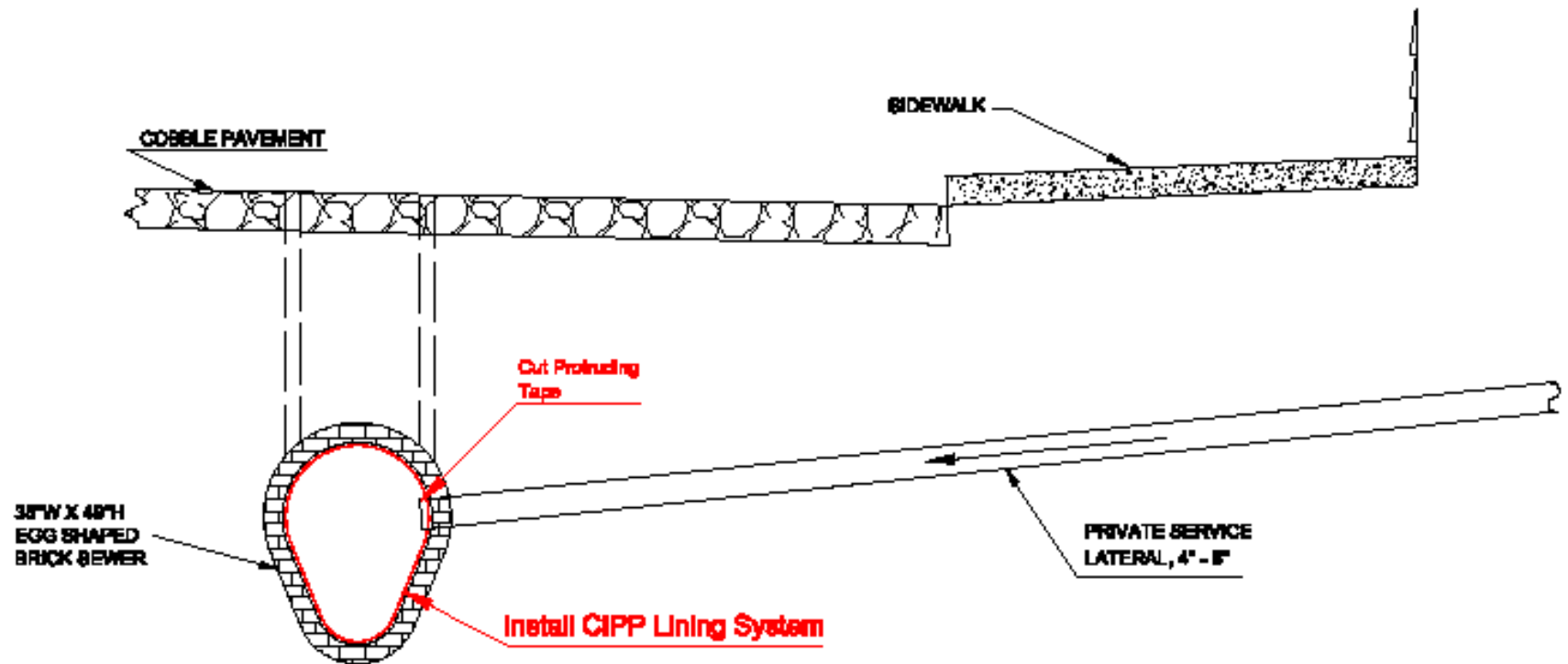
Thames St. Preferred Construction Hours



Thames St. Project Status

- **Condition Assessment completed – reviewed at 1st public meeting**
- **Mapping & survey work 90% complete**
- **Traffic control options developed – will be presented today**
- **Ready to begin design – ran into technical issues with proposed CIPP rehabilitation option**
 - Over 300 service laterals directly into Thames St. interceptor
 - CIPP would require no flow from these laterals during construction & curing
 - Decided to evaluate other options that would have less impact on Thames St. businesses and residents

Option 1 Cured-In-Place Pipe (CIPP) Lining



Pros:

- Less Excavation: Replace Some MH's
- Fairly Fast Construction

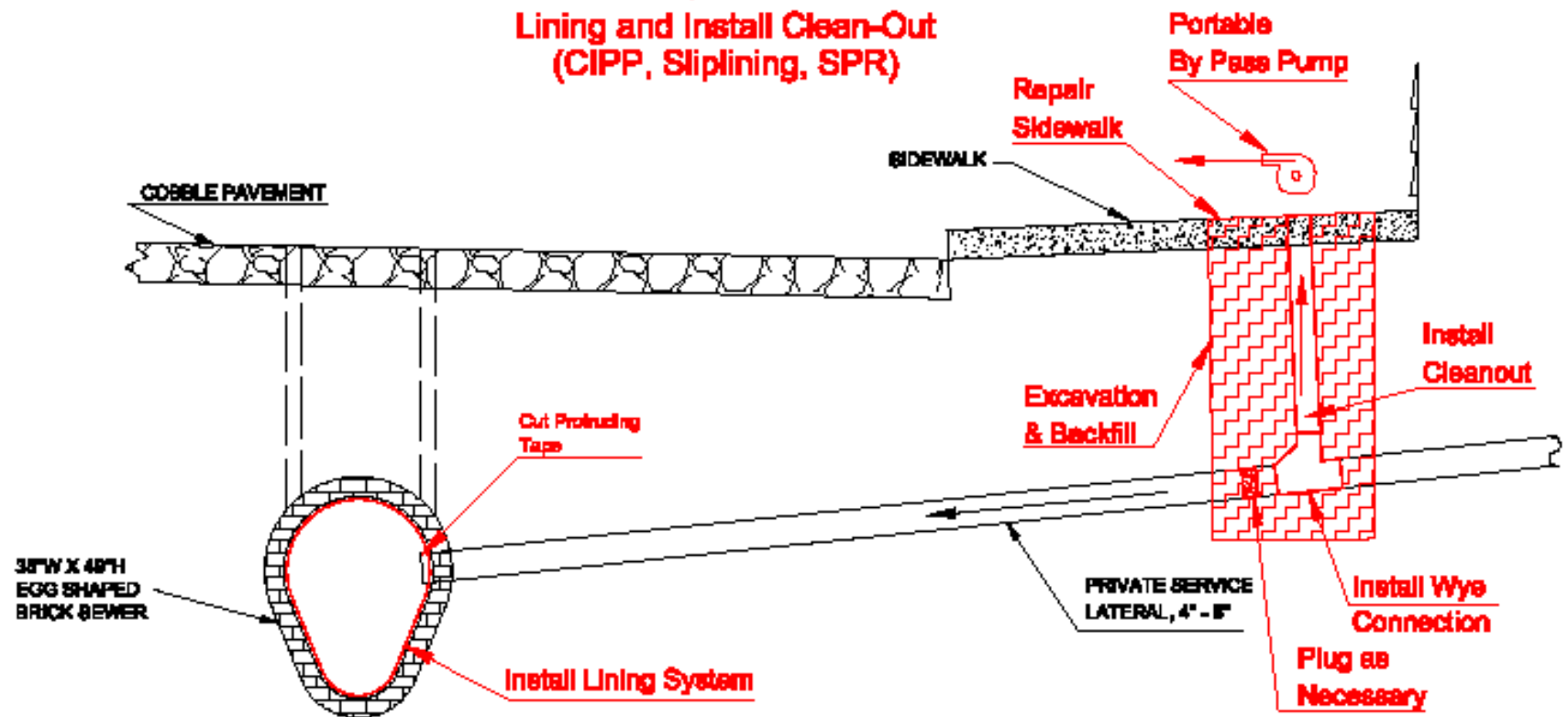
Cons:

- Some By-Pass Pumping Req'd for all Options
- Doesn't Eliminate Services From Interceptor
- Doesn't Improve Maintenance (Services Still Connected, No Clean-outs)
- Requires that water & sewer service be interrupted for 48 hours for each of 300 businesses and residents

Cost Range:

- CIPP \$400 - 600/LF

Option 2 Lining and Install Clean-Out (CIPP, Sliplining, SPR)



Pros:

- Aids Future Maintenance

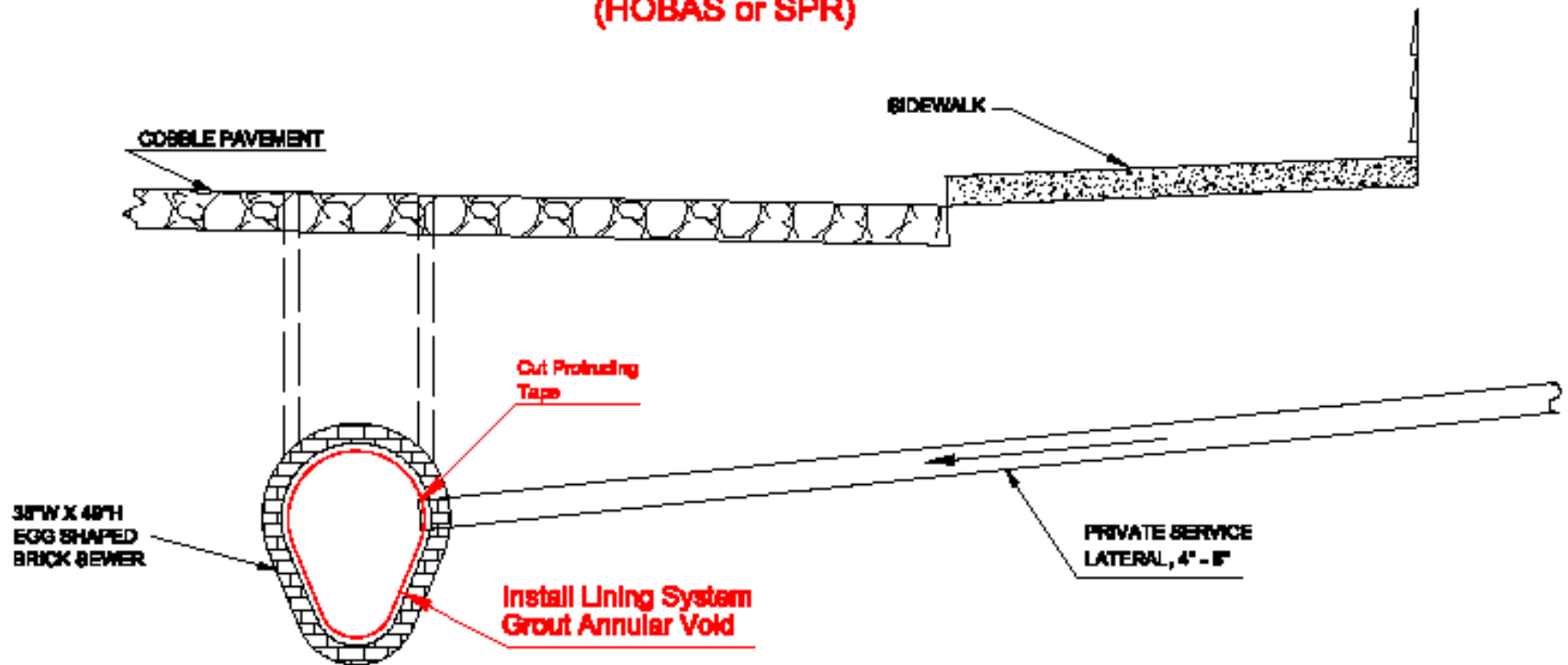
Cons:

- Higher Cost - cost of cleanout installation added to lining cost
- Doesn't Eliminate Services from Interceptor sewer
- Some By-Pass Pumping Required
- Minimum of 48 hour shutdown of services to Businesses
- Sidewalk excavation and construction, disrupt pedestrian traffic

Cost Range:

- \$500 - \$800/LF

Option 4
Sliplining w/ Live Flow
(HOBAS or SPR)



Pros:

- Probably Lowest Cost
- Minor Excavations (5 - 10 Locations)
- Carry Moderate Live Flow During Construction

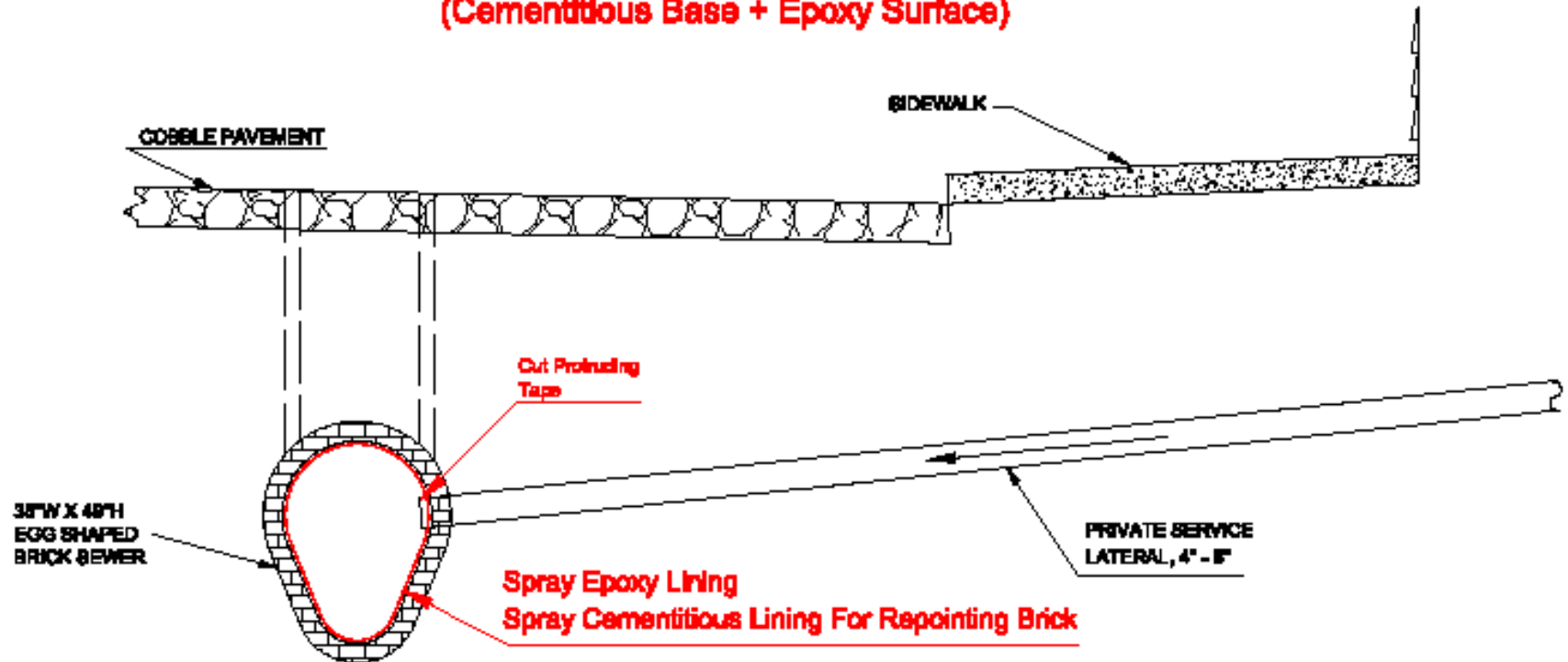
Cons:

- Some By-Pass Pumping Required
- Doesn't Eliminate Services
- May Require Some Excavation (Sliplining)
- Reduces Capacity Slightly due to Reduction of Inside Diameter

Cost Range:

- \$350 - 600/LF

**Option 5
Spray Lining
(Cementitious Base + Epoxy Surface)**



Pros:

- Increase Capacity (Reduces Friction Factor, Small Reduction in Inside Diameter)
- Relatively Fast Installation
- May Be Cost Competitive w/ Other Lining System

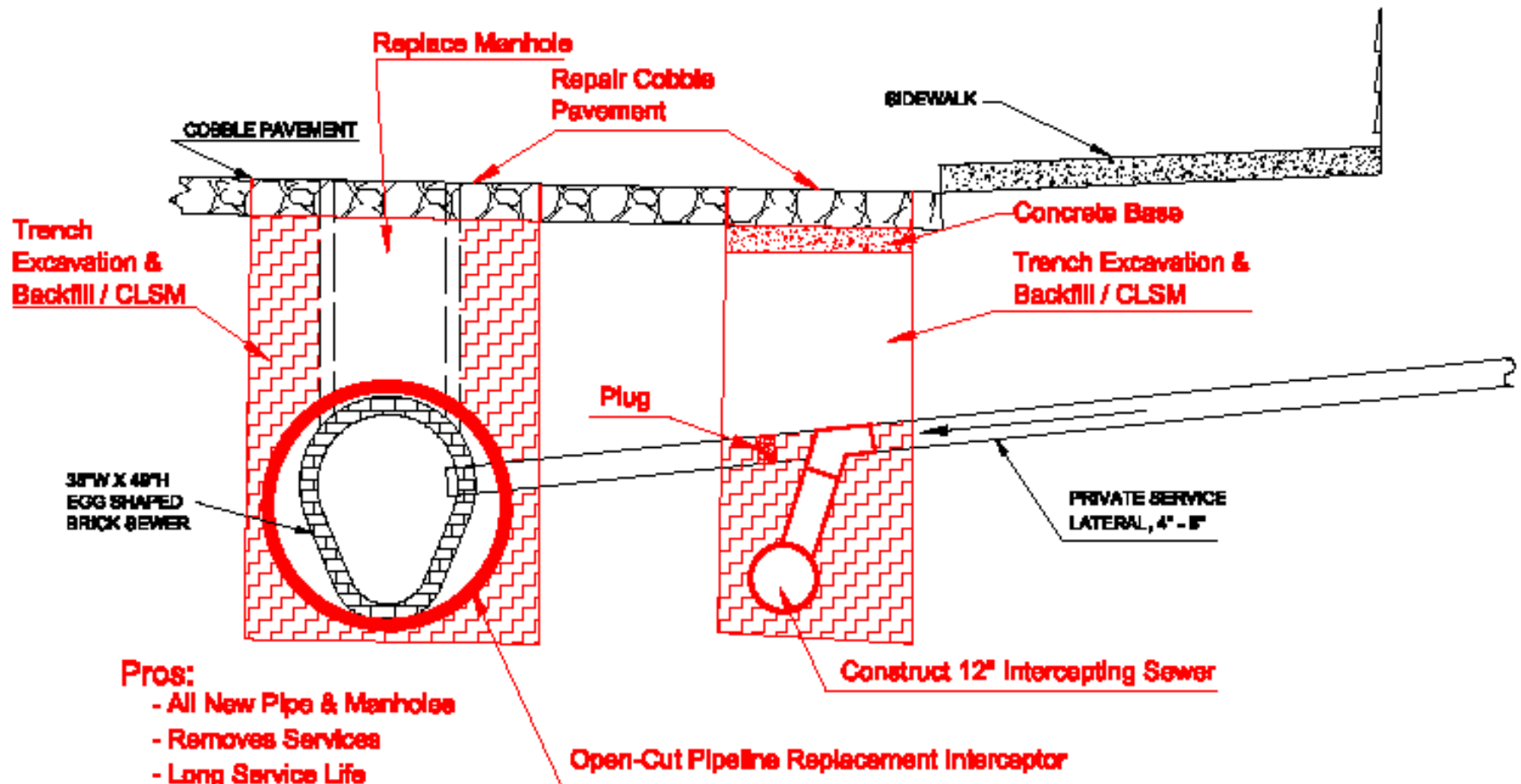
Cons:

- Non-Structural (Literature Claim's Structural)
- Requires Very Extensive Preparation
- By-Pass Pumping Required
- Does Not Eliminate Services
- Shorter Life Expectancy and Higher Life Cycle Cost

Cost Range:

- \$450 - 700/LF

Option 6 Open-Cut Replacement



Pros:

- All New Pipe & Manholes
- Removes Services
- Long Service Life

Cons:

- Very High Cost
- Very Disruptive
- Long Construction Time
- Does Not Provide Clean-Outs
- Installing the intercepting sewer would be extremely difficult due to conflicts with existing utilities and services

Cost Range:

- \$800 - \$1,200/LF

Thames St. Rehabilitation Options Evaluation

Criteria	Weight (100 total)
Cost <ul style="list-style-type: none"> • Capital Cost • Life Cycle Cost (O&M & Future Replacement) 	20 <u>15</u> 35
Business & Residential Impacts <ul style="list-style-type: none"> • Business Closures • Noise During Construction • Disruption of Vehicular/Pedestrian Traffic • Loss of Parking • Odor Control 	18 3 7 6 <u>1</u> 35
Constructability <ul style="list-style-type: none"> • Future Maintenance Requirements • Bypass Pumping Size & Duration • Extensive Excavation Required 	5 7 <u>3</u> 15
Schedule <ul style="list-style-type: none"> • Duration of Construction • Season Dependent Work – Winter Work 	9 <u>6</u> 15

Decision Science Analysis

- Each criteria was weighted based upon survey results from 1st public meeting (1-10)
- Each technology was rated against each criteria (1-6)
- The weight X rate gave a score for each criteria
- A total score was calculated to determine best option for all criteria

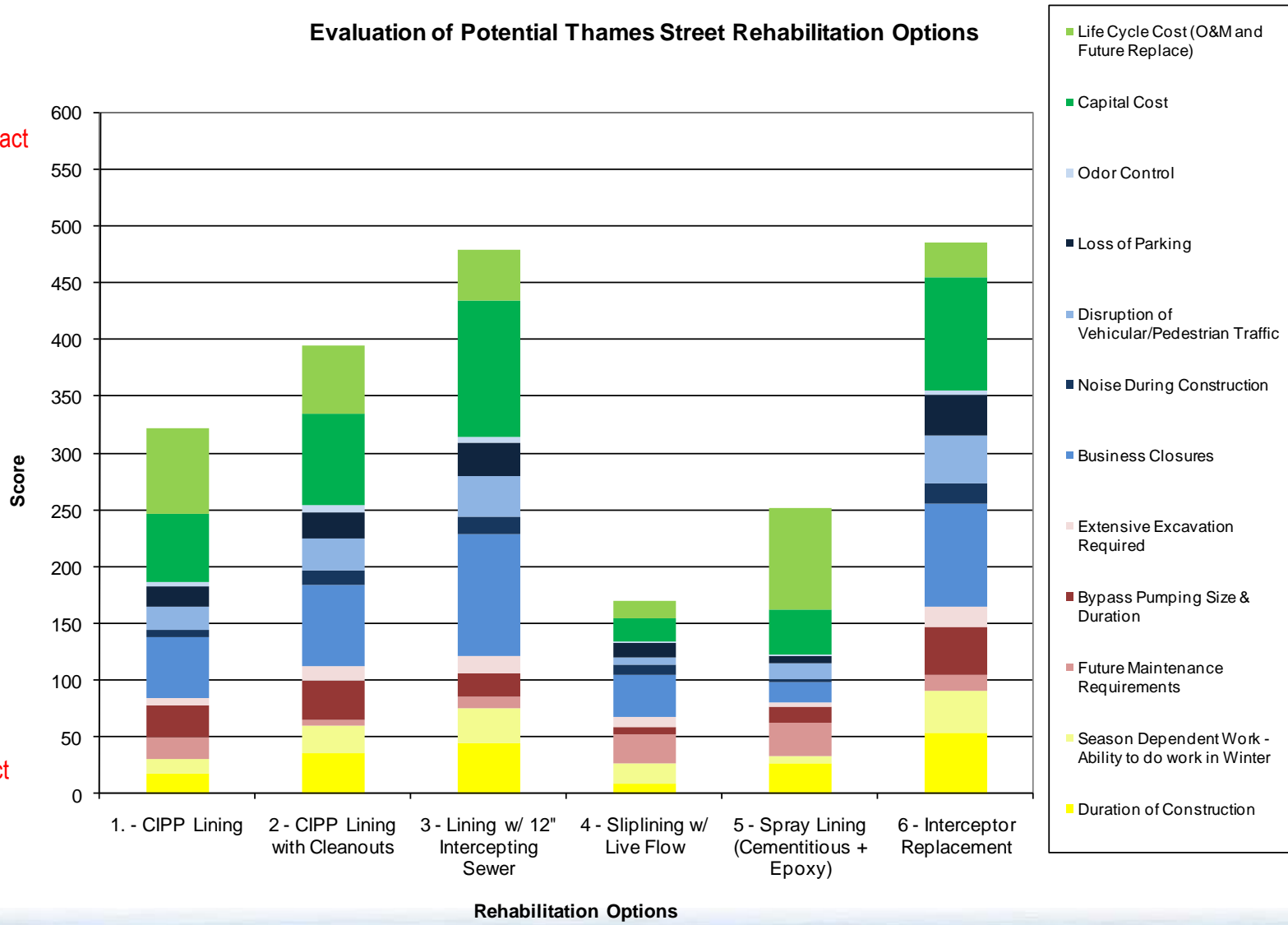
Lower Score = Lower Impact

Thames St. Technology Selection

Evaluation of Potential Thames Street Rehabilitation Options

Higher Cost
Largest Impact

Lower Cost
Least Impact



POTENTIAL THAMES ST. VEHICULAR & PEDESTRIAN TRAFFIC CONTROL OPTIONS

Example traffic control options for...

Touro St. to Mary St.

Memorial Blvd.

Memorial Blvd. to Narragansett Ave.

Narragansett Ave. Intersection

Narragansett Ave. to Morton Ave.

Typical Traffic Control Setup



Touro Street to Mary Street

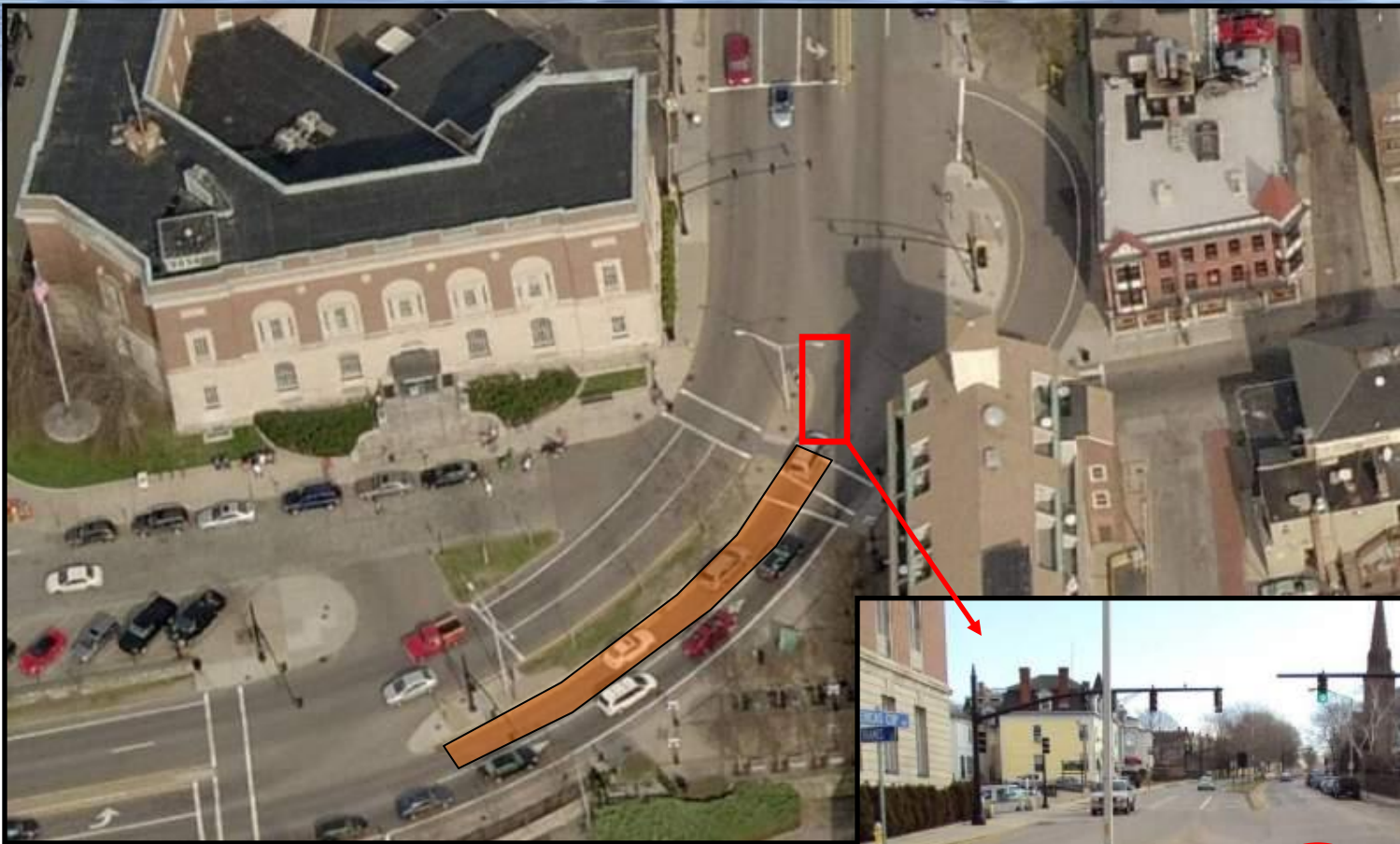
- One-Way Traffic Maintained
- Temporary Parking Impacts
- Temporary Sidewalk Closure



Maintain Access to Store Fronts



- Temporary Covered Walkways
- Provides Pedestrian Protection



America's Cup Ave. Lane Closure

- Two-Way Traffic Maintained
- Police Detail Directing Traffic
- Temporary Sidewalk Detour

Thames Street



Memorial Boulevard to Narragansett Ave

- Side Streets to be Closed at Thames Street within Work Zones
- Temporarily Converted to Allow Two-Way Traffic to Maintain Access/Local Traffic
- Pedestrian Access Maintained Wherever Possible
- Prohibition of On-Street Parking Near Work Zones & on Side Streets will be Required

Typical Side Street with One-Way Traffic (Dean Street)



Narragansett Ave Intersection Closure

- Vehicular Detours Required
- Pedestrian Access Maintained

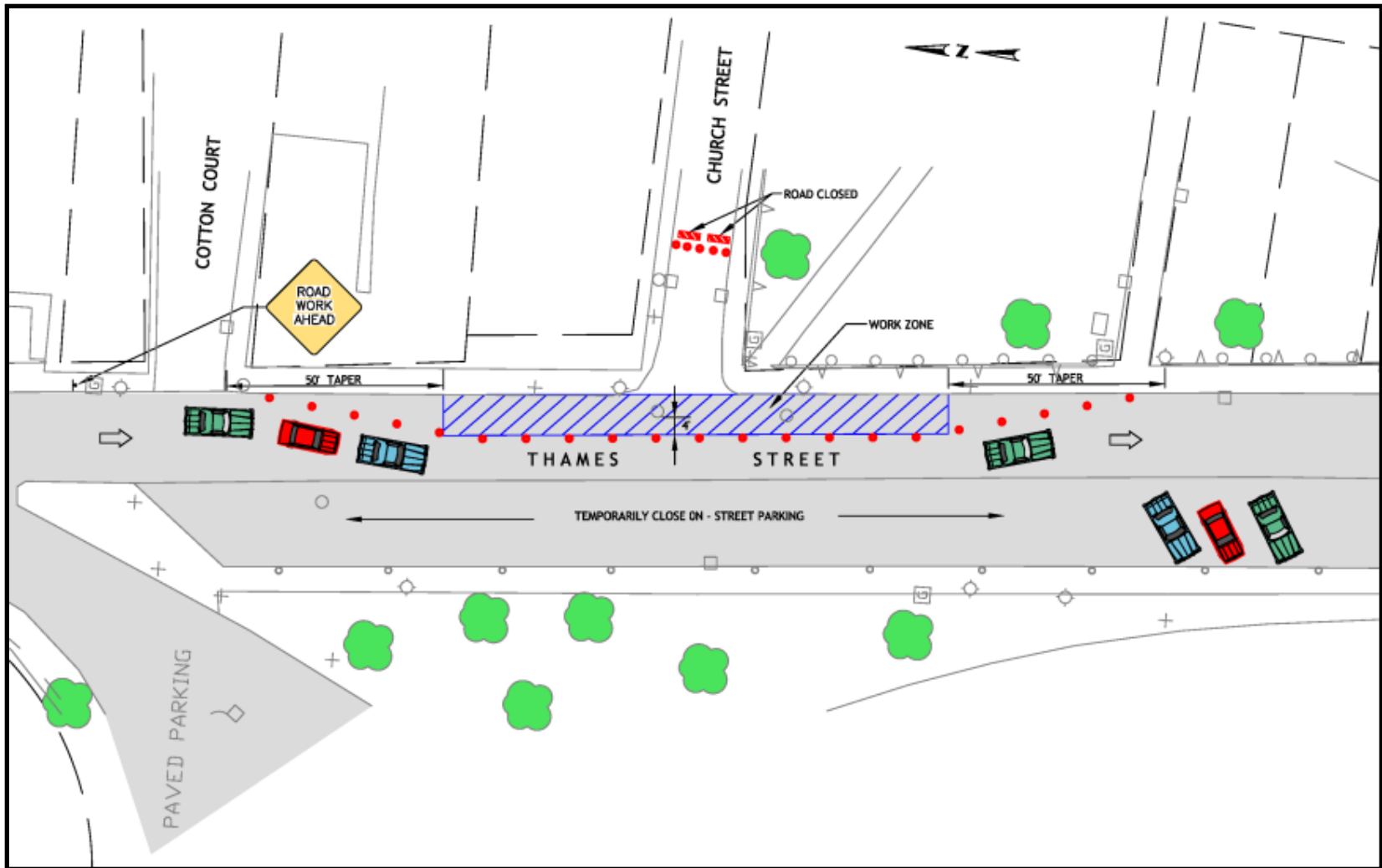
Thames Street/Narragansett Ave



Narragansett Ave to Morton Ave

- Manhole Locations May Require Thames Street Closures
- Detours May Be Required
- Temporary Parking Impacts

Typical Traffic Control Setup



Expected Conditions (Photos of Washington Square Construction)

Example of Simple Detour Signing



Typical Setup Size With a Short Work Zone
with Barrels/Cones
Short Duration Setups



SCHEDULE FOR NEXT PUBLIC MEETING

Next public meeting...

Schedule

Agenda

Opportunities for Public Input

Opportunities for Public Review & Comment

Series of Public Meetings:

December 2009 – project background & collect public/business comments

This meeting – Wellington Ave. review of design & public impact mitigation measures; Update on Thames St. options

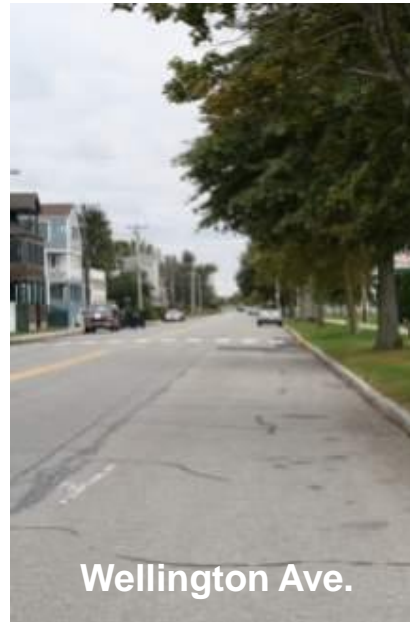
May/June 2010 – Wellington final design & construction schedule; present Thames St. design & construction specifics

Comments may be sent to:

Julia Forgue, P.E. Director of Utilities
jforgue@cityofnewport.com

Meeting materials will be posted on the Department of Utilities Thames St. & Wellington Ave. Project Page on the City's website at:

http://www.cityofnewport.com/departments/utilities/pollution_control/thames_wellington.cfm



Questions & Comments

