CSO Abatement Program Update

City of Fall River, Massachusetts

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CDM Smith

Combined Sewer System

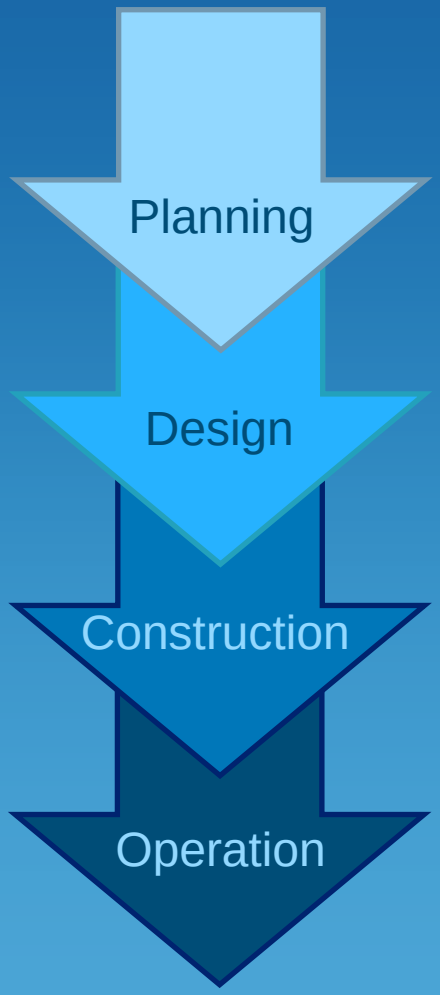
- Over 200 miles of sewers
- Developed over 150 years
- Conveys dry weather and wet weather flows
- All flow initially discharged directly to receiving water (1857-1948)
- Sewer outfalls converted to CSO outfalls with construction of WWTF (1948-1952)

Wastewater Pumping and Treatment Facilities

- 1948 Initial WWTF construction
- 1948-52 Central Street and Cove Street station construction
- 1978-80 WWTF Secondary treatment
- 1978-80 Central Street and Cove Street station upgrades
- 1997 WWTF wet weather capacity increased
  - Dry weather flow = 50 mgd
  - Wet weather flow = 106 mgd
- 2008 Cove Street Pump Station upgrade (10 mgd)
- 2012 Central Street Pump Station upgrade (15 mgd)

CSO Abatement Program

1984 Initial planning began
1989 EPA Administrative Order
1992 Federal Court Order
1992 CSO Facilities Plan
1994 Design start
1997 Construction start
2000 WWTF wet weather upgrade start
2005 CSO tunnel start
2009 Cove Street CSO facility start

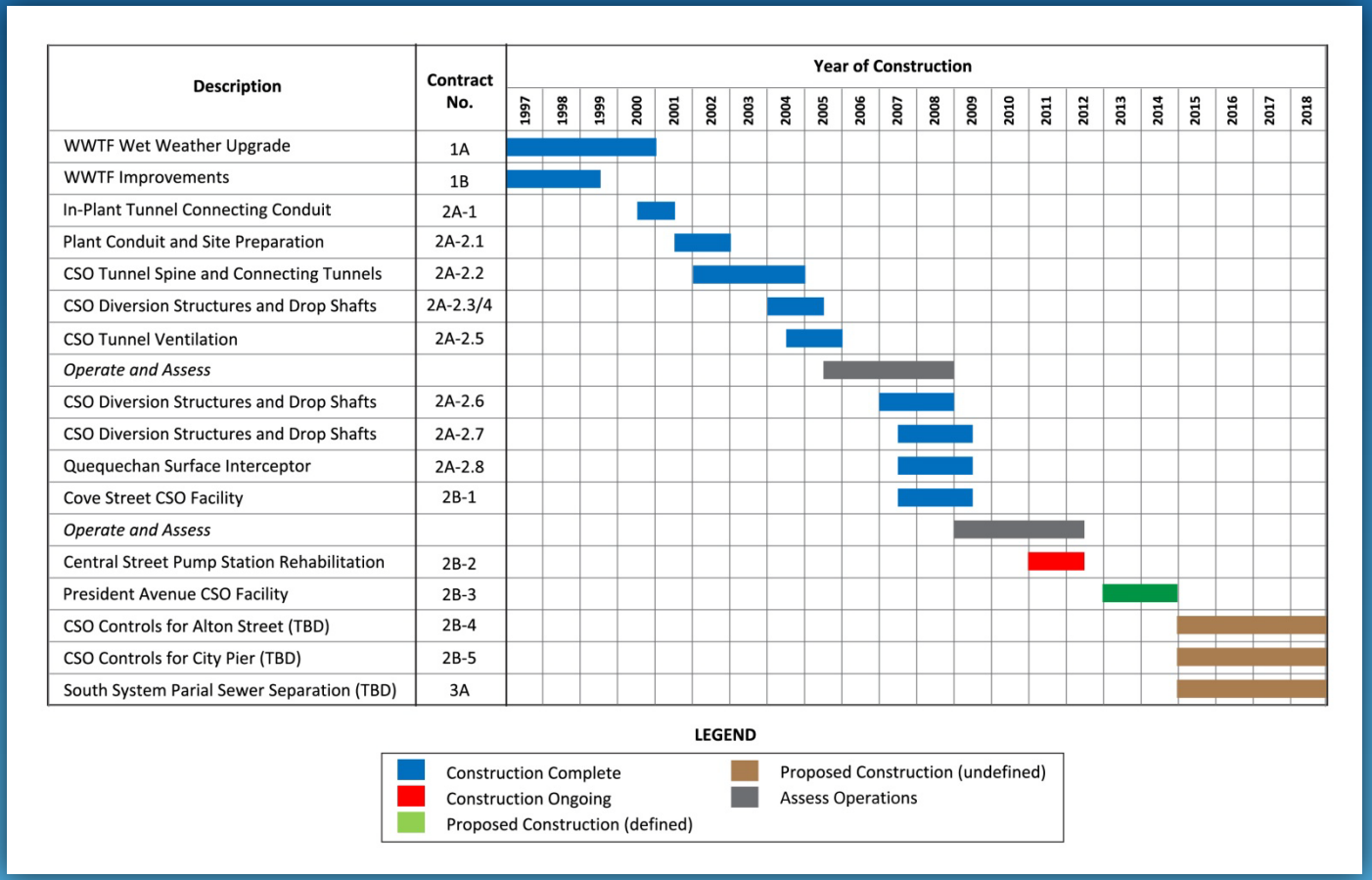


CSO Facilities Constructed to Date

- WWTF Wet Weather Upgrade
- CSO Storage Tunnel
  - 9 Drop Shafts
  - Ventilation
- Quequechan Surface Interceptor
- Cove Street CSO Facility and Pump Station Rehabilitation
- Central Street Pump Station Rehabilitation

Project Schedule

- Federal Court Order Milestones
- $160 million construction cost to date



Wastewater Treatment Facility Upgrade

- Wet weather capacity increased to 106 mgd
- Improved solids handling
- Connecting conduit to CSO tunnel

CSO Storage Tunnel

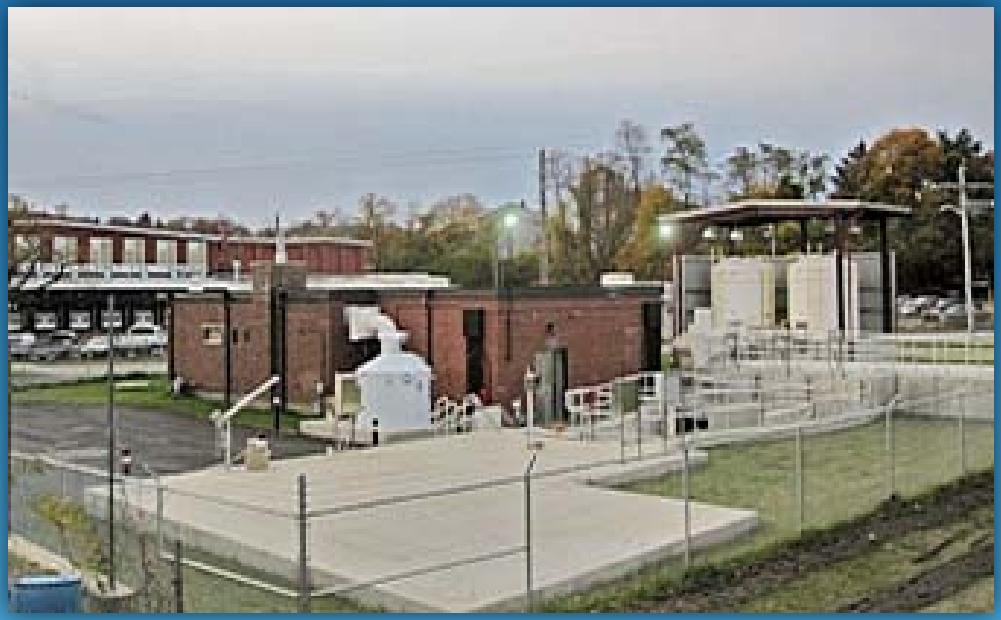
- Deep rock tunnel
  - 20-foot diameter
  - 3 miles long
  - Up to 100 feet deep
- 9 drop shafts and connecting tunnels
- Fan vault/ventilation
- 38-million gallon storage capacity
- Conveys flows to WWTF for treatment

Quequechan Surface Interceptor

- Eliminated the need to extend CSO storage tunnel
- Active interceptor replaced with larger interceptor
- Extensive environmental permitting
- Work adjacent to river in easements

Cove Street CSO Screening and Disinfection Facility

- CSO facility includes:
  - New CSO regulator
  - Screen
  - Flow measurement
  - High-volume propeller pumps
  - Disinfection



Pump Station Rehabilitation (Cove Street and Central Street)

Background

- Original construction (1948-52)
- Upgraded (1978-80)
- Rehabilitation (2008-12)

Rehabilitation Includes:

- Replace existing dry-pit submersible pumps
- New screening equipment
- New instrumentation and controls
- New building HVAC and electrical
- Building restoration
- Central Street pump station capacity increased

Remaining CSO Controls

- President Avenue CSO Screening and Disinfection Facility
- CSO Control for Alton Street outfall (TBD)
- CSO Control for City Pier outfall (TBD)
- Partial Sewer Separation for South System (TBD)

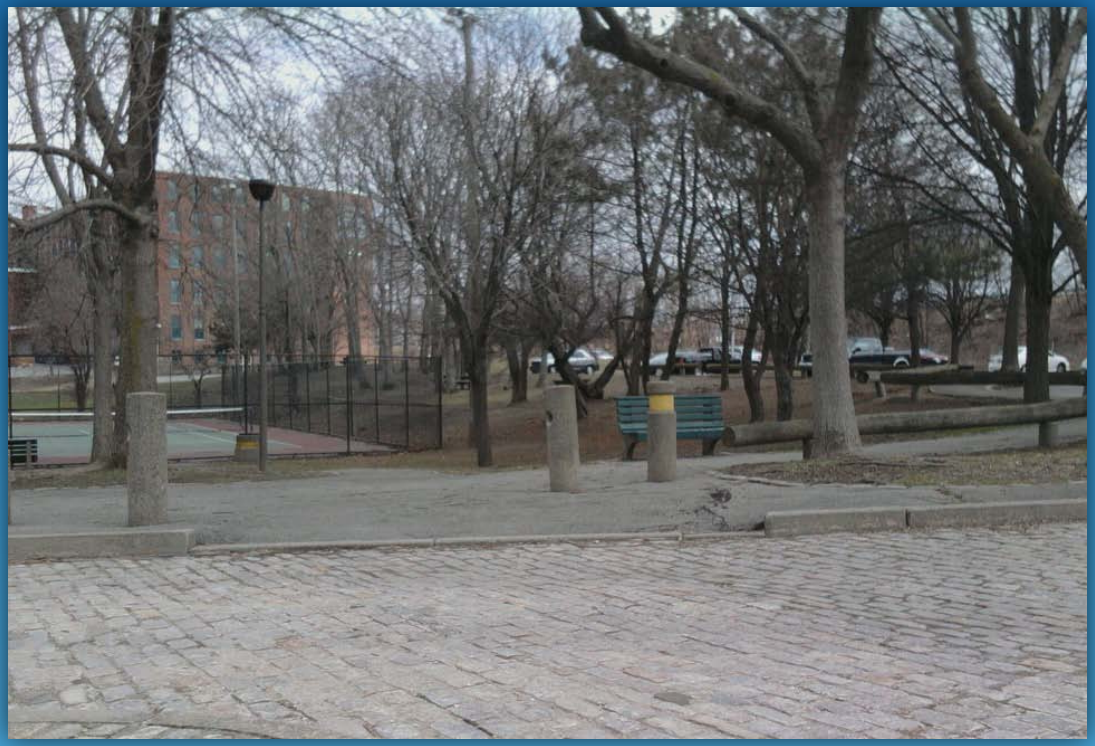
PRESIDENT AVENUE CSO SCREENING AND DISINFECTION FACILITY

Background

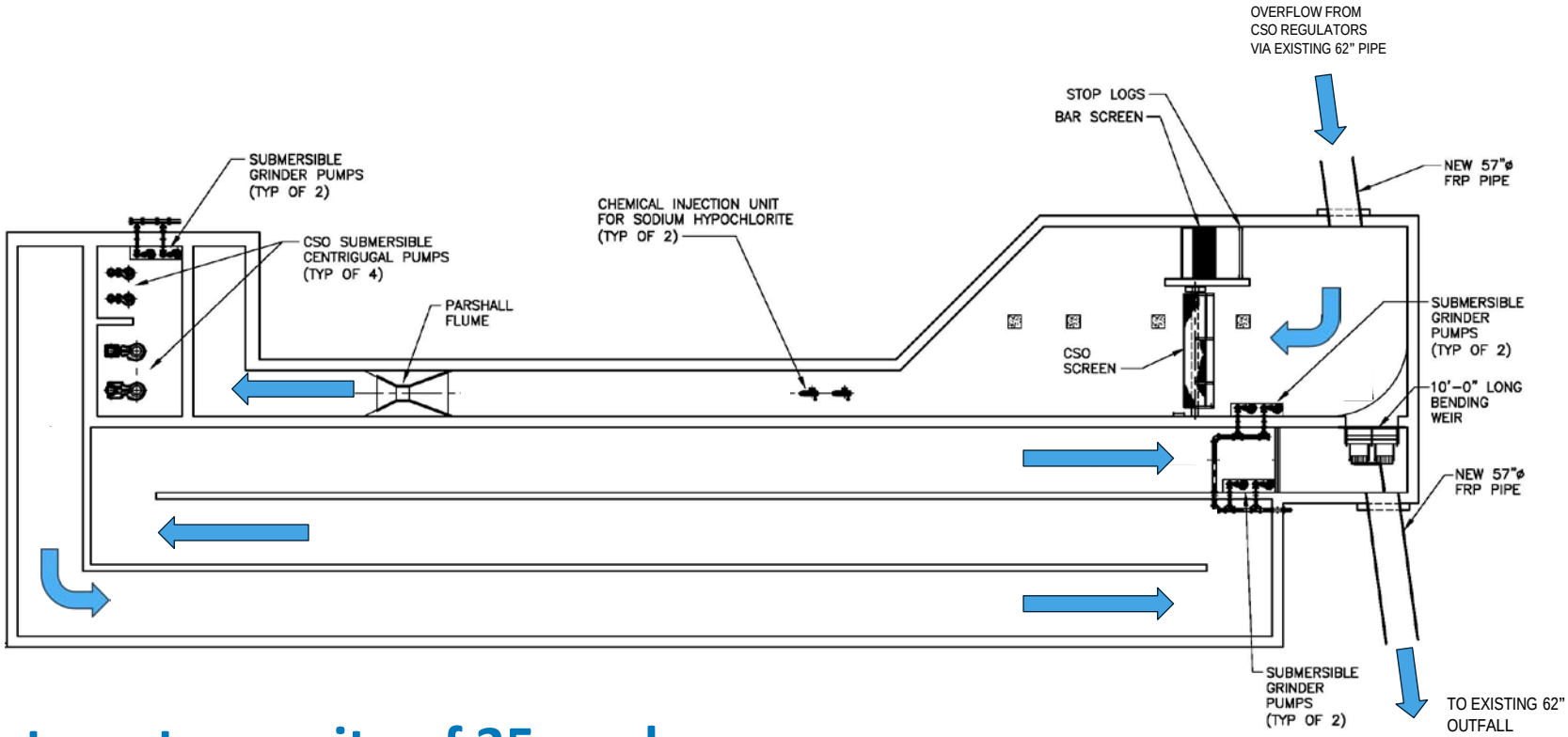
2001	Proposed elimination of the North Tunnel
2003	Modified Tunnel Plan (MTP) presented to CLF/Court
2005	CLF/Court considers MTP/defers construction of the North Tunnel/allows Cove Street CSO facility
2008	MEPA approval of MTP
2009-2011	Cove Street CSO facility operated as demonstration facility
2010	North System alternatives presented to CLF/Court
2011	CLF/Court agreement to construct screening and disinfection at President Ave CSO (November 23, 2011)

Project Features

- Underground CSO treatment facility
- New multi-function building
- Refurbished park facilities
- Fully integrated into the park setting/public safety



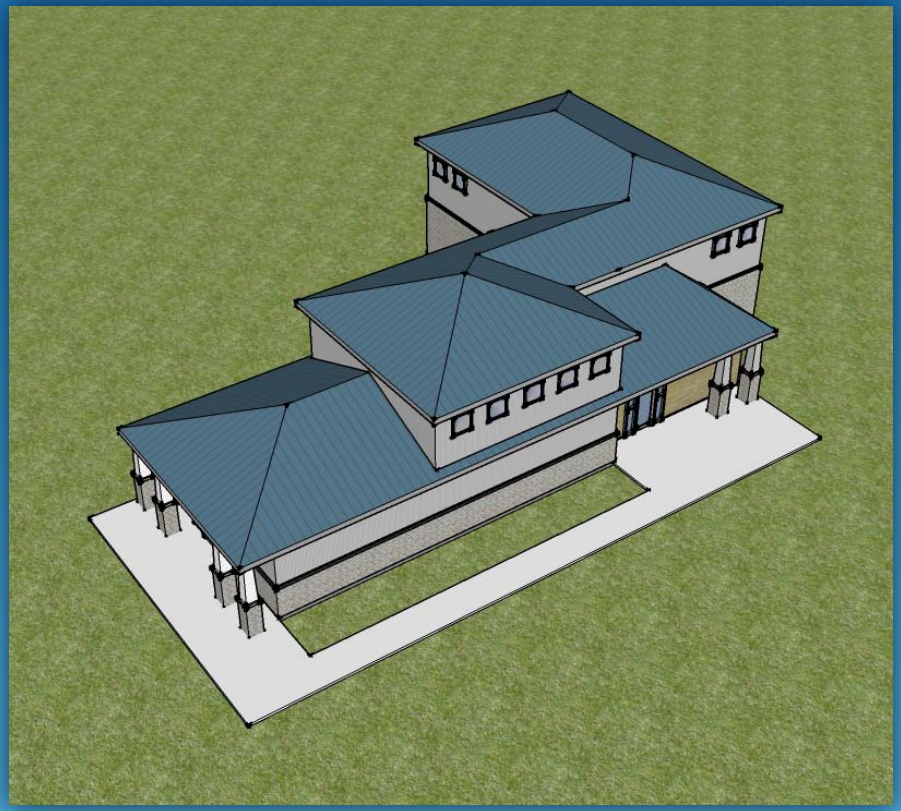
CSO Treatment Process



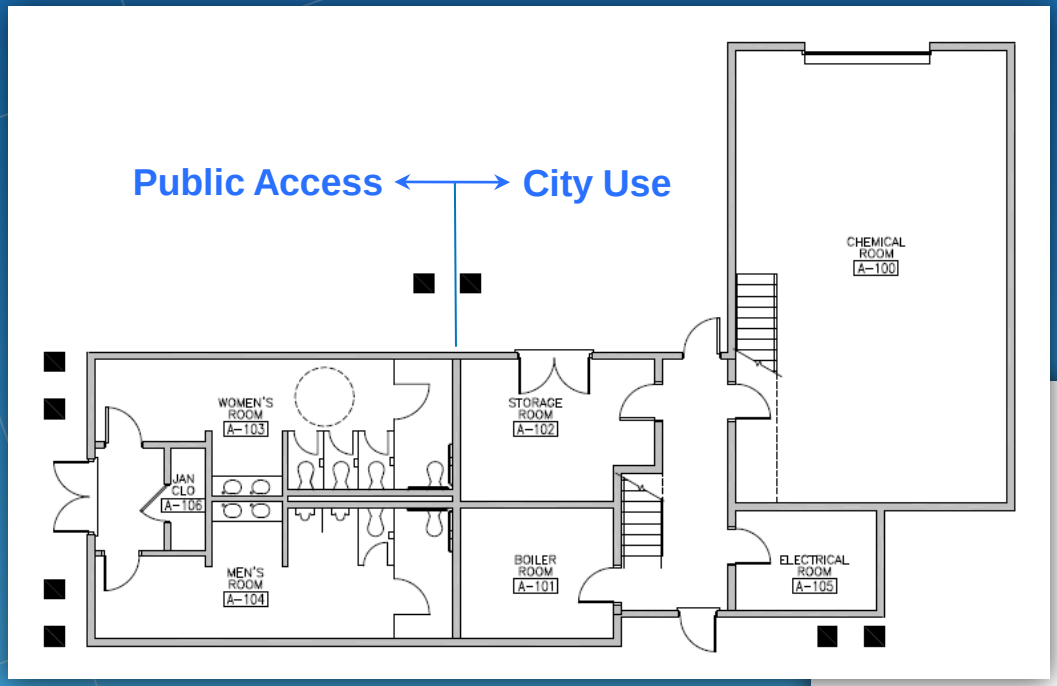
Treatment capacity of 35 mgd

Multi-function Building Requirements

- Combined Public/CSO facility
  - Public restrooms
  - Park Department storage
  - Chemical storage and feed equipment
  - CSO process controls
  - Building electrical and HVAC equipment

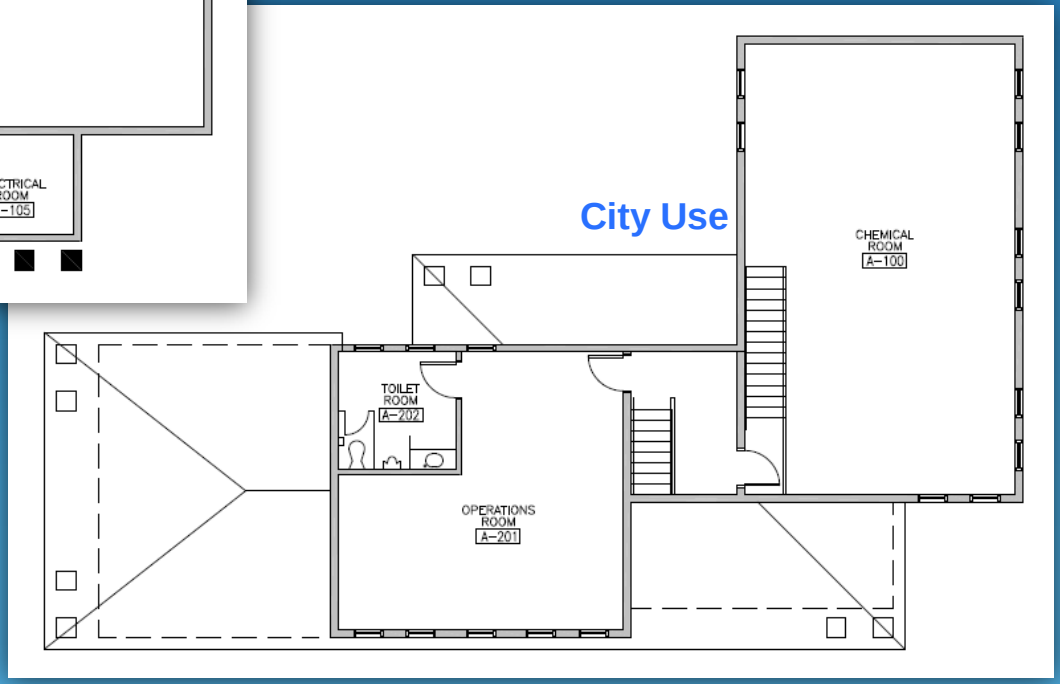


Proposed Building Floor Plans



First Floor

Second Floor



Proposed Building

Article 97 Approval Requirements/Mitigation

Requirements

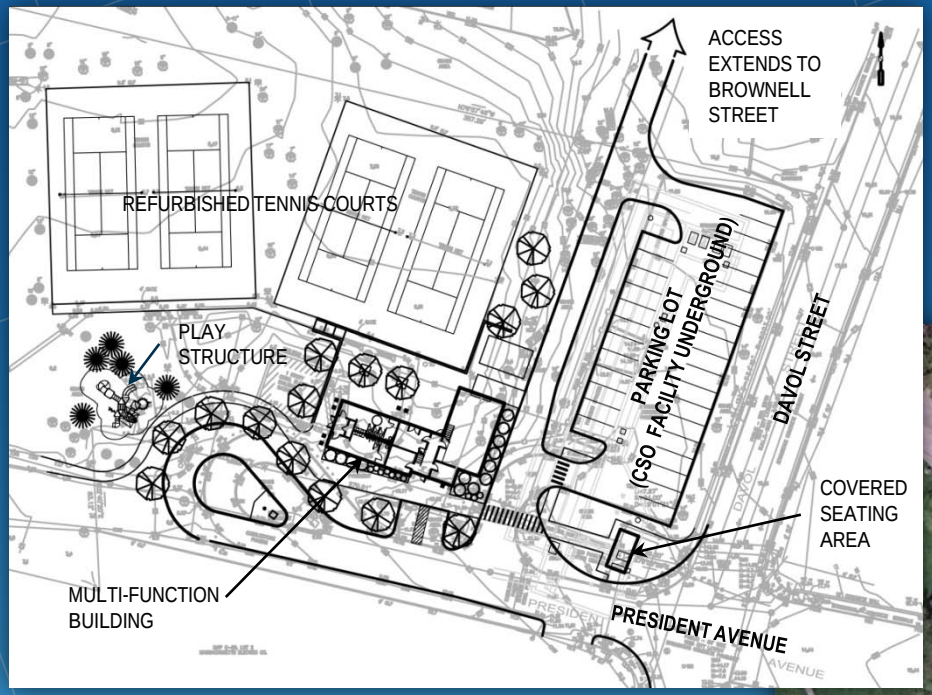
- Minimize loss of open space/ recreational use
- Sewer Commission approval
- Park Department approval
- City Council approval
- MEPA approval
- MA Legislature approval

Mitigation

- Underground CSO treatment facility
- Multi-function building
  - Minimize increase in footprint
  - above 100-year flood elevation
  - Locate in minimal use area
- Refurbished park facilities
- Improved park access/egress
  - Vehicular
  - Handicapped access
- Improved landscaping
- Open space management
- Minimize construction impacts

Bicentennial Park (Existing Condition)

Conceptual Layout No. 1



One-way access from President Avenue to Brownell Street

Conceptual Layout No. 1

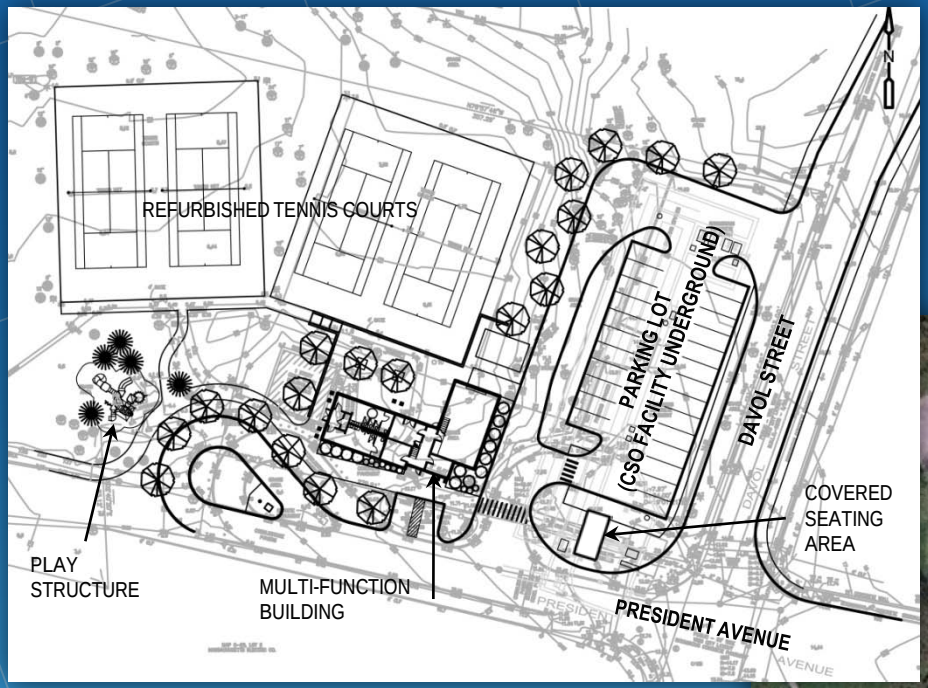
Pros

- Improves existing park facilities
- Improves flow of traffic in/out of the park
- Improves access for CSO facility deliveries
- Improves access to boat ramp
- Improves access to Brownell Street and Remington Avenue
- Maintains existing parking spaces

Cons

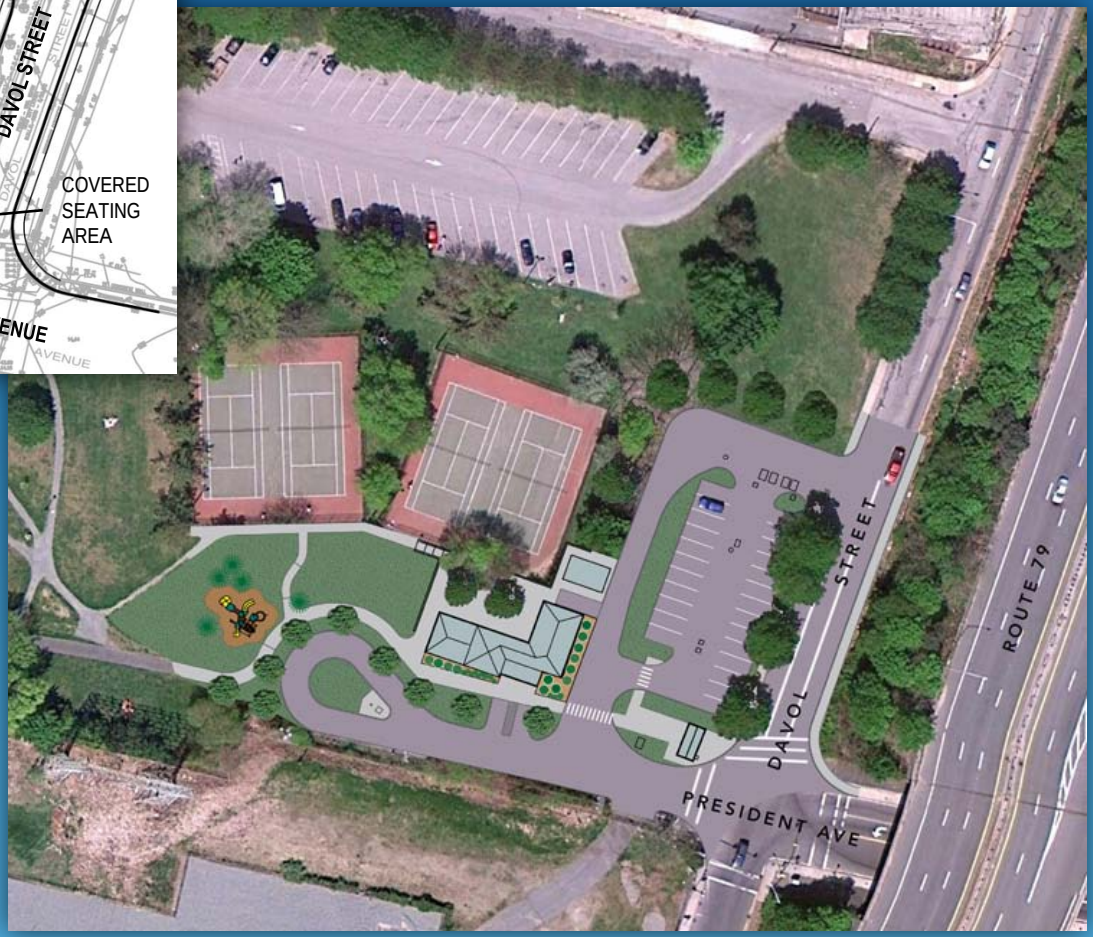
- Requires approval of MA Department of Fish and Game
- Additional traffic management
- Requires 175 linear feet of roadway (from end of parking lot to Brownell Street)

Conceptual Layout No. 2



NOTE: THIS FIGURE SHOWS POTENTIAL RECONFIGURATION OF DAVOL STREET.

One-way access from President Avenue to Davol Street



Conceptual Layout No. 2

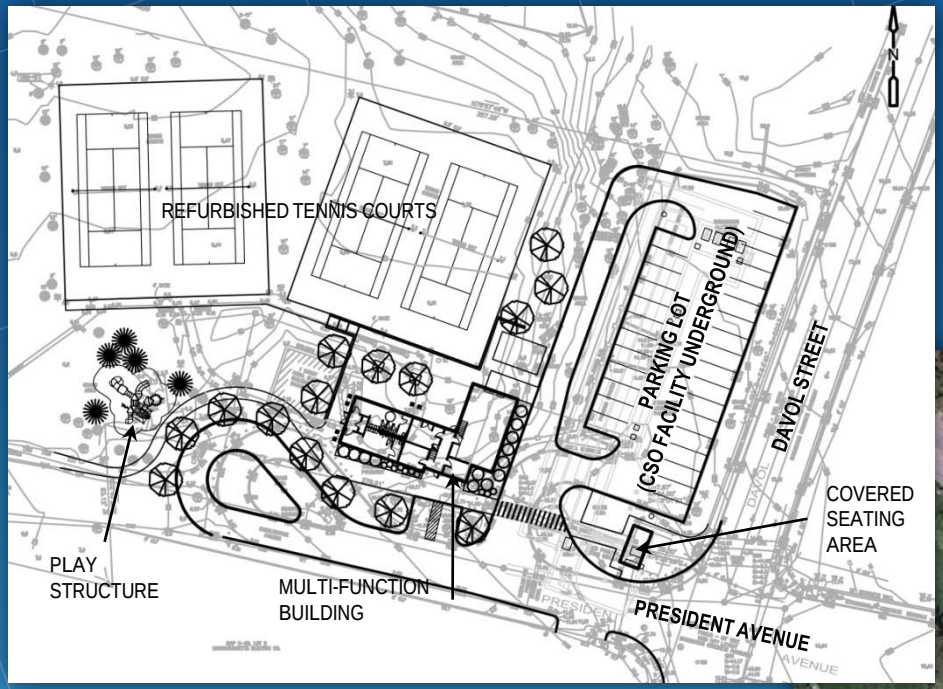
Pros

- Improves existing park facilities
- Improves flow of traffic in/out of the park
- Improves access for CSO facility deliveries

Cons

- Reduced parking lot size
- Additional traffic management
- Requires MassDOT approval for new park exit

Conceptual Layout No. 3



Two-way access from President Avenue

Conceptual Layout No. 3

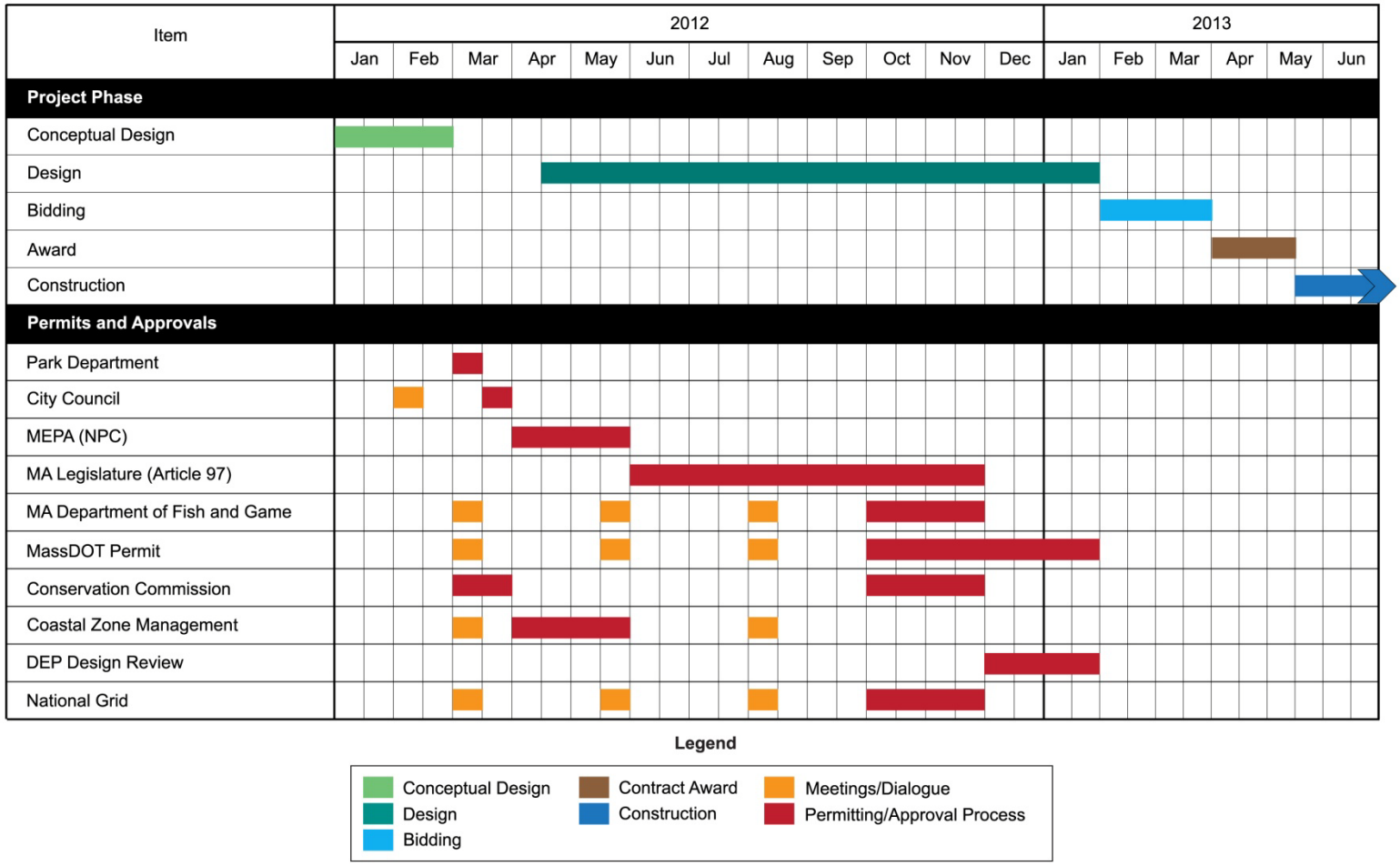
Pros

- Improves existing park facilities
- Improves flow of traffic in/out of the park

Cons

- Single point of access/egress
- Limited access for CSO facility deliveries/public safety issue

Permits and Approvals



Next Steps

- City Council support of concept(s)
- Article 97 approval
  - Sewer Commission approval
  - Park Department approval
  - City Council approval
  - MEPA approval (Notice of Project Change)
  - MA Legislature approval
- MA Department of Fish and Game support
- MassDOT support
- Order of Conditions from Conservation Commission
- Coastal Zone Management support
- Coordination with National Grid

QUESTIONS AND ANSWERS