The South Hartford Conveyance and Storage Tunnel

The Metropolitan District

June 16th-17th, 2015
Purpose of This Public Meeting

• Communicate with Residents Directly Adjacent to the Project

• Provide information regarding:
  ✓ Project Background
  ✓ Project Scope
  ✓ Project Schedule
The Metropolitan District (MDC)

- Nonprofit, specially chartered municipal corporation created by the CT General Assembly 1929.
- Provides water, sewer and household hazardous waste collection services to its member municipalities.
- In addition, under a series of special agreements, the MDC supplies treated water to portions of Glastonbury, South Windsor, Farmington, East Granby and Portland.
Combined Sewer Overflows (CSOs) are a Significant Regional Issue
How a CSO Works
CSOs Result in Degraded Water Quality
The Clean Water Project (CWP)

The CWP is the MDC’s Response to:

1. **Consent Order** from CT DEEP to address combined sewer overflows
2. **Consent Decree** from EPA to address sanitary sewer overflows

- Multiphase program that will take 20 years to complete

- Project Goals:
  1. Reduce the CSOs to streams/rivers
  2. Eliminate CSO outfalls to Wethersfield Cove & North Branch Park River
  3. Reduce Nitrogen discharged to CT River
  4. Address sanitary sewer overflows (SSOs) outside of Hartford
The Clean Water Project

1. Expand HWPCF capacity to 200 MGD
2. 670 acres of sewer separation
3. Tunnel storage and conveyance
4. Reduce stormwater inflow/groundwater infiltration (I/I)
Storage Tunnels – Common Approach to Combined Sewer Overflow (CSO) Management

- Providence is closest recent example, operational in 2008
- Others include
  - Chicago (1980’s)
  - Milwaukee (1990’s)
  - Boston (2000’s)
  - Atlanta (2000’s)
  - Portland (2000’s)
  - Cleveland (2010’s)
  - Indianapolis (2010’s)
  - Washington (2010’s)
Similar Local Tunnel Project(s)

Park River Auxiliary Conduit (PRAC)
- Built in 1979
- 22' ID/150' deep/9,000 LF

South Tunnel

PRAC Tunnel

Google Earth
Combined Sewer Overflows (CSOs) in Your Neighborhood

- Existing CSO
Alignments Evaluated During Early Studies
## Stakeholder Concerns Drove Alignment Selection

<table>
<thead>
<tr>
<th>High Impact on Alignment Selection</th>
<th>Medium Impact on Alignment Selection</th>
<th>Low Impact on Alignment Selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost</td>
<td>Perception of Odor at Shafts</td>
<td>Potential for Property Damage</td>
</tr>
<tr>
<td>Impacts to Business</td>
<td>Benefit to Community</td>
<td>Reduction in Tax Base (Permanent Surface Easement)</td>
</tr>
<tr>
<td>Impacts to Traffic</td>
<td>Noise/Construction Impacts</td>
<td>Impacts to Property Values</td>
</tr>
<tr>
<td>Public Safety</td>
<td>Impact of Construction Vehicles</td>
<td>Schedule</td>
</tr>
<tr>
<td>Easements</td>
<td>Duration of Surface Impacts</td>
<td>Increase to Sewer Rates</td>
</tr>
<tr>
<td>O&amp;M</td>
<td>Environmental Justice</td>
<td>Maximize Local Contractors</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Long Term Health Perception</td>
</tr>
</tbody>
</table>
The South Tunnel Project Components:

- 4 miles long (21,800 LF)
- 18 foot internal diameter
- 175 to 250 feet deep
- 6 Intermediate Hydraulic Drop Shafts
- 7,300 LF of Consolidation Conduits
- 50 MGD deep pump station
South Tunnel - Geological Profile
Subterranean Easements

- Required for about 250 parcels – no surface or shallow easements at these locations
- MDC will not retain any rights at the surface nor adversely affect the use of any parcel
- Grants MDC the right to construct and operate ~200-foot deep tunnel under each parcel
- Defines depth “envelope” of MDC rights to construct the tunnel
Hard Rock Tunnel Boring Machine (TBM)
Building the Tunnel
Drop Shaft Schematic

- Approach Channel
- Taper
- Air Recirculation
- Air Vent [drilled shaft]
- Drop Shaft [drilled shaft]
- De-aeration Chamber
- Adit

SHCST

Dimensions:
- $L_A$
- $L_T$
- $H$
- $B$
- $D$
- $L_{DC}$
Hydraulic Drop Shafts in Operation
Construction of Elliot Street Drop Shaft for MDC on Wethersfield Ave (Franklin Separation 13)
Brookfield Street Drop Shaft Location

- Vortex Drop DS-2
- Vortex Drop DS-3
- North Tunnel (Future)
- SOUTH TUNNEL 21,800 LF @ 18’ ID
- New Britain Consolidation Pipe (NBCP)
- Vortex Drop DS-6
Location of Drop Shaft #2

City of Hartford Housing Authority

Drop Shaft #2

Brookfield St

Adit Tunnel

Deep Rock Tunnel

South Branch Park River

Hartford - Behind the Rocks
Location of Drop Shaft #3

- Bank of America
- Drop Shaft #3
- West Preston St
- Preston St
- Maple Ave
- Adit Tunnel
Franklin Area Drop Shaft Locations

- North Tunnel (Future)
- Vortex Drop DS-3
- Maple Ave
- Franklin Ave Consolidation Pipe (FACP)
- Vortex Drop DS-4
- Vortex Drop DS-5
- SOUTH TUNNEL 21,800 LF @ 18' ID
- Goodwin Park
- Vortex Drop DS-6
- Tunnel Pump Station
- Wethersfield Cove

Map with locations and tunnel details.
Location of Drop Shaft #4
Franklin Area Drop Shaft Locations

North Tunnel (Future)

Vortex Drop DS-3

Maple Ave

Franklin Ave Consolidation Pipe (FACP)

Vortex Drop DS-4

66°

Vortex Drop DS-5

SOUTH TUNNEL
21,800 LF @ 18' ID

Tunnel Pump Station

Goodwin Park

Vortex Drop DS-6

Airport Rd

HARTFORD

WETHERSFIELD

Wethersfield Cove
Franklin Area Drop Shaft Locations

- North Tunnel (Future)
- Vortex Drop DS-3
- Vortex Drop DS-2
- Franklin Ave Consolidation Pipe (FACP)
- Vortex Drop DS-4
- Vortex Drop DS-5
- SOUTH TUNNEL 21,800 LF @ 18’ ID
- Goodwin Park
-肺
- Tunnel Pump Station
- Wethersfield Cove
Location of Drop Shaft #6

- Franklin Avenue Recreation Center
- Metzner Early Learning Center (City of Hartford Office for Young Children)
- Franklin Ave
- Montowese St
- Tredeau St
- Adit Tunnel
- Drop Shaft #6
Typical Layout of Drop Shaft
Air Treatment System

Activated Carbon

Ventilation Fan
Typical Site View of Air Treatment Enclosure
Constructing Consolidation Conduits
Microtunnel Work Sites
Franklin Conduit Drop and Access Shaft

- Franklin Conduit Drop Shaft
- Adelaide St
- Redding St
- Franklin Avenue
- Franklin Conduit (66"")
Anticipated Schedule

Key Dates:
• Sept/Oct 2015 – Construction Begins
• Fall 2017 – Tunnel boring (and muck hauling) begins
• Late Fall 2018 – Tunnel drive completed
• 2022 – Construction complete/facility in operation
Summary of Facility Operations

- Unmanned Facilities

- Will Comply with Hartford Noise Ordinance


- Gated and Fenced Facility.

- No Nighttime Lighting Unless Maintenance is Required
Questions?

For additional questions and information requests, please contact the MDC at communication@themdc.com