

Millbury Sewer Commission

Upper Blackstone Connection and Sewer Expansion Projects

Joseph M. Boccadoro, P.E.

Marie C. Cannon, P.E.

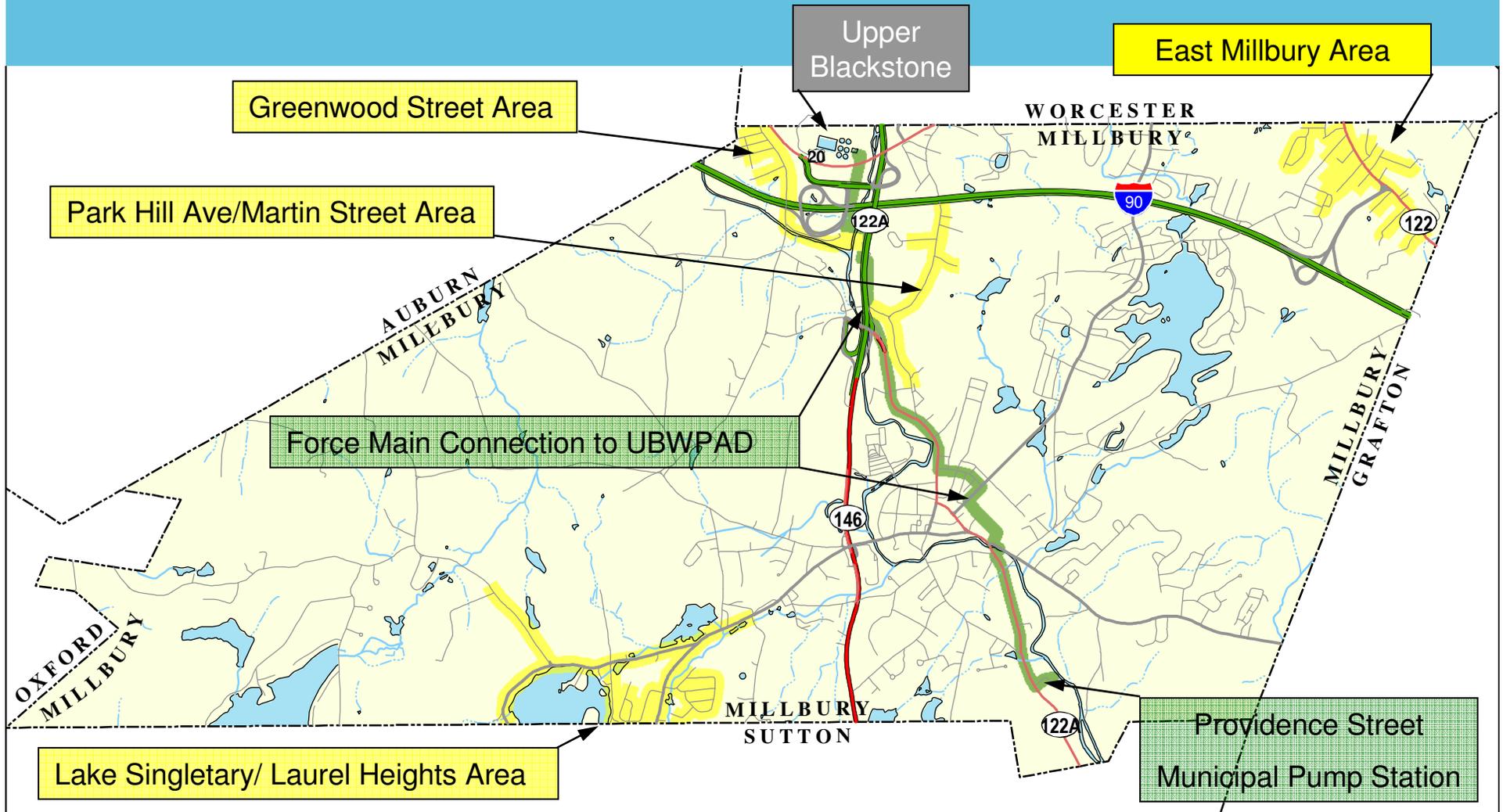
Focus of Presentation

- Brief History of Project
- Summary of Infrastructure Projects Completed
- Highlights of Challenges and Accomplishments

Project History – Millbury Sewer Department

- Collection System & WWTF in operation since 1970
- Mid-1990's – Millbury hired AECOM to develop Comprehensive Wastewater Management Plan (CWMP)
 - Made recommendations regarding WWTF Upgrade
 - Evaluated needs areas for future expansion
- CWMP Completed in 1998 (Updated 2002)
 - Millbury voted to decommission WWTF and connect to Upper Blackstone Water Pollution Abatement District (Upper Blackstone)
- Upper Blackstone Connection completed January 2005
- Sewer Expansion projects approved by Town in June 2005

UBWPAD Connection & Collection System Expansion



UBWPAD Connection Completed January 2005

- Separate Contracts – Project Total \$10.5M
- SRF Funding at 0% over 20 years – by taxpayers
- Force Main Construction Challenges
 - 4 Miles of 24-inch DIP
 - Roadway installation included town center area and Mass Highway
 - Blackstone River crossings – 2 locations
 - Railroad crossing in ledge
 - Adjacent to UBWPAD outfall channel and MassPike
- Municipal Pump Station at Providence Street WWTF
 - Installed Capacity up to 10 mgd
 - Dry-pit Submersible Pumps used – 3 @ 280 Hp

Installation of Port-a-Dam for River Crossing



Blackstone River Crossing 1 of 2 Locations



Blackstone River Crossing at P&W Railroad



MassPike Retaining Wall and UBWPAD Effluent Channel



Railroad Protection in Work Zone

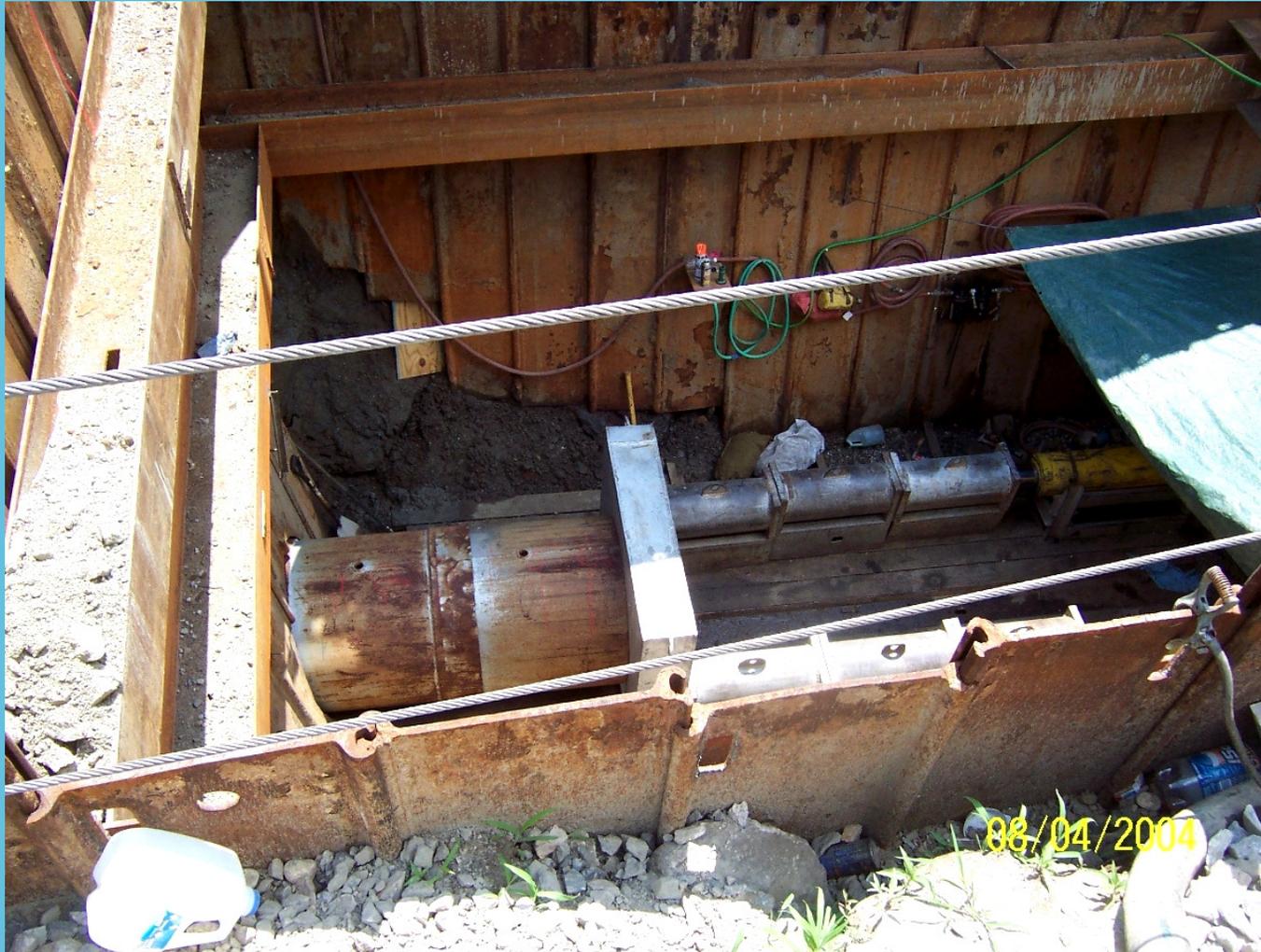


Railroad Jacking Site



Jacking Pit

42-in Steel Casing for 24-in DI Force Main



Municipal Pump Station at Providence Street WWTF

- Pump Station handles all of Millbury Flow and portion of Sutton
- Installed Capacity up to 10 MGD
 - Dry-pit submersible pumps used – 3 at 280 Hp
- Operations and Maintenance Buildings updated for Sewer Department use
- Demolition of all abandoned process tanks & buildings
- Site restoration of sludge drying beds being considered for youth baseball field installation

Digester Building Demolition



Masonry Walls



Masonry Walls



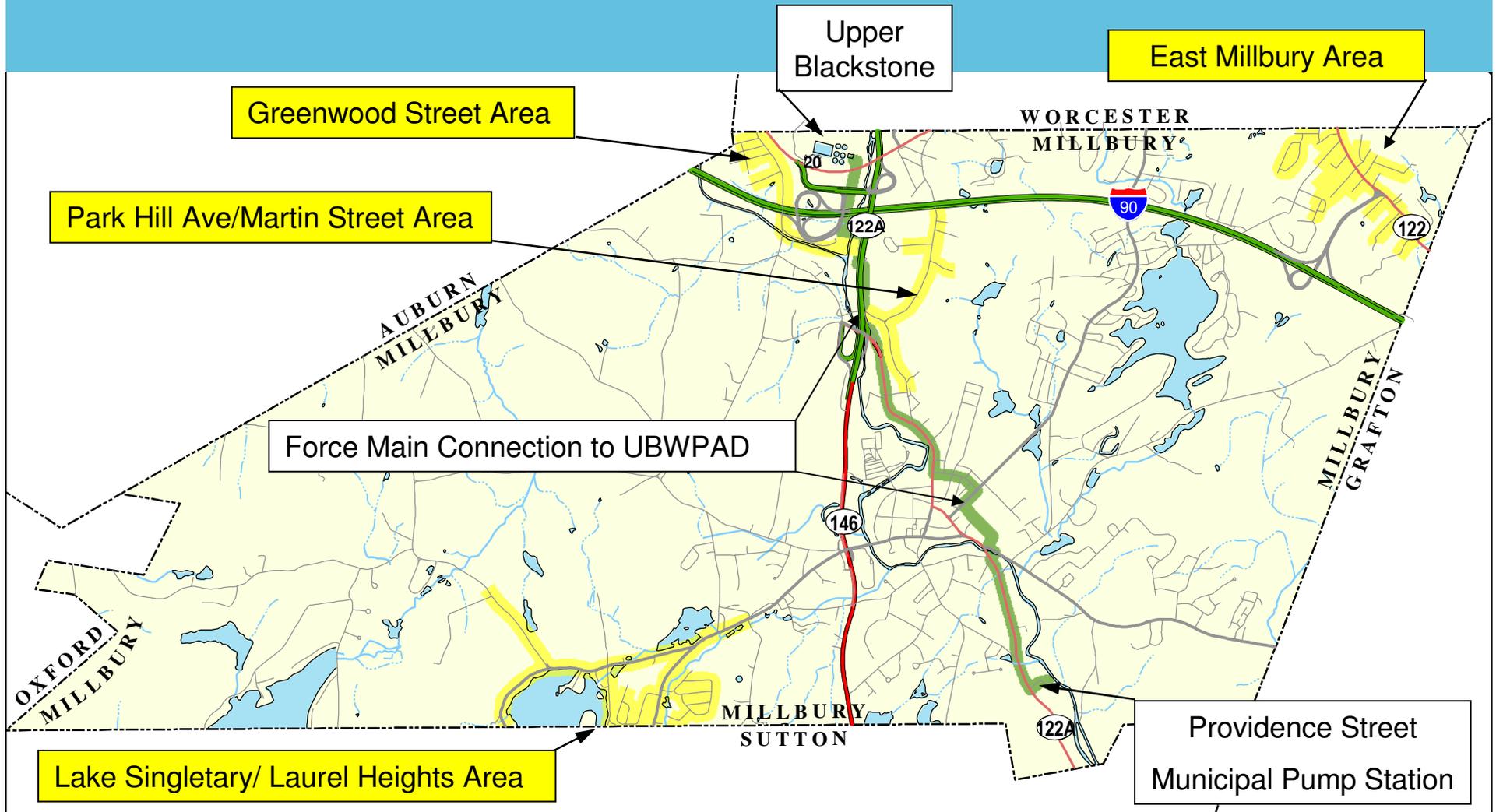
Support Utilities



Municipal Pump Station at Providence Street



Sewer Expansion Areas Recommended by CWMP



Sewer Expansion Projects

- 4 Sewer Needs Areas Recommended by 1998 CWMP based on poor soils
 - Greenwood Street
 - Laurel Heights/Lake Singletary
 - East Millbury
 - Park Hill Avenue/Martin Street
- Considered SRF Eligible March 2005
- Estimated Project Total \$21.5M- Final Projected \$18.5M
 - Underrun afforded opportunity to address critical issues
- SRF Funding at 2% over 30 years – by Sewer Users
 - \$250K from Sewer Enterprise Fund
 - \$500K from MassPike towards Pump Station connection

Greenwood Street Area

June 2006 – August 2007

Contractor – P. Gioioso & Sons



- 1.2 Miles of Sewer
- 75 Service Connections (+ 15 future)
- 1 Pump Station at MTA
- Challenges
 - MassPike Coordination
 - New 3-phase NGRID Service
 - Deep Sewer Construction
 - Ledge
 - Connection to other contracts
 - Railroad Crossing
 - Permitting & Easements

Greenwood Street Closed for Safety



Greenwood Street Area - Deep Sewer Construction



Greenwood Street – Deep Excavation & Ledge



Greenwood Street – Ledge (Unfortunately typical throughout Millbury)



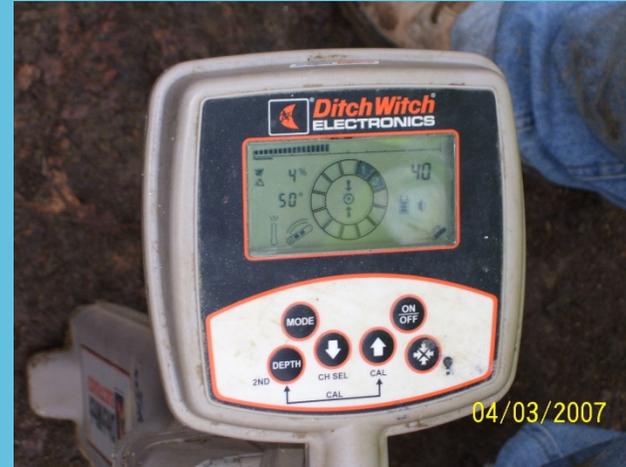
Directional Drilling Under Railroad Tracks Force Main Connection from Greenwood St PS



Directional Drilling – Vermeer Rig



Directional Drilling 8-in Welded Steel Casing Pipe Receiving Pit and Equipment



Blasting at MTA Site for Pump Station



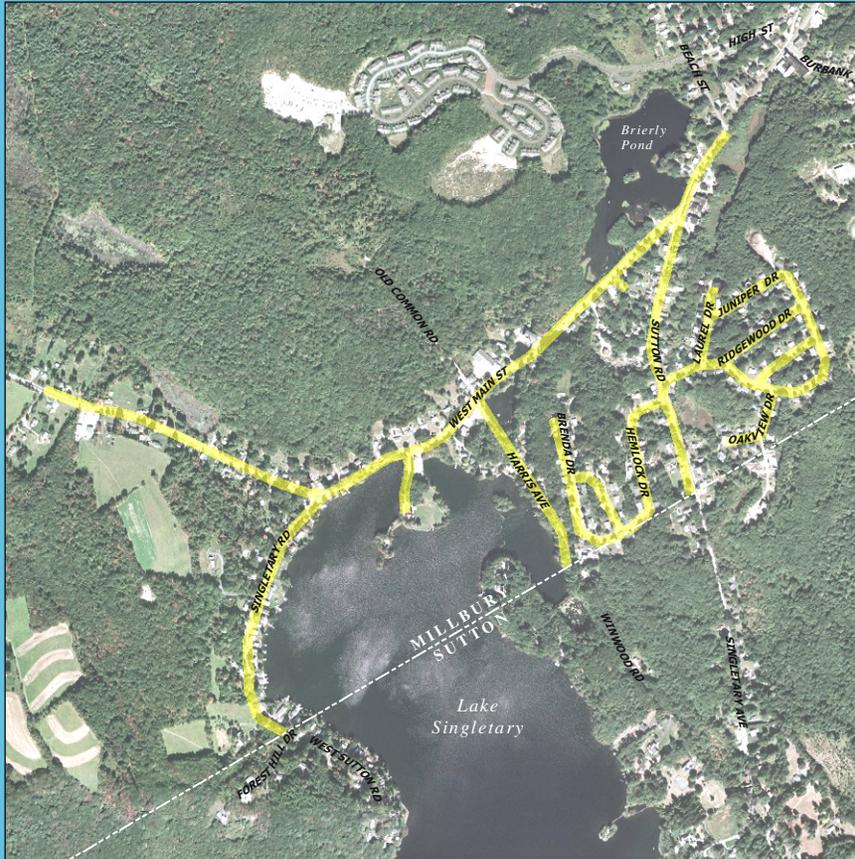
Greenwood Street Pump Station Located at Exit 10A MassPike Toll Plaza



Laurel Heights/Lake Singletary Service Area

April 2007 – September 2008

Contractor – J.A. Polito & Sons



- 5 Miles of Gravity and Low Pressure Sewer
- 230 Properties Served (+30 future)
- Challenges
 - Brierly Pond Dam crossing
 - Existing drainage issues
 - Expected contaminated area
 - Significant ledge encountered
 - Coordination with Sutton

Brierly Pond Dam/ West Main Street



HDD Insertion Pit



HDD Receiving Pit



Directional Drilling – Receiving Pit Pull-back of Drill to excavate boring hole for HDPE Siphon



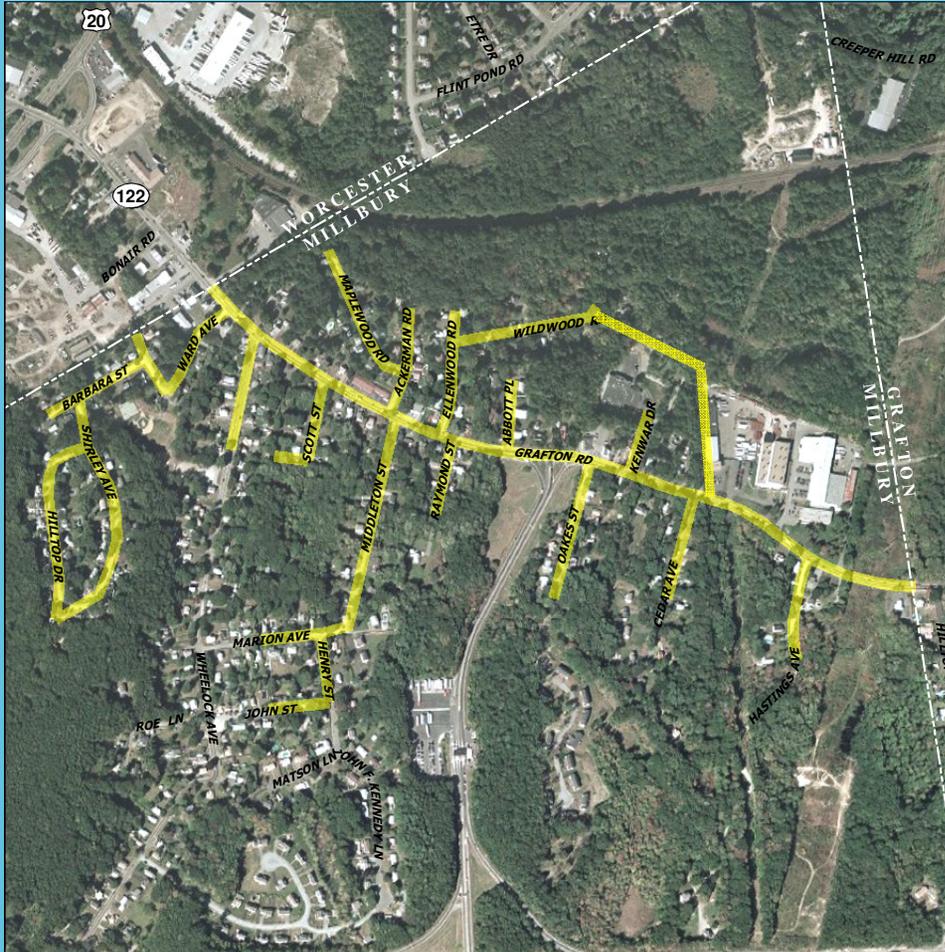
Final Paving in Laurel Heights Area



East Millbury Service Area

March 2008 – December 2009

Contractor - Fed Corp



- 5 Miles of Gravity & Low Pressure Sewer
- 290 Properties Served (+45 future)
- 3 Pump Stations
- Challenges
 - MassPike Interchange
 - Cross-Country Easements
 - Hazardous Waste (21E)
 - NGRID
- Final Completion Spring 2010

Grafton Road at MassPike Exit 11



Grafton Road Street Sewer Construction



EOT – Railroad ROW Easement



EOT – Railroad ROW Easement



- Ledge found in EOT ROW
- Sewer over 20 ft deep
- Cross-country easement to connect Wildwood Street area to Grafton Road

Pump Station Check-out November 2009



Pump Station at Hastings Avenue- Typical Layout



Additional Work to Address Critical Issues

- Knollwood Pump Station Upgrade
 - Complete replacement of outdated equipment
 - Improves reliability of station
 - Consistent layout and equipment to other new pump stations
- Drainage Improvements in Marion Avenue Area
 - John Street, Henry Street & Marion Avenue
 - Drainage Easement to MassPike Property
- Ward Avenue Drainage Pump Station
 - Activated during wet weather
 - Transfers road runoff to catch basin on Grafton Road
 - Reduces roadway flooding
 - Back-up power provided by generator at sewer pump station

Ward Avenue Drainage Issues

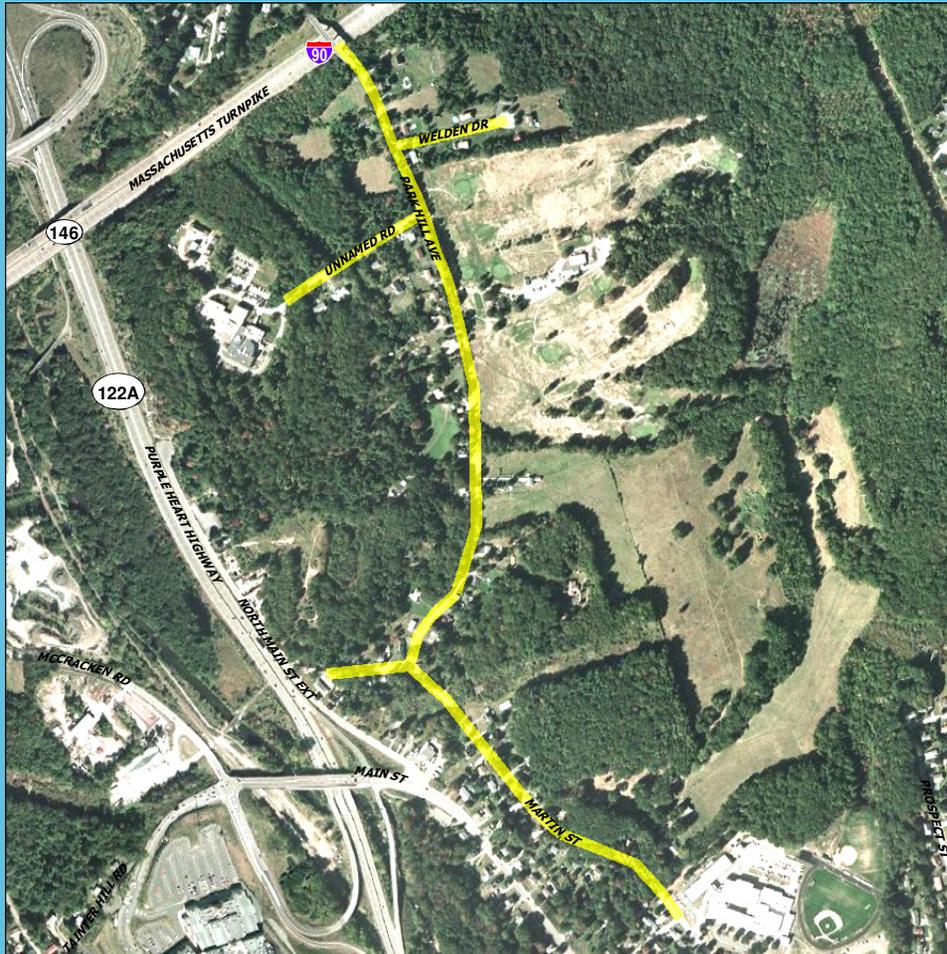


Ward Avenue Drainage Pump Station



Park Hill Avenue-Martin Street Extension

May 2008 – September 2009



- 1.1 Miles of Gravity and Low Pressure Sewer
- 50 Properties Served (+27 future)
- Challenges
 - Steep Grade on Park Hill Ave.
 - Open Drainage Ditch
 - Golf Course Coordination
 - Private easements

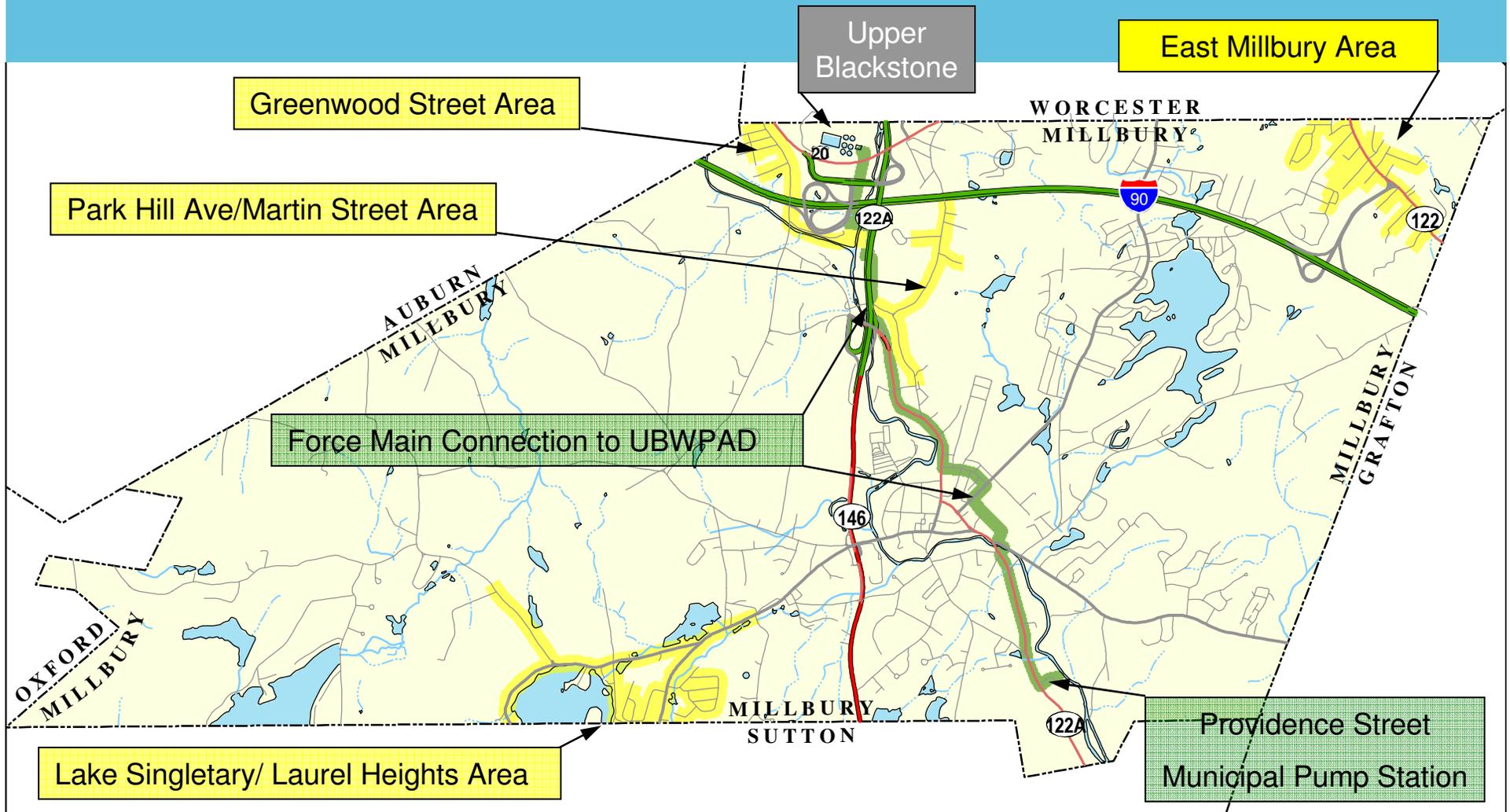
Easement to Connect Martin Street at North Main



Park Hill Avenue – Steep and Narrow



Upper Blackstone Connection & Millbury Expansion



Infrastructure Expansion Summary

- **UBWPAD Connection completed January 2005**
- **Connection Project Total 4 miles of force main, one major pumping station**
- **Sewer Expansion Areas Available for Service**
 - Greenwood Street completed August 2007
 - Laurel Heights/Lake Singletary completed September 2008
 - East Millbury completed December 2009
 - Park Hill Avenue/Martin Street completed September 2009
- **Expansion Project Total 12.3 miles of pipe, 4 pumping stations, and 645 connections**
- **Estimated Final Cost \$29M**
 - \$10.5 M SRF Funded at 0% over 20 years – by Taxpayers
 - \$18.5 M SRF Funded at 2% over 30 years – by Sewer Users

New Streets for Service Connections

East Millbury - April 2010

•Grafton Road	•Middleton Street
•Hilltop Drive	•Raymond Street
•Shirley Avenue	•Oakes Street
•Barbara Avenue	•Cedar Avenue
•Katherine Street	•Hastings Avenue
•Ward Avenue	•Kenwar Drive
•Wheelock Avenue	•Abbott Place
•Scott Street	•Wildwood road
•Marion Avenue	•Ellenwood Road
•John Street	•Akerman Road
•Henry Street	•Maplewood Road

Park Hill/Martin - September 2009

•Park Hill Avenue
•Weldon Drive
•Holman Road
•Martin Street

Special Thanks to:

Millbury Sewer Commission:

Gary Nelson, Chairman
Happy Erickson, Clerk
Frank Gagliardi, Member

Brad Lange, Superintendent

Dept. Public Works Staff (current and former):

John McGarry, DPW Director
Pat Davidson
Fran Pearson
Evelyn Devoe
Diane Lewos

Board of Selectmen:

Bernie Plante, Chairman
Joe Coggans, Jr., Vice Chairman
Kenneth Schold, Clerk
Fran King, Member
Brian Stowell, Member

Robert Spain, Town Manager

Finance Department:

Brian Turbitt, Finance Director
Denise Marlborough, Treasurer

Police Department

PROJECT TEAM

AECOM Representatives:

Dennis Setzko

Joe Boccadoro

Marie Cannon

Jason Kreil

Chris Nelson

Munson Najac

Construction Contractors:

P. Gioioso & Sons

J.A. Polito & Sons

Fed Corp, Inc.

Infiltration/Inflow and Sewer System Evaluation Study (SSES)

- What is it? A study that finds leaky sewer pipes
- Why is it important?
 - Reduces unnecessary flow to Upper Blackstone Treatment Plant
 - Required by upcoming new permit
- What is involved?
 - Phased field investigations
 - Phase I: Flow metering
 - Phase II: Series of field tasks to locate sources of extraneous flow
- What is the schedule?
 - Phase I: Spring 2010
 - Phase II: Summer of 2010 to Spring 2011



Questions?

