

Separating Combined Properties in Chicopee, MA

Allison McMordie, Tighe & Bond

Kayla Larson Dubois, Tighe & Bond

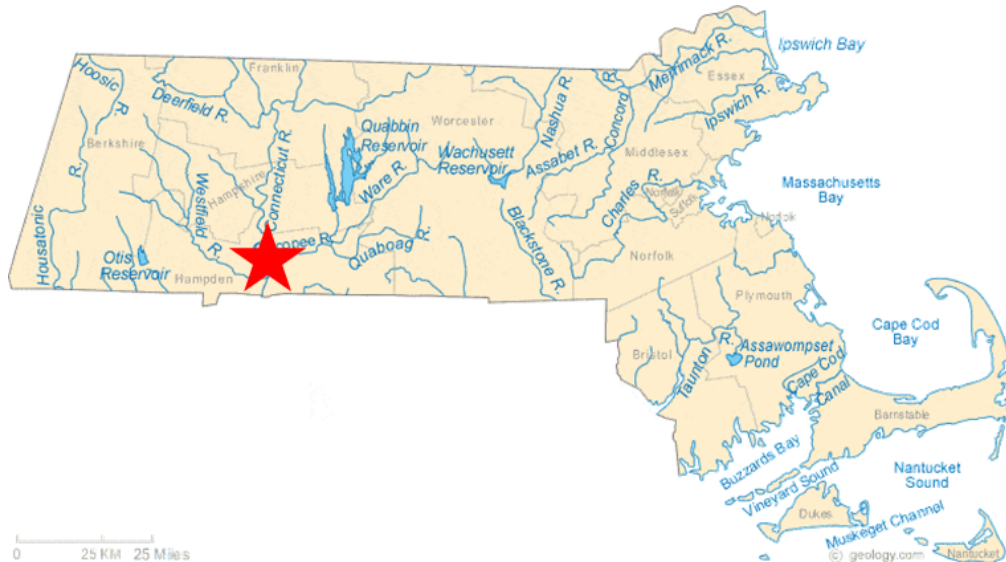
Carl Thurston, Chicopee Water Pollution Control

Outline

- **Chicopee Introduction**
- **Tracking Down Combined Properties**
- **Managing Combined Property Status**
- **Resident Interactions**
- **Difficult Scenarios**
- **Lessons Learned**

Chicopee, MA

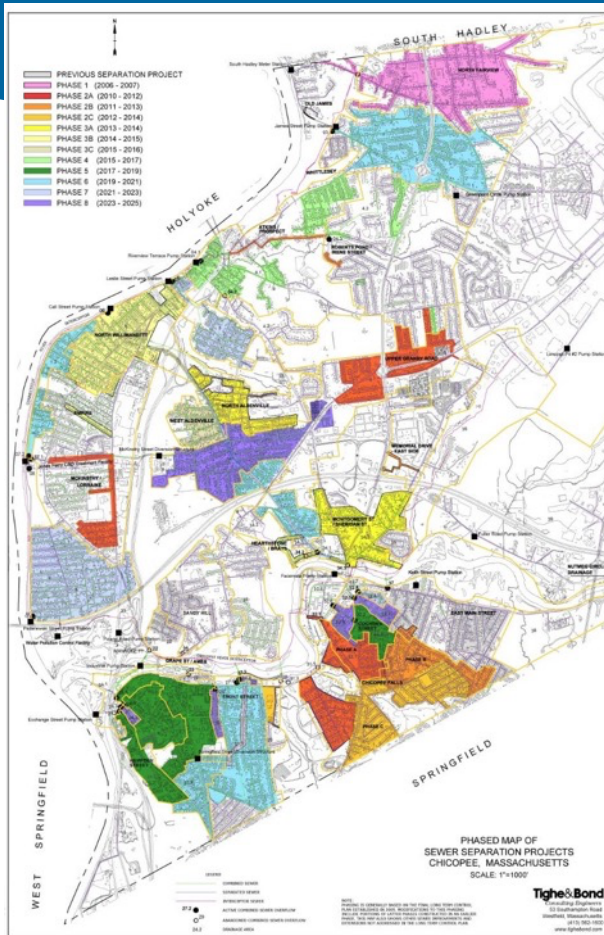
- Population 55,000
- Confluence of Connecticut and Chicopee Rivers

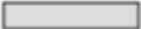







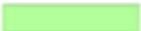






Introduction - Combined Sewers

- Prior to 2000 approximately 70% of the Chicopee's 200 miles of sewer collection system consisted of combined sewers (total of 42 CSOs)
- In 1999 U.S. EPA issued a Consent Order to Chicopee
- Chicopee hired Tighe & Bond to develop the Long Term Control Plan (LTCP)

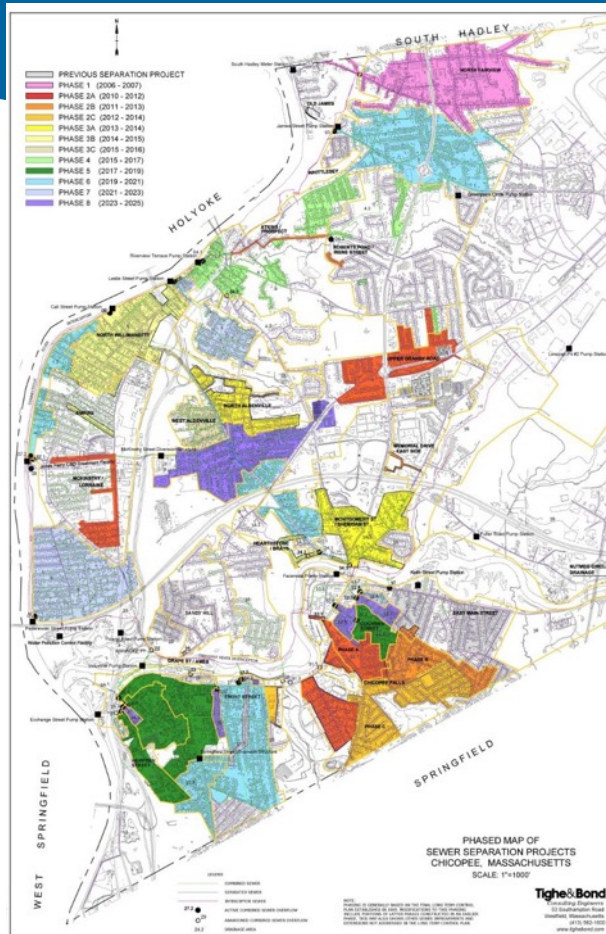
Long Term Control Plan



	PREVIOUS SEPARATION PROJECT
	PHASE 1 (2006 - 2007)
	PHASE 2A (2010 - 2012)
	PHASE 2B (2011 - 2013)
	PHASE 2C (2012 - 2014)
	PHASE 3A (2013 - 2014)
	PHASE 3B (2014 - 2015)
	PHASE 3C (2015 - 2016)
	PHASE 4 (2015 - 2017)
	PHASE 5 (2017 - 2019)
	PHASE 6 (2019 - 2021)
	PHASE 7 (2021 - 2023)
	PHASE 8 (2023 - 2025)

Long Term Control Plan

Following completion of the currently active sewer separation projects, the City will have removed 77% of its average annual untreated volume



Typical Sewer Separation Design

- Existing, larger diameter, clay or concrete combined sewer remains as storm drain
- New PVC pipe installed as separated sewer



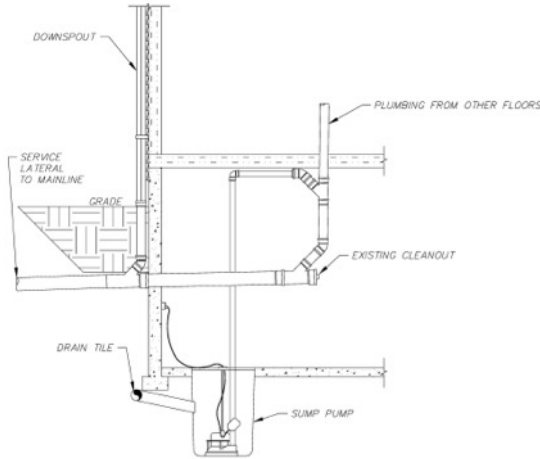
Eliminating I&I

- **Elimination of I&I is a known fortunate byproduct of sewer separation**
- **Infiltration in old leaky combined pipes addressed by installation of new PVC separated sewer main**

Eliminating I&I

- Inflow addressed through enforcing separation of combined private properties

Flat roofs, roof leaders, sump pumps, catch basins, french drains



Eliminating I&I

- **Inflow addressed through enforcing separation of combined private properties**

Flat roofs, roof leaders, sump pumps, catch basins, french drains

Why?

- **Lack of flow capacity – chance of surcharging smaller diameter separated sewer main**
- **Cost for pumping and treating stormwater and groundwater**

Separated Sewer Capacity

#597 Chicopee Street			*Connected to Sewer Main
Item	Measurement	Unit	Notes
Roof	2570	SF	Measured as 75.5' x 34'
Pavement	0	SF	No flow to service according to Service Cards
Lawn	0	SF	No flow to service
Time of Concentration	5	Minutes	Assumed
Combined Houses Upstream			
Size of Service	6"	PVC	
Capacity of Service	330	gpm	*Based on Slope Calculated from Service Card
Size of Main	8"	PVC	
Capacity of Main	215	gpm	*Based on Slope in Plans



	Bold = Average flow in service between property line and main									
Storm (Year)	1	2	5	10	25	50	100	200	500	1000
5 min	55.1	73.4	104.5	131.0	168.6	197.9	227.4	262.7	309.6	347.2

Runoff from the roof of a 2570 SF flat roof building during a 100 year storm could exceed flow capacity of an 8" PVC main at 0.86% slope

Separated Sewer Capacity

#5 Meadow Street		*Roof is combined and connected to Sewer Main	
Item	Measurem Unit		Notes
Roof	9250	SF	Measured as 134' x 69'
Pavement	0	SF	No flow to service according to Service Cards
Lawn	0	SF	No flow to service
Time of Concentration	5	Minutes	Assumed
Combined Houses Upstream			
Size of Service	6"	PVC	
Capacity of Service	160	gpm	*Based on Slope Calculated from Service Card
Size of Main	8"	PVC	
Capacity of Main	160	gpm	*Based on Slope in Plans



	Bold = Average flow in service between property line and main									
Storm (Year)	1	2	5	10	25	50	100	200	500	1000
5 min	198.4	264.2	376.1	471.4	606.7	712.1	818.5	945.7	1114.2	1249.6

Runoff from the roof of a 9250 SF flat roof building during a 1 year storm could exceed flow capacity of an 8" PVC main at 0.40% slope

Tracking Down Combined Properties

Initial E

Start letter

Histo of se

Department of Public Works/Tighe & Bond
Area 6 Willimansett Neighborhood
Chicopee, Massachusetts

House Inspection / Response Form

Street Address 11 SE Antlion Inspection/Response Date 4/24/13

Owner Name Willimansett Weather in Past 24-hrs. _____

Contact Number 408

Name Tighe&Bond Staff SDA Name DPW Staff Present None

Type of Sewer in Street (check one) ☒ Combined _____ Separate _____ Material _____ Diameter _____

Description of Service Lateral _____ Diameter (inches) _____ Material _____

Condition (Good, Fair, Poor) _____ Depth of Lateral (From Sill) _____

Sump Pump (check one) _____ Yes ☒ No _____ Did not check/could not locate _____

Foundation Drain _____ Yes _____ No _____ Notes (material/size) _____

Yard/Pool Drain _____ Yes _____ No _____ Notes _____

Other (check if present) _____ Shut-off valve _____ Check Valve _____

Roof Leader Discharge (check one) _____ No Gutter _____ To Grade _____

_____ Below Surface ☒ Interior to Building

Reason for Inspection / Response _____ Determine service alignment _____ Multiple Services _____

_____ Depth of Lateral (From Sill) _____ Other (Explain Below) _____

Comments / Explanations FLAT ROOF

Notes SEPARATE SDSS (BASEMENT BUILDING)

Sketch CP IN LEAK LOT

J:\CIC0842 Chicopee Area 06\DATA\Basement Inspection Form.xls,Sheet1

Department of Public Works/Tighe & Bond
Area 6 Willimansett Neighborhood
Chicopee, Massachusetts

House Inspection / Response Form

Street Address 11 Call Street Inspection/Response Date 4/23/13

Owner Name Forview Fence Weather in Past 24-hrs. cool, no rain

Contact Number 413-532-5545

Name Tighe&Bond Staff JEG Name DPW Staff Present _____

Type of Sewer in Street (check one) ☒ Combined _____ Separate (DUC) Material 60" Diameter _____

Description of Service Lateral _____ Diameter (inches) _____ Material _____

Condition (Good, Fair, Poor) _____ Depth of Lateral (From Sill) _____

Sump Pump (check one) _____ Yes ☒ No _____ Did not check/could not locate _____

Foundation Drain _____ Yes ☒ No _____ Notes (material/size) _____

Yard/Pool Drain _____ Yes _____ No _____ Notes _____

Other (check if present) _____ Shut-off valve _____ Check Valve _____

Roof Leader Discharge (check one) _____ No Gutter _____ To Grade _____

_____ Below Surface ☒ Interior to Building

Reason for Inspection / Response _____ Determine service alignment _____ Multiple Services _____

_____ Depth of Lateral (From Sill) _____ Other (Explain Below) _____

Comments / Explanations in basement

Notes no basement, roof drains off hole to surface

calistm stakes

Sketch

J:\CIC0842 Chicopee Area 06\DATA\Basement Inspection Form.xls,Sheet1

Tracking Down Combined Properties

Initial Efforts

- **Start of project: generic letter to all residents**
- **Historical City call records of sewer backups**
 - Access database and stacks of basement investigation forms
- **Investigate during construction phase**



Tracking Down Combined Properties

Increased Investigation

- **Investigate during design phase of projects**
 - More time to design
 - More time for resident to separate
 - CSO abandonment deadline is a hard date
- **Field walks**
- **Basement inspections**
- **Investigate houses within groundwater influence by studying groundwater level (borings) and basement depth (survey)**

Managing Combined Property Status

Where We Started

- Single spreadsheet distributed to team weekly
- Categorized by status of property
- All parties in construction responsible for coordination

						ACTION				
*Filter word: NW/Combined Properties Project 11 Completed Inspections						Need inspection Determine if Ruidisat will need a SD service or will discharge SD flow to surface Determine the location of the storm drain service Install SD service at location described No Further Action Required Private Service Separation / Property Needs Push-Separation Inspection * Change occurred on this week list				
*Last time Truck hot checked 2/14/15										
Street	House #	Description	Action	Contact Info	Updated Comments	Street Service Will Flow To	Mainline Drain Size & Pipe Type	Mainline Pipe Connection (Wye or Tee or S-Tee)	Property Separated	Change ? (*)
Chicago	573	Roof investigation	No further action required		5/2/15: ARGR/AV inspected. Not combined. No further action needed.		21" PVC			
Chicago	580	CB in parking lot, possibly combined	Determine if Ruidisat will need a SD service or will discharge SD flow to surface			Pump Street	12" VC	Insert w/Tee		
Chicago	584-585	Flat roof, possibly combined	Determine if Ruidisat will need a SD service or will discharge SD flow to surface	Mary Bernhardt 415-531-3942	3/2/14: basement inspection, 3 SD pipes, one roof drain stuck with 23 knock-up in basement. 6/25/15: RAW spoke with resident, listed resident sold property.	Pump Street	12" VC	Insert w/Tee		
Chicago	587	Interior roof leaders, likely combined	Install SD service at location described	Ronald Pauls 415-538-8253	5/26/15: JED met Owner. Wants SD on right side of building. He SD pipe will exit building approximately 6' left of corner of building. (note: building allowed to roof). 4/25/15 basement inspection: combined 18/15/15 JED met with Gray (Plumber) on 5/15/15 to discuss where the storm drain connection will take out of the house and where the storm drain service should go. The location has been marked out, see photo in service card book.	Chicago Street	18" RCP and 21" RCP	Insert w/Tee		
Chicago	590	Roof leads to grade flat roof	No further action required		Basement inspection on 3/26/14. Push to roof down report to grade.					
Chicago	595	Flat roof, definitely combined. W/B here to regrade roof drains - just rebuilt roof, no basement not happy. See times Truck from 3/5/14	Private Service Separation / Property Needs Push-Separation Inspection	Dorey Bracco 415-575-6639	5/26/15 JED met Owner. Wants SD JED on exterior street side. APPROXIMATE 5x14x10 (left of left basement window). Please call him with schedule update or time appropriate so he can connect with truck to inspect. Basement inspection on 7-15-15, roof drain thru reports stuck in middle of property, combined with 2 power sticks beneath slab. Further inspection on 8-10-15, flat roof is Combined. 18-15 GBM installed PVC pipe and fittings from 4" CI pipe to drain main and from 6" VC to sewer power main.	Nebraska Street	18" RCP and 20" C-Box	Insert w/Tee		
Chicago	597	Interior roof leaders, likely combined	Determine if Ruidisat will need a SD service or will discharge SD flow to surface	Phonak Seals 415-544-8001	JMR spoke with resident 02/20/15. Ruidisat is getting plumber inspection basement on 5-1-15, so getter, flat roof, not so combined? Insert! 6/25/15 RAW left message. 5/26/15: JMR visited home and met with owner, home appears to be combined. Ruidisat to contact a plumber and get back to us.		18" RCP and 20" C-Box			
Chicago	600	Interior Roof Leaders	No further action required	Dorey 415-532-6132	Basement inspection on 4-22-15, ramp pump and yard/pool drain present, 2 pilot CBs, requires SD and no combined. SD RAW approved.					
						5/2/15: ARGR/JED met with property manager. She				

Managing Combined Property Status

Where We Are Now

- Web-based
- PDFs
- Photos
- Central Location
- Sortable



Post 39

Allison McMordie
To: Assignees, My company

Open

44 Park
Sewer Investigation 11-24-15, unable to complete further storm drain inves
Property has flat roof with no roof leaders.
1 pink card and 1 phone call to complete storm drain inspection.
Posted Tuesday, November 1st 2016 at 10:41 AM EDT

Park Street > 44
1 C-1029-LOCUS_HOUSE SERVICES-HAMPDEN AREA

17: Combined, 02: Tap Location Known, 18: Waiting for Resident to Separate, 1

Attachments
Park Street #44.pdf
(375.16 KB)

All Media

Assigned to
City of Chicopee DPW-WPC

No due date Open

1029 PHASE 5 CONTRACT A SEWER SEPARATION PROJECT
HOUSE INSPECTION / RESPONSE FORM
STREET ADDRESS: HSE#44 PARK STREET
OWNER NAME: Paul DeMott PHONE NUMBER: (413) 321-4776 MAIN: COMBINED SEPARATED)
DATE COMPLETED: 11/24/15 OBSERVER: SM WEATHER: 32°F clear

REASON FOR INSPECTION/RESPONSE: Find SS (4x10) HSE#44 5' VC FE work

SERVICE: SIZE 4" MATERIAL C CONDITION (GOOD, FAIR, POOR) TAP LOCATION: STA. 4+10

DEPTH FROM SILL/FF 7' 5" INTO (SLAB, WALL)

SUMP PUMP: (YES/NO) DID NOT CHECK/COULD NOT LOCATE (YES/NO)

YARD/POOL DRAIN: (YES/NO) NOTES

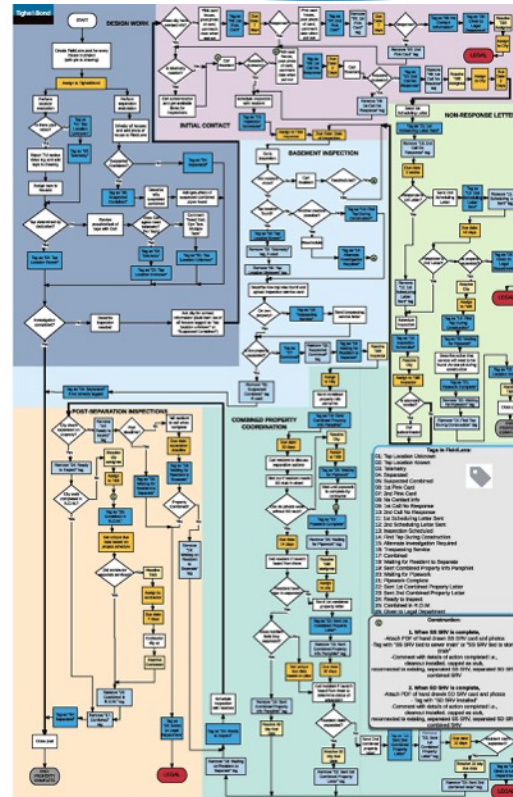
SHUT OFF VALVE: (YES/NO) CHECK VALVE (YES/NO)

PROPERTY COMBINED: (YES/NO)

ROOF LEADER: (NO GUTTER, BELOW SURFACE, TO GRADE, INTERIOR TO BUILDING)

DISCHARGE:

Managing Combined Property Status

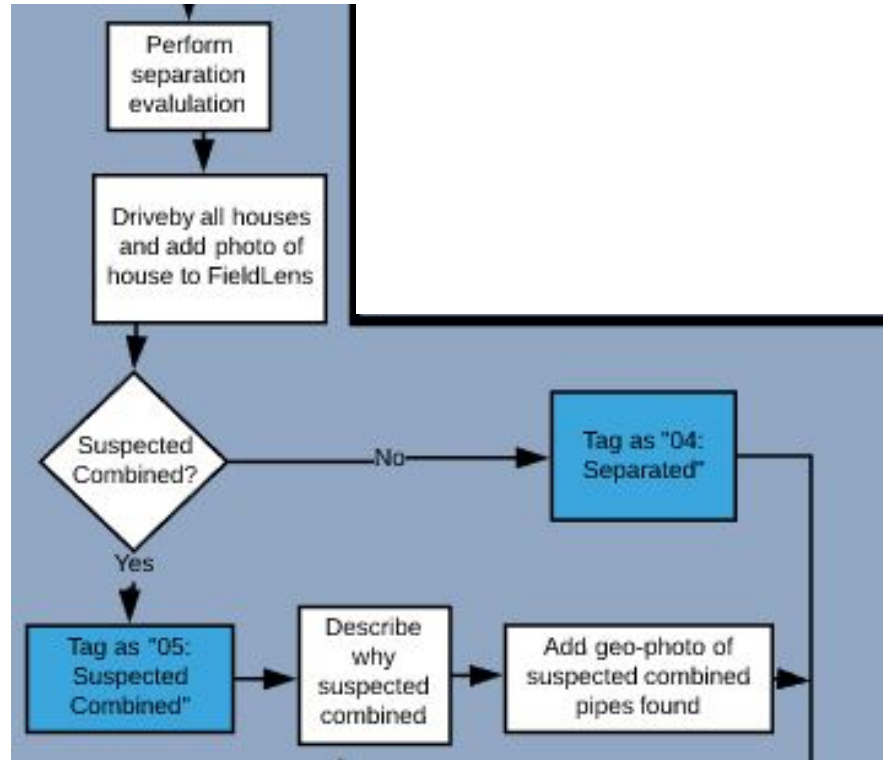


Tags in FieldLens:

- 01: Tap Location Unknown
- 02: Tap Location Known
- 03: Telemetry
- 04: Separated
- 05: Suspected Combined
- 06: 1st Pink Card
- 07: 2nd Pink Card
- 08: No Contact Info
- 09: 1st Call No Response
- 10: 2nd Call No Response
- 11: 1st Scheduling Letter Sent
- 12: 2nd Scheduling Letter Sent
- 13: Inspection Scheduled
- 14: Find Tap During Construction
- 15: Alternate Investigation Required
- 16: Trespassing Service
- 17: Combined
- 18: Waiting for Resident to Separate
- 19: Sent Combined Property Info Pamphlet
- 20: Waiting for Pipework
- 21: Pipework Complete
- 22: Sent 1st Combined Property Letter
- 23: Sent 2nd Combined Property Letter
- 24: Ready to Inspect
- 25: Combined in R.O.W.
- 26: Given to Legal Department



Managing Combined Property Status



Managing Combined Property Status

The screenshot displays the BCS House Investigations software interface. The top navigation bar includes 'Feed', 'People', 'Drawings', 'Insights', and a 'New Post' button. The main header shows 'C-1029-BCS Locus House Services' with filters for 'Civil' and 'No Location', and a 'Posts 170' indicator. The interface features a map view with property status markers (blue, yellow, and brown) overlaid on a street map. A sidebar on the left contains a search bar and a filter section. The filter section includes a 'Search project...' input, a 'Show results for:' dropdown, and a 'Post status:' section with checkboxes for 'Unassigned' (6), 'Open' (31), 'Resolved' (0), and 'Closed' (133). Below this, there are checkboxes for 'Unread', 'Past Due', 'Resource tracking', and 'To me/I've responded'. The map view shows a street map with property status markers (blue, yellow, and brown) overlaid on a street map. The map is labeled 'BAY STATE ROAD AREA' and 'PHASE SA (N.I.T.C.)'. The bottom right corner of the map shows a legend for 'BAY STATE ROAD AREA' and 'PHASE SA (N.I.T.C.)'.

BCS House Investigations

Feed People Drawings Insights

New Post

C-1029-BCS Locus House Services - C-1029-BCS Locus House Services Civil No Location

Posts 170

76 13 81

Filter

Search project...

Show results for:

Post status:

Select one or more

- ☒ Unassigned 6
- ☒ Open 31
- ☒ Resolved 0
- ☒ Closed 133

Unread

Past Due 0

Resource tracking 0

To me/I've responded 3

Locations >

Categories >

Caution: You have 1000 Photos

Reset

BCS House Investigations

Feed People Drawings Insights

New Post

C-1029-BCS Locus House Services - C-1029-BCS Locus House Services Civil No Location

Posts 170

76 13 81

BAY STATE ROAD AREA

PHASE SA (N.I.T.C.)

CLARKSON AVENUE AREA

PHASE SA (N.I.T.C.)

LEGEND

- BAY STATE ROAD AREA
- PHASE SA (N.I.T.C.)
- CLARKSON AVENUE AREA
- PHASE SA (N.I.T.C.)

Resident Interactions

- Public Meeting
- Phone calls
- Door hangers delivered to buildings
- Knock on doors
- Letters throughout the process
 - explaining combined properties

City of Chicopee
The City of Chicopee will be working on your street.

Date Work is expected to begin _____

The City will be installing:

<input type="checkbox"/> Water Main	<input type="checkbox"/> Sanitary Sewer Main
<input type="checkbox"/> Water Services	<input type="checkbox"/> Sewer Services
<input type="checkbox"/> Storm Drainage	<input type="checkbox"/> Roadwork
<input type="checkbox"/> Sidewalks	

The Work will be performed in the City's right of way:

<input type="checkbox"/> In the roadway
<input type="checkbox"/> In walkways, yards, and/or driveways

During construction hours (7:00 AM to 5:00 PM):

- You may not have vehicular access to your street and/or home.
- Your water service may be briefly interrupted. Planned interruptions will be given 24-hour notice.

The contractor will be returning at a later date to restore your lawn, sprinkler systems, sidewalk and driveway

☐ Please mark your sprinkler system heads and pipes. The City can provide white flags if needed.

☒ The City needs to access your home to locate your sewer service connection. Please call your on-site construction inspector.

☐ Your water service was interrupted today. Please run water through your outside hose spigots for a few minutes before using any indoor fixtures.

Questions and Concerns
Speak to your on-site construction inspector:

Tighe & Bond
Allison McMorris
(555)-555-5555

Chicopee Water Pollution Control Facility
413-594-3585
PLEASE CHECK BOTH SIDES

CITY OF CHICOPEE
DEPARTMENT OF PUBLIC WORKS

William J. Wood
Chief Operator

February 2, 2017

Quinn T. Lenczak
Project Supervisor

Property Owner,

Previously been sent a notice for your property referenced above, that the sewer work planned for your area may affect your sewer service connection. As you may have forgotten this important notice, the City along with our consulting engineering firm, Tighe & Bond, is requesting an inspection of the plumbing at this location. I cannot overemphasize the importance of contacting us to ensure that your sewer service is connected to the new sewer system. You are provided with uninterrupted service. We may need to perform dye testing of your floor drains and roof drains to ensure these outlets discharge properly to either the sewer or storm drain system.

As not yet been verified, we cannot connect you to the new sewer system when built. A letter could be the City would be required by Massachusetts Department of Environmental Protection to terminate your sewer service.

Inspections are usually quick and we will endeavor to minimize any inconvenience to you. Please call me at 413-313-3367 to schedule this appointment for you.

Sincerely,

Carl Thurston
Collection System Supervisor

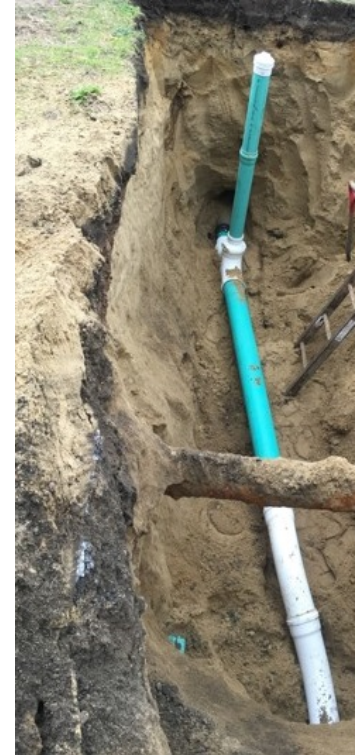
Carl Thurston

Water Pollution Control

RECEIVED 02/02/2017 10:00 AM - 100 E. MAIN ST. CHICOPEE, MA 01020-1000

Resident Interactions: Aid

- **City will pay for new storm drain service from the storm drain main to the property line**
 - Town codes
- **Financial assistance through local banks**
- **Help residents create plan for replumbing basements**
 - Walk through step by step



Difficult Scenarios

■ Residents

- Tenants vs. Landlords
- Non-responsive residents
- Residents not completing work



■ In-field issues

- Unknown where combined (dye test/tracing)
- No drain mainline on street



Lessons Learned

■ Start early!

- Gives more time for design
- Allow time for resident education and separation

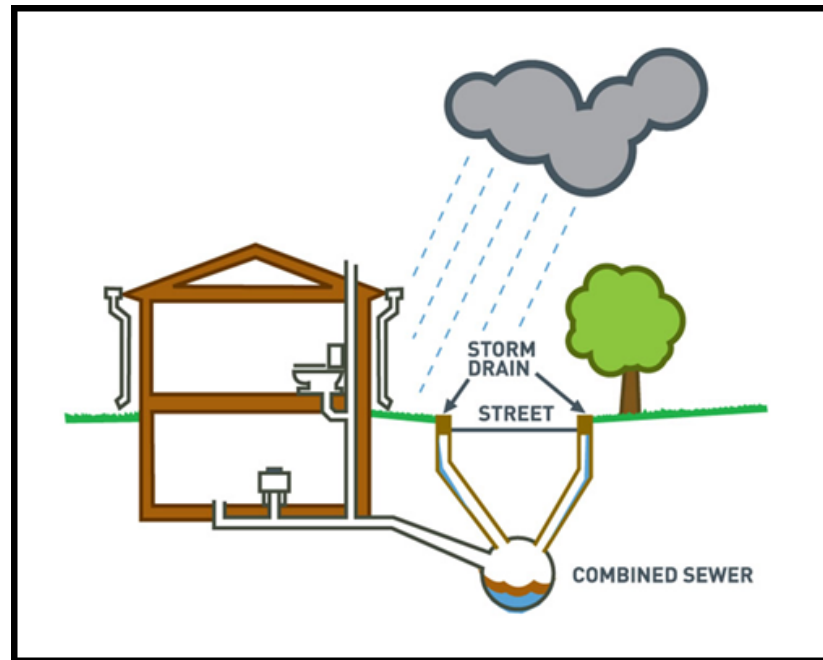
■ Centralized location for all data

- Track every interaction with residents to avoid residents hearing information multiple times, potentially even conflicting information!

■ Work as a unified team, follow distinct steps

Future Ideas

- 3D Diagrams explaining property separation
- Video describing sewer separation sent to residents
- Inspect every house and camera sewer services



Questions?

Allison McMordie, Tighe & Bond

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Kayla Larson Dubois PE, Tighe & Bond

KMLarson@tighebond.com

Carl Thurston, Chicopee Water Pollution Control

CThurston@ChicopeeMA.gov