



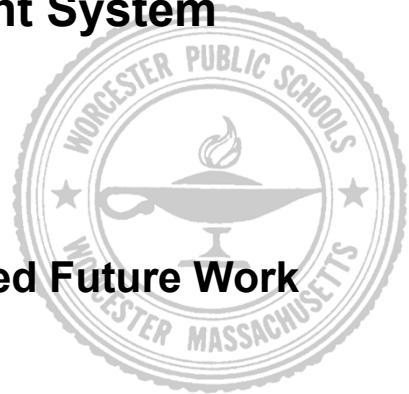
Worcester Public Schools

2010 2011 2012 2013 2014 2015 2016 2017 2018

District's Environmental Management System

Best Management Practices Timeline

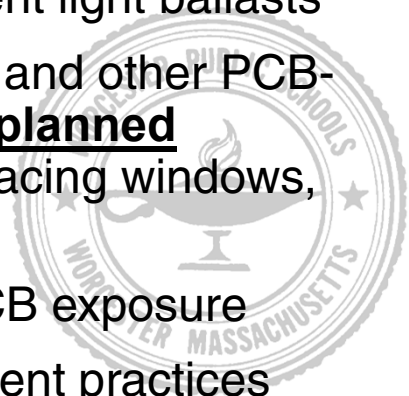
Summary of Work Completed and Planned Future Work
January 2017



EPA Guidance for PCBs:

2010 2011 2012 2013 2014 2015 2016 2017 2018

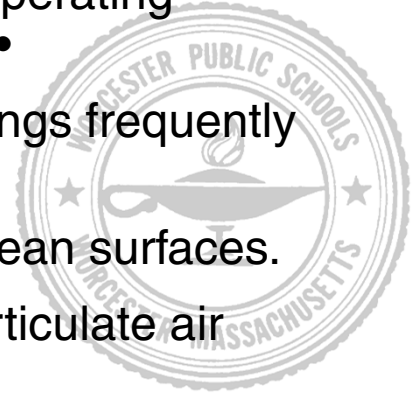
- Remove all PCB-containing fluorescent light ballasts
- Remove PCB-containing caulk, paint and other PCB-containing building materials **during planned renovations and repairs** (when replacing windows, doors, roofs, ventilation, etc.)
- Consider encapsulation to reduce PCB exposure
- Conduct the following best management practices



■ ■ ■ EPA Best Management Practices

2010 2011 2012 2013 2014 2015 2016 2017 2018

- Ensure that ventilation systems are operating properly and are regularly inspected •
- Clean inside schools and other buildings frequently to reduce dust and residue.
- Use a wet or damp cloth or mop to clean surfaces.
- Use vacuums with high efficiency particulate air (HEPA) filters.



■ ■ ■ WPS Action Steps

2010 2011 2012 2013 2014 2015 2016 2017 2018

District creates Environmental Management System Committee to address all environmental materials in schools



PCB Management Best Practices

2010 2011 2012 2013 2014 2015 2016 2017 2018

Worcester Public Schools engage Triumvirate Environmental, Inc. as consultant to conduct **PCB building assessments**

Cost: \$197,550



PCB Management Best Practices

2010 2011 2012 2013 2014 2015 2016 2017 2018

The district self identifies the following schools as being constructed or having major renovation during period of time PCBs were used in building materials in school construction projects in the country.



PCB Management Best Practices

2010 2011 2012 2013 2014 2015 2016 2017 2018

In Massachusetts
approximately **900** schools
were constructed during **1950-1980**



Source: Massachusetts School Building Authority
2010 Needs Survey (page 19)

PCB Management Best Practices

2010 2011 2012 2013 2014 2015 2016 2017 2018

Worcester Schools Constructed (1950-1978)

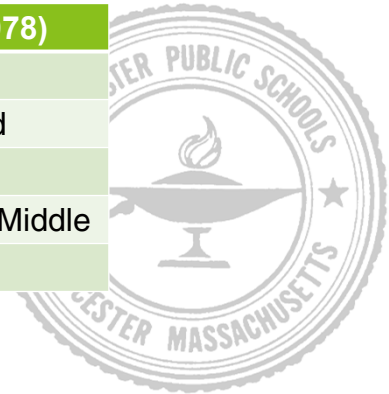
1. Belmont Street	8. Elm Park	15. South High
2. Burncoat High	9. Flagg Street	16. Union Hill #2
3. Burncoat Middle	10. Forest Grove Middle	17. Wawecus Road
4. Chandler Elementary	11. McGrath Elementary	18. West Tatnuck
5. Chandler Magnet	12. Mill Swan	19. Worcester Arts Magnet
6. Clark Street	13. New Citizens Center	
7. Doherty High	14. North High	

PCB Management Best Practices

2010 2011 2012 2013 2014 2015 2016 2017 2018

Schools With Major Renovation (1950-1978)

1. Columbus Park	6. Rice Square
2. Greendale	7. Thorndyke Road
3. Harlow Street	8. Tatnuck Magnet
4. May Street	9. Worcester East Middle
5. Nelson Place	



PCB Management Best Practices

2010 2011 2012 2013 2014 2015 2016 2017 2018

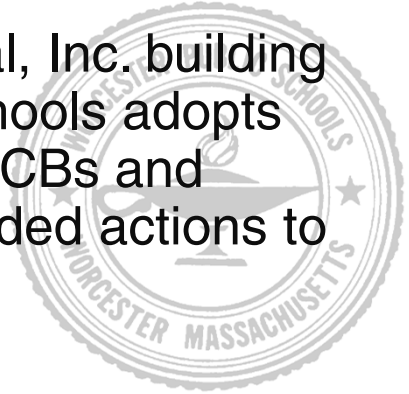
Worcester Public Schools meets with **Environmental Protection Agency** to discuss building assessment plans and next steps.



PCB Management Best Practices

2010 2011 **2012** 2013 2014 2015 2016 2017 2018

Based on Triumvirate Environmental, Inc. building assessments, Worcester Public Schools adopts **Best Management Practices** for PCBs and issues bid invitations for recommended actions to be completed.



MSBA Projects

2010 2011 **2012** 2013 2014 2015 2016 2017 2018



Nelson Place School invited into MSBA Replacement Program.

Total Cost of School: \$55.7 million



PCB Management Best Practices

2010 2011 **2012** 2013 2014 2015 2016 2017 2018

Best Management Practices Work completed, to include .

- Removal of all PCB containing light ballasts
- HVAC work to address fresh air intake
- Targeted surface cleaning
- Window caulk and glazing

Total Cost of Work: \$1.4 million



PCB Management Best Practices

2010 2011 **2012** 2013 2014 2015 2016 2017 2018

Various updates to **Environmental Protection Agency** about work completed by district.



Environmental Management

2010 2011 2012 2013 2014 2015 2016 2017 2018

Worcester Public Schools issues RFP and selects O'Reilly, Talbot, and Okun as district's **Environmental Consultant** after RFP selection process.



MSBA Projects

2010 2011 2012 2013 2014 2015 2016 2017 2018

MSBA funded **Window Replacement Projects** at:

- Chandler Magnet School
- Lake View School
- May Street School
- New Citizens Center

Total Cost of Projects: \$8.0 million



MSBA Projects

2010 2011 2012 2013 **2014** 2015 2016 2017 2018

MSBA funded **Window Replacement Projects** at:

- Columbus Park School
- Tatnuck Magnet
- Worcester Arts Magnet

Total Cost of Projects: \$6.3 million



MSBA Projects

2010 2011 2012 2013 2014 **2015** 2016 2017 2018

South High School invited into MSBA Renovation/Replacement Program.

Current Status: Feasibility Study Phase



2010 2011 2012 2013 2014 **2015** 2016 2017 2018

Various updates to **Environmental Protection Agency** about work completed by district.



2010 2011 2012 2013 2014 **2015** 2016 2017 2018

MSBA funded **Window Replacement Projects** at:

- Goddard Elementary
- Union Hill School
- West Tatnuck School
- Clark Street School

Total Cost of Projects: \$12.9 million



PCB Management Best Practices

2010 2011 2012 2013 2014 2015 **2016** 2017 2018

O'Reilly, Talbot, and Okun conducts Visual Inspections of Buildings as part of recommended **Management Best Practices**.



MSBA Projects

2010 2011 2012 2013 2014 2015 **2016** 2017 2018

District re-submits to MSBA for **Replacement Projects** at:

- Doherty Memorial High School
- Burncoat High School
- Worcester East Middle School

District notification expected in January 2017



MSBA Projects

2010 2011 2012 2013 2014 2015 **2016** 2017 2018

MSBA funded **Window Replacement Projects** at:

- Jacob Hiatt
- Flagg Street
- McGrath Elementary
- Grafton Street

Total Cost of Projects: \$13.1 million



PCB Management Best Practices

2010 2011 2012 2013 2014 2015 **2016** 2017 2018

District provides update to **Environmental Protection Agency** about work completed to date.

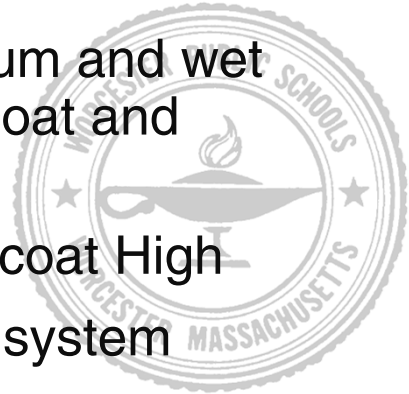


PCB Management Best Practices

2010 2011 2012 2013 2014 2015 **2016** 2017 2018

December 2016

- Full surface cleaning (HEPA vacuum and wet mop process) completed at Burncoat and Doherty High Schools
- Additional caulking added at Burncoat High
- Repairs and Balancing of heating system



PCB Management Best Practices

2010 2011 2012 2013 2014 2015 2016 **2017** 2018

Department of Public Health Air Quality Assessments and Visual Inspections:

- **January 12 at Burncoat High**
- **February 16 at Doherty High**



PCB Management Best Practices

2010 2011 2012 2013 2014 2015 2016 2017 2018

Next Steps: Burncoat High School

- Clean floor heat vents and install filters
- Evaluate school's ductwork for cleaning or replacement
- Explore window shade replacements
- Develop Protocol for Air Testing for PCBs

PCB Management Best Practices

2010 2011 2012 2013 2014 2015 2016 2017 2018

Next Steps: Doherty High School

- Continued maintenance of air handling units.
- Explore building controls updating for optimal utilization of HVAC system
- Develop Protocol for Air Testing for PCBs

PCB Management Best Practices

2010 2011 2012 2013 2014 2015 2016 **2017** 2018

Next Steps: Burncoat & Doherty High Schools

- Continue to submit schools to MSBA for full replacement / renovation projects
- Advance Burncoat High School simultaneously as window replacement project.



MSBA Projects

2010 2011 2012 2013 2014 2015 2016 **2017** 2018

MSBA funded **Window Replacement Projects** at:

- Belmont Street
- Chandler Elementary
- Gerald Creamer Center
- Wawecus Road School

Estimated Cost of Projects: \$12.0 million



MSBA Projects

2010 2011 2012 2013 2014 2015 2016 2017 **2018**

District will request School Committee and City Council to authorize the district to submit in 2017 Statement of Interest Period

Window Replacement Projects for:

1. Burncoat High
2. Elm Park Community
3. Lincoln Street (& Roof and Boiler)
4. Rice Square
5. Thorndyke Road



PCB Management Best Practices

2010 2011 2012 2013 2014 2015 2016 **2017** 2018

Schools Constructed (1950-1978)

1. Belmont Street	8. Elm Park	15. South High (MSBA Feasibility Phase)
2. Burncoat High	9. Flagg Street	16. Union Hill #2
3. Burncoat Middle	10. Forest Grove Middle	17. Wawecus Road
4. Chandler Elementary	11. McGrath Elementary	18. West Tatnuck
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MSBA Completed windows

Windows/School Replaced

2017 SOI Submittal

Core Project Submittal

PCB Management Best Practices

2010 2011 2012 2013 2014 2015 2016 2017 2018

Schools With Major Renovation (1950-1978)

1. Columbus Park	6. Rice Square
2. Greendale	7. Thorndyke Road
3. Harlow Street	8. Tatnuck Magnet
4. May Street	9. Worcester East Middle
5. Nelson Place	

MSBA Completed windows

Windows/School Replaced

2017 SOI Submittal

Core Project Submittal

Summary

2010 2011 2012 2013 2014 2015 2016 2017 2018

\$53.8 million investment into **Management Best Practices and Window Replacements** since 2012 in addition to replacement of Nelson Place School (**\$55.7 million**) and South High School (\$ TBD).