

**Technical Assistance
for Code Transformation
and Innovation Collaborative
(the TACTIC Project)**

**Final Report for the
City of Bay City, Michigan**

by

**David E. Jacobs, PhD, CIH
Sarah Goodwin**

for the
**Michigan Department of Health and Human Services,
Child Lead Exposure Elimination Innovations Grant**

Contract Number E20193423-00

May 31, 2020

**National Center for
HEALTHY HOUSING**

Table of Contents

Summary	3
Summary of Recommendations	3
Introduction	4
How Housing Codes Can Help Prevent Childhood Lead Poisoning	4
Key Characteristics of Bay City	5
National Best Practices	6
Methods	8
Results and Recommendations	8
Code Language	8
Staffing and Enforcement	10
Training	11
Implementation Considerations – Involving the Public	12
Conclusions	13
Acknowledgments	14
Appendices	15
Appendix A: Elements of Effective Housing Code Enforcement Programs	16
Appendix B: Code Comparison Tool Results	20
Appendix C: TACTIC Site Visit Notes	26

Summary

Bay City requires a certificate of compliance for its rental properties. Rental properties must be registered annually and undergo a visual inspection on a regular three-year schedule. These provisions are important strengths that can be leveraged to help prevent lead exposure in children.

Bay City has adopted the 2012 International Property Maintenance Code (IPMC) for its rental housing stock code. The IPMC provides for all paint to be kept in an intact condition but does not require any actual testing of paint, dust, or soil to determine lead content. Such measurements might be made only after the health department has determined that a child has already developed an elevated blood lead level. Other best practices for rental housing codes across the country provide for proactive paint, dust, or soil testing, instead of only requiring such testing after a child has been exposed.

This report describes the current Bay City code process and provides recommendations on improvements to its housing code and associated inspection, enforcement procedures, staffing, public education, and other related matters. Although we submitted a draft report on March 27, 2020, city personnel were not able to be reached, likely due to the more pressing need to meet COVID-19 pandemic duties. We may update this final report when conditions permit. This report does not necessarily represent the views of the Bay City government. We thank them for meeting with us. This project was funded by the Michigan Department of Health and Human Services, Child Lead Exposure Elimination Innovations Grant, contract number E20193423-00.

Summary of Recommendations

Require testing of deteriorated lead paint and dust as part of the Certificate of Compliance to determine actual risk of lead hazards. The current practice of visually examining paint is insufficient, because the lead content of deteriorated paint and dust cannot be seen by the naked eye.

Change the existing housing code language to require remediation of deteriorated lead-based paint using lead-safe work practices and clearance dust testing in all rental units in which young children reside, are expected to reside, or could reside or visit. The National Healthy Housing Standard (available at <https://nchh.org/tools-and-data/housing-code-tools/national-healthy-housing-standard/>) may be utilized as a model code. The dust testing should comply with the recent lead dust guidance values established by the U.S. Department of Housing and Urban Development for its lead hazard control grantees.

Train housing code inspectors to collect paint and dust samples properly as part of code inspections, instead of only doing so after a child has already been exposed. One of Bay City's code inspectors is already trained and certified as a lead-based paint risk assessor/inspector.

*Technical Assistance for Code Transformation and Innovation Collaborative
(the TACTIC Project) – Final Report for the City of Bay City, Michigan*

Other local officials employed as lead-based paint risk assessors could be deputized as code inspectors.

Amend the language of the code violation notices to include deteriorated lead-based paint and hazardous dust lead levels. The current language seems to involve only deteriorated paint, not deteriorated *lead-based* paint.

Involve the public in proposed changes to the code and seek comment. This includes providing for the protection of tenants during the implementation of code changes.

Facilitate data sharing between the city and the county health department. The city could provide a list of homes with a higher risk of hazards, using variables such as chipped paint and lack of compliance.

Public education efforts should include the importance of deteriorated lead-based paint and the associated contaminated dust and soil it generates. Previous public education efforts have resulted in an increase in voluntary child lead testing; future efforts could include more information about the importance of home testing.

Bay City should evaluate the results of these changes by documenting changes in housing quality, compliance time, complaints, and childhood blood lead levels. Other factors to consider in evaluation include census tract or neighborhood comparisons to ensure the system is monitoring effectively and equitably.

Work with community-based programs to expand capacity to educate landlords and residents, assistance with temporary relocation, and expand referrals to social services for other needs identified in the home.

Consider increasing funding and capacity for code compliance. The city's code program is currently only funded by its revenue; other options include using Community Development Block Grant (CDBG) or local funding. The city could also consider applying for a HUD Lead Hazard Control Grant to assist property owners with abatement costs.

Introduction

How Housing Codes Can Help Prevent Childhood Lead Poisoning

Housing quality is an important social determinant of health in general and in childhood lead poisoning prevention specifically. Yet the housing and health sectors are typically governed by separate fragmented and isolated systems. Although today's housing codes originated over a century ago in the sanitation movement to combat health problems such as cholera, tuberculosis, and typhoid, current codes (with important exceptions described below) typically refer housing-related lead paint problems to local health departments instead of using the code

*Technical Assistance for Code Transformation and Innovation Collaborative
(the TACTIC Project) – Final Report for the City of Bay City, Michigan*

process to identify and correct such lead hazards. Health departments often focus on identifying lead hazards only after an elevated blood lead level has occurred.

This secondary prevention reactive approach hampers the application of the existing housing inspectorate and code systems to detect and correct lead hazards in housing *before* children have been exposed. Furthermore, housing codes in many jurisdictions are driven largely by complaint-driven reactive enforcement systems. In many cases, local housing codes are either silent on correction of lead hazards or defer to specialized lead risk assessments by local health departments. An effective code enforcement system can be a powerful tool for improving and protecting residents from lead exposure. Appendix A describes key elements of an effective system.

Key Characteristics of Bay City

Bay City has a population of about 33,736 (2017 estimates), 1,954 of whom are children 0-5 years old. Bay City has 14,627 occupied housing units, 30% (4,252) of which are rentals. Based on Bay City's population data, an estimated 568 of these units would have children under the age of six living in them. An estimated 90% (3,858) of the rental housing units in Bay City were built before 1979 (lead paint was banned from residential units in 1978 by the federal government). Lead paint is likely to be a hazard in a high number of Bay City homes.

Bay City requires that all rental units be registered and pass a rental inspection to obtain a certificate of compliance every three years. About 2,800 (65%) rental units, registered. Bay City employs two full-time code inspectors and one part-time inspector, who oversees vacant buildings. One of the full-time inspectors and the part-time inspector are both trained in lead risk assessments/inspections, as well as the city's deputy building official. It takes an inspector roughly 30 to 45 minutes to complete an inspection.

Bay City staff report that it typically takes three inspections to get a property into compliance. and about 70-75% of the properties require at least one follow-up inspection. Landlords pay an annual rental fee of \$125 for the first unit and \$35 for each additional unit. There is no fee for the first and second inspection. Common violations include missing smoke detectors, faulty stairs or handrails, and chipping or peeling paint. Staff estimate that about 80% of the homes in Bay City have paint issues.

To enforce the program, inspectors levy a \$100 fine and notice of violation if there is no response after two inspections. The property owner then has 10 days to respond to the city with a timetable to complete the work and pay the fine. If there is no response after the 10 days, the city will issue a civil infraction notice and schedule a hearing with the court. Each year, the city issues about 100 notices of violation and takes about 10 cases to court.

National Best Practices

Several municipalities across the country have taken action to address lead hazards in housing through codes, which are reviewed briefly here.

For example, in December 2005, Rochester (NY) passed an ordinance requiring regular inspections of most pre-1978 rental housing for lead paint hazards. Housing inspections typically occur every three years. To receive a certificate of occupancy, property owners must correct identified lead hazard violations (if any). Code inspectors examine paint condition and if it is intact, then they will collect dust wipe samples to ensure the home is safe for children. If paint is not intact, lead-safe work practices must be used followed by dust testing to ensure cleanup is adequate (unless the home has been found to be free of lead-based paint). The city maintains an online database of all lead-safe units and properties granted a certificate. The code does not appear to have significantly impacted the housing market in Rochester, a key concern of code officials. Landlords have now accepted it as a routine cost of business (see <https://www.cityofrochester.gov/article.aspx?id=8589935004>). As of August 28, 2018, nearly 15 years since the ordinance's approval, the City of Rochester has inspected 166,906 individual dwelling units (see <https://www.cityofrochester.gov/lead/>). Data show that blood lead levels in Rochester improved nearly twice as fast compared to the rest of the state. Eighty-six percent of code inspections did not have an exterior lead violation, and 88% of those with a violation had complied with remediation as of August 2018. For interiors, of the 166,906 units inspected, 95% passed the initial visual inspection; and among those with an interior violation, 84% had complied as of June 30, 2018. Of the 4,141 units cited with a lead dust hazard, 98% have complied as of June 30, 2018. Ninety percent of the units subjected to dust wipe testing (over 30,000 units as of 2016) passed. During the first 12 years, the City of Rochester has issued 782 vacate orders for situations with severe hazards that put children at risk and 3,418 tickets for noncompliance. The frequency of violations has declined in recent years, as landlords know what to expect. Furthermore, the ordinance has created a demand for more private inspectors to perform clearance testing; the increased competition has resulted in a price reduction. Before the law was passed, a clearance test cost about \$350 per unit; the cost is now about \$125 per unit.

In Maryland, owners of older residential rental properties must register their properties annually with the Department of the Environment. Private inspectors issue a lead paint risk reduction certificate for each dwelling that passes the inspection, which includes both a visual examination of paint condition and dust lead testing. Rental properties covered by the law must be free of chipping, peeling paint and lead contaminated dust. To qualify for registration, owners must hire a certified contractor to address any defective paint and have an accredited lead paint inspector verify compliance before any change in occupancy. Inspectors issue a lead paint risk reduction certificate for each dwelling unit that passes the inspection. Whenever a tenant notifies an owner that there is defective paint or a child with an elevated blood lead

**Technical Assistance for Code Transformation and Innovation Collaborative
(the TACTIC Project) – Final Report for the City of Bay City, Michigan**

level, the owner has 30 days to conduct modified risk reduction measures and pass lead inspection certification. The rental property owner is responsible for temporarily relocating the family to a lead-safe or lead-free dwelling while the original dwelling undergoes risk reduction measures. A key component in Maryland's substantial decline in childhood lead poisoning has been its strong public enforcement of the Maryland Reduction of Lead Risk in Housing Act, coupled with local enforcement coordination and private enforcement actions by nonprofit agencies and *pro se* tenants. The Maryland Department of the Environment files 500 to 800 violation notices annually, and a team from the state's attorney general's office is responsible for enforcing actions against noncompliant owners. Another highly effective best practice has been Maryland's policy of pursuing enforcement against a rental property owner's entire noncompliant housing portfolio once enforcement actions have been initiated against any one of the owner's properties. Local housing code enforcement and landlord licensing officials at the city and county level also help coordinate enforcement by referring noncompliant properties in their jurisdictions to MDE for enforcement of the registration and risk reduction requirements.

Rhode Island passed the Lead Hazard Mitigation Act in 2002 and implemented code regulations in 2004. Before any change in ownership or tenancy of a property and at least every two years, the property owner must have the property inspected and demonstrate via a certificate of conformance (COC) or a lead-safe or lead-free certificate that the dwelling is safe for children. Establishing lead safety includes dust testing. Under the law, rental property owners are required to attend a training on unsafe lead conditions, inspect/repair any lead hazards at their properties, make residents aware of their findings and actions, address residents' lead-hazard concerns, follow lead-safe work practices during maintenance, and verify each unit's compliance through a lead inspector. Typically, the owner must have the property inspected every two years and prove its safety for children by showing a COC or a lead-safe or lead-free certificate. Since the law's enactment, the state has been challenged by compliance. In 2014, when the Providence Plan completed an evaluation of the Lead Hazard Mitigation Law, it found that only 20% of the covered properties had complied with the regulations within the first five years of implementation. Several cities have taken steps to improve enforcement. Providence, for example, created a separate division of Housing Court to address lead violations. The Inspection and Standards division reported that of 484 of 537 lead violation cases filed over the first four years resulted in corrective action. An analysis conducted by the Rhode Island Department of Health discovered that there was a significant decline in children with elevated blood lead levels in Providence between 2012 and 2013. Notably, the declines coincided with the implementation of the building permitting requirements and the lead docket.

The National Healthy Housing Standard, a model code, provides that lead levels at or above federal regulatory limits are defined as hazards and must be remediated. Those levels include deteriorated lead paint (0.5% by weight or 1.0 milligram per square centimeter); dust (40 micrograms of lead dust per square foot [$\mu\text{g}/\text{ft}^2$] on floors and 100 $\mu\text{g}/\text{ft}^2$ on windowsills). The

standard also states that painted surfaces shall be maintained intact and, except for paint tested and found not to contain lead, deteriorated paint at a property built before 1978 shall be repaired using lead-safe work practices and follow-up dust testing.

Many federally assisted housing programs, including public housing, Section 8 project-based assistance, and federally assisted housing rehabilitation programs also require paint and dust testing, regardless of whether a child with an elevated blood lead level resides there, pursuant to the Lead-Safe Housing Rule (24 CFR Part 35).

Additional case studies of best practices across the nation for childhood lead poisoning prevention are available at <https://nchh.org/who-we-are/nchh-publications/case-studies/lpp-stories-case-studies/>.

Methods

We conducted several conference calls with key local personnel to introduce the project, describe the process, and identify current codes from December 2019 through February 2020. After reviewing the local code, we used the NCHH we used the NCHH Code Comparison Tool (https://bit.ly/NCHH_CCT) to compare Bay City’s housing code with best practices (see Appendix B).

On March 4, 2020, we conducted an on-site visit, which was attended by Debbie Kiesel, Community Development Director; and Sue Coggin, Code Enforcement Coordinator. Representing the National Center for Healthy Housing were David Jacobs and Sarah Goodwin. NCHH provided a draft report to the jurisdiction on March 27, 2020, but we were not able to obtain a review from Bay City personnel, who were likely assigned to more pressing duties related to the COVID-19 pandemic. We may integrate any comments we receive at a future date. This report does not represent the views of Bay City government.

Results and Recommendations

Code Language

Bay City has a rental property registration process and a planned proactive scheduled inspection process, both of which are enormous strengths. This is superior to a solely complaint-driven reactive code inspection system, although many jurisdictions have moved to proactive systems in recent years. (Of course, the complaint-driven process needs to continue to respond to violations that may occur outside of the periodic scheduled inspection process.) The reactive system often relies on injuries, illnesses, or a resident’s complaint and often occurs only after conditions have become quite serious. The reactive system also tends to produce more litigation and creates uncertainty in the rental market, because landlords may have to absorb unanticipated property repair and litigation expenses. It can also be problematic for

*Technical Assistance for Code Transformation and Innovation Collaborative
(the TACTIC Project) – Final Report for the City of Bay City, Michigan*

residents who either don't know their rights or are fearful of exercising them (e.g., undocumented residents, tenants fearing eviction), leading to inequities. The presence of a proactive scheduled inspection process is a strength upon which the Bay City community can build. The decrease in severe violations and high number of completed inspections demonstrate the existing effectiveness of this program.

One area for improvement is the language of the code itself, which only restricts violations to visibly deteriorated paint, regardless of whether it actually contains lead. Of course, deteriorated nonleaded paint should be corrected to help prevent rot and other matters; but the current code language in Bay City is drawn from the International Property Maintenance Code, which has been criticized by the National Center for Healthy Housing and others for its failure to identify actual lead hazards (see <https://nchh.org/information-and-evidence/healthy-housing-policy/state-and-local/icc/>). It also diverts attention from where it is most needed, because most paint, even in older housing stock, does not actually contain lead.

One option would be to require actual testing of deteriorated paint to determine if it has levels of lead above the federal standards, which Michigan has adopted. This can be achieved by simply adopting the National Healthy Housing Standard, which would also have the added benefit of addressing other housing conditions that could adversely affect health. There are two methods of measuring lead in paint:

1. Careful collection of all layers of paint from deteriorated surfaces, followed by laboratory analysis accredited under the EPA National Lead Laboratory Accreditation program; or
2. On-site analysis using portable x-ray fluorescence (XRF) lead paint analyzers.

Either method is acceptable. Paint chip collection has lower up-front costs but can be tedious and removes paint from a surface that must be sealed following collection. XRFs have a higher up-front cost but yield immediate results and do not involve destructive paint chip sampling.

If deteriorated paint is found to contain lead, then remediation can occur using lead-safe work practices (essentially wet scraping to reduce dust emissions, followed by application of a durable two-coat compatible paint film, followed by specialized cleaning and dust testing). Dust testing is a relatively simple procedure carried out over a defined surface area on floors and windowsills, but the testing must be performed by trained and certified personnel and also requires laboratory analysis.

Another option is to incorporate code language that follows the Rochester model, which requires all paint to be intact, but also provides for dust lead testing even when paint is intact. Dust lead is known to be the main route of acute exposure for most children via normal hand-to-mouth contact, contamination of hands, toys and other objects, ingestion of lead dust, and subsequent absorption into the child's body. The Rochester model helps to address situations

*Technical Assistance for Code Transformation and Innovation Collaborative
(the TACTIC Project) – Final Report for the City of Bay City, Michigan*

in which landlords have repainted but may not have used lead-safe work practices or cleanup procedures. Disturbance of only a small amount of lead paint can cause major dust lead contamination. For example, consider the case of paint removal using dry scraping or sanding that turns the lead paint into lead dust. Removing only one square foot of lead paint containing the minimum amount of lead regulated by the federal government (1 mg/cm²) and then distributing that lead dust over an average 10-foot-by-10-foot room results in a dust lead level of 9300 µg/ft², which is well over the EPA limit of 40 µg/ft² for floors. By conducting dust lead testing, inadequate dust containment and cleanup practices can be detected before a child has been needlessly exposed. Lead-safe work practices (in brief) involve occupant and worker protection, containment, use of wet methods during paint removal to minimize dust emission, use of durable new paint (or other coatings, enclosures, or building component replacements), followed by specialized cleanup methods and clearance dust testing to ensure cleaning has been adequate. Proactive dust testing and lead-safe work practices are also required in Maryland, the District of Columbia, and most federally assisted housing programs.

A final option would be to require lead risk assessments followed by remediation in all older family rental properties. Risk assessments measure lead content in deteriorated paint, dust, and bare soil. Detroit is currently pursuing this approach on a ZIP-code-by-ZIP-code basis, and it is the standard of care in most federally assisted housing programs and in HUD's Lead Hazard Control Grant program.

Any of these methods would require changes to the city code and could be implemented as the regular schedule of rental inspections continues. This process would allow for the city to notify the community and property owners of the incoming requirements, giving time for owners to address hazards before being met with an inspection and potential citation.

Staffing and Enforcement

Improving the language in the code will ultimately be ineffective if it is not actually obeyed and enforced. Fortunately, Bay City has a strong code staff in place, with two full-time and one part-time code officers employed.

U.S. Census data (2017) for Bay City indicates that there are 1,954 children under six years old, the age at which blood lead levels typically reach their peak. If there are 14,627 occupied housing units and 30% are rental units, then there could be about 586 young children residing in rental units in Bay City. Although this figure assumes there is one young child per unit, it does not include other units that children may frequent, such as residential day care, schools, et cetera, suggesting this is a reasonable assumption.

The estimated time it would take a trained code inspector to perform a visual examination of paint (and other housing conditions), collect paint chips from deteriorated surfaces, and collect dust wipe samples from floors and windowsills in an average of four rooms per unit is

*Technical Assistance for Code Transformation and Innovation Collaborative
(the TACTIC Project) – Final Report for the City of Bay City, Michigan*

approximately one hour (not including travel, administrative, and report preparation time). The current code inspection process, which is limited to visually examining housing conditions, takes about 30-45 minutes per unit.

Staffing needs can be estimated as follows, assuming a three-year inspection cycle:

586 rental units with young children/3-year inspection cycle = 195 rental units/year

195 rental units/year x 1 hour/rental unit = 195 person-hours/year

If we assume that there are a total of 2,080 total hours per inspector per year available, it is reasonable to assume that about 40% of that time will need to be devoted to travel to housing units to be inspected, report preparation, training, and follow-up interaction with owners and in some cases interaction and testimony before administrative judges or others in the case of noncompliance.

40% x 195 person-hours/year = 78 hours/year administrative.

Thus, total personnel need could be as follows:

195 person-hours/year for inspections + 78 person-hours/year for travel and other administrative duties = about 273 person-hours/year.

In short, this would appear to mean that no more than one additional staff would need to be hired.

Alternatively, if regular code inspections take 30 minutes/unit and collection of dust wipes and paint chip samples takes another hour per unit, then the number of code inspectors should increase by a factor of two. This suggests the city should hire at least two additional code inspectors to absorb the burden of additional paint chip and dust wipe sample collection.

Another consideration is how many of the new citations will fall into noncompliance and require court time. Currently, the majority of citations are completed within three inspections, but city officials do sometimes have to spend time enforcing noncompliance in court. Present case load for city codes is only about 10 cases a year, but staff do have to write about 100 notices a year.

Training

Housing code inspectors in Bay City currently undergo on-the-job training and short training sessions to fulfill their current duties. However, if they are also charged with collecting dust wipe and deteriorated paint chip samples, they will need to be certified to do so under Michigan law. This is typically achieved with a two-day training course. Code inspectors in Rochester, NY, and elsewhere are cross-trained to enable them to identify both housing code violations and lead-based paint hazards. Fortunately, one and a half FTE code inspectors are

*Technical Assistance for Code Transformation and Innovation Collaborative
(the TACTIC Project) – Final Report for the City of Bay City, Michigan*

already trained in lead inspections/risk assessments, so there may be no additional training required. City staff also reported their plans to start receiving training through the Michigan Association of Housing Officials, including lead training. In addition to cross-training of code inspectors, other training needs may include the following:

- Lead hazard awareness for supervisors.
- Lead hazard awareness for city attorneys charged with enforcing lead-related code violations.
- Lead hazard awareness for administrative law judges.
- Training for health department case workers who coordinate care for children with elevated blood lead levels on housing code violation procedures: specifically, how they can request a housing code inspector in homes of children with elevated blood lead levels.
- Healthy homes best practices and standards for code inspectors, so that they will be better equipped when encountering other hazards.
- “Soft skills,” such as customer service, communications, and ethics training for code officers, who may interact often with tenants and landlords from various cultural backgrounds.

As the program develops and Bay City strengthens its codes, ongoing and comprehensive training will be required to ensure staff capacity to enforce the new provisions.

Implementation Considerations – Involving the Public

Integrating lead hazard identification into the housing codes in Bay City should also consider how best to achieve community consensus. This will require careful articulation of why this is needed and related costs and benefits. Community leaders should be engaged to help articulate why housing codes present an important opportunity to address childhood lead poisoning in Bay City and what the priorities should be. Those opportunities include:

- Ending the historic divide between housing and public health.
- Acting before children are harmed, instead of reacting only after the harm has been done.
- Potential for new job creation.
- The benefits of a “health in all policies” approach.
- How the costs of proactive code inspections are less than the costs of treating and educating children with elevated blood lead levels.
- How proactive codes can benefit landlords by reducing the prospect of unanticipated housing repairs and avoidable litigation.

*Technical Assistance for Code Transformation and Innovation Collaborative
(the TACTIC Project) – Final Report for the City of Bay City, Michigan*

- Building public trust in democratic institutions to address preventable diseases, such as childhood lead poisoning.
- Active engagement of the city’s philanthropic institutions.
- Ending the current inefficient practice of shifting the costs of lead poisoning to our schools and medical care institutions.

To maximize the public’s involvement, the city should consider appointing community leaders and members to an advisory council to provide organized input. During the decision-making process, the city should make sure to consider equity impacts of code changes. Some recommendations to keep in mind include:

- Include community members in the development of the structure of the policy process to ensure that they are represented throughout the process.
- Implement holistic strategies that break down silos.
- Develop awareness campaigns so that the necessity of the policy changes are conveyed to the community.
- Prioritize resources in areas that need them most.
- Protect tenants as the code changes are implemented.

More details for these recommendations and others about addressing equity in lead poisoning prevention policy change can be found in *Achieving Equity in Lead Poisoning Prevention Policy Making: Proceedings from a Consensus Conference*, a report published by Human Impact Partners (available at https://humanimpact.org/wp-content/uploads/2018/11/Achieving-Equity-in-Lead-Poisoning-Prevention-Policy-Making_Proceedings-from-a-Consensus-Conference.pdf).

City staff reported an active and positive relationship with a group of landlords, established within the last three or four years. The city should continue to work with this group as they implement code changes to prevent lead exposure.

Conclusions

A recent authoritative report, *10 Policies to Prevent and Respond to Childhood Lead Exposure* (see <https://nchh.org/information-and-evidence/healthy-housing-policy/10-policies/>), showed how every dollar invested in residential lead hazard control (which can include better codes) will yield at least \$1.36 in monetary benefits. Community involvement in such changes is essential. Although housing codes are often considered to be mundane, they can also be an important vehicle to rebuilding trust in government and in the city’s ability to solve its challenges. In short, implementation must include an important public education and involvement component if such changes are to be lasting and productive.

*Technical Assistance for Code Transformation and Innovation Collaborative
(the TACTIC Project) – Final Report for the City of Bay City, Michigan*

Modernization of the Bay City housing code holds great promise in helping the city prevent childhood lead poisoning. The city already has a proactive rental housing inspection process, a robust enforcement infrastructure, and a relationship with their landlords that can be leveraged to include detection of lead hazards before children have been exposed. Changes in housing code language, staffing levels, enforcement, and creative use of subsidies can all be used to help eliminate childhood lead poisoning as a major public health problem.

Acknowledgments

We thank Debbie Kiesel, Community Development Director, and Sue Coggin, Code Enforcement Coordinator, for meeting with NCHH representatives.

The opinions expressed here are those of the National Center for Healthy Housing and do not necessarily reflect those of the Bay City government.

Appendices

Appendix A: Elements of Effective Housing Code Enforcement Programs

Appendix B: Code Comparison Tool Results

Appendix C: TACTIC Site Visit Meeting Notes

Appendix A: Elements of Effective Housing Code Enforcement Programs

Adapted from *Up to Code: Code Enforcement Strategies for Healthy Housing*.

Adopt a Strong Housing Code

Housing codes often contain ambiguous phrases in their standards, such as “clean,” “sanitary,” “safe,” and “healthy,” and the lack of detail makes efficient and effective code enforcement difficult. Without specific standards to serve as a guide, property owners, residents, and code enforcement officers can interpret housing codes differently, leaving compliance decisions subject to challenges and residents vulnerable. In addition, many housing codes don’t properly address health-related threats in the home, such as pests, moisture, ventilation, and chemicals (radon, lead, and pesticides, for example).

Resource/tip: The National Healthy Housing Standard provides model codes that incorporate public health rationale into building code parlance.

Fund the Code Enforcement Program Sufficiently

Effective code enforcement programs require sufficient financial resources. In many localities, state law sets forth how the locality may fund its code enforcement operations (typically through general fund, Community Development Block Grant (CDBG) funding, permits/regulatory fees, or fines). State laws may also set forth the types of fees and amount of fines the jurisdiction may assess on those who violate the housing code.

Resource/tip: Some communities fund their code enforcement programs with moneys from the CDBG program, administered by the U.S. Department of Housing and Urban Development. These grants can fund code enforcement officers’ salaries and related expenses, legal proceedings to enforce housing codes, and rehabilitation or improvement of some types of housing.

Train Officers Comprehensively

Code enforcement programs require well-trained officers to enforce the local housing code. Officers need to participate in a broad-based training program, periodic training updates, and routine inspections with other officers to ensure professionalism and consistency in the field. Training should cover all applicable federal, state, and local laws but also best practices, soft skills (e.g., how to work effectively with residents from diverse backgrounds), and availability of community resources to assist residents.

Resource/Tip: The National Healthy Homes Training Center offers training for code inspectors.

Partner with Community Organizations

Community organizations can raise awareness of the purpose, policies, and procedures of code enforcement, and provide supplementary resources and services.

Resource/tip: Code enforcement programs have a variety of potential community partners, including housing advocates, public health professionals, immigrant and refugee service providers, social workers, tenant organizations, and home repair programs.

Promote Cross-Agency Coordination

Ensuring housing is safe and habitable requires cross-agency coordination. Because responsibility for health and safety is usually divided among various city agencies or departments, intragovernmental communication and collaboration can help make code enforcement more efficient and effective, and less like a series of disjointed, isolated efforts.

Resource/tip: Staff of the Erie County (NY) Department of Health’s Healthy Neighborhoods Program and Lead Poisoning Prevention Program are trained and deputized code enforcement officers, which enables health department staff to formally cite for violations of the Erie County Sanitary Code while conducting home assessments. Deputizing health and/or housing agencies to enforce each other’s code provisions assures a unified perspective toward housing-based lead poisoning primary prevention.

Develop a Cooperative Compliance Model

Under a cooperative compliance model, rather than simply inspecting housing and citing for violations, the code enforcement officer works cooperatively with property owners to help them understand the elements of healthy housing, the importance of code compliance, and how to bring the property into compliance. The code enforcement officer is armed with cooperative tools – information, education, and resources – along with traditional enforcement sanctions. Cooperative compliance allows property owners and officers to work together to improve housing conditions and promote health.

Resource/tip: Many communities struggle with enforcement. A cooperative compliance approach can reduce the number of properties that require follow-up enforcement action.

Enforce the Local Housing Code

Most owners do their best to comply with housing codes, but code enforcement programs must be prepared to deal with those who don’t. To protect the health and safety of residents effectively, programs need to be flexible and efficient, and have teeth. There are three major types of enforcement: administrative, civil, and criminal.

Resource/tip: [ChangeLab Solutions’ Healthy Housing Laws that Work: Creating Effective Implementation and Enforcement Clauses](#) explains the different ways local governments can enforce housing and property maintenance codes.

Adopt a Proactive Rental Inspection (PRI) Program

Traditional code enforcement programs are complaint-based; that is, in response to a resident’s complaint about a substandard housing condition, a code enforcement officer conducts a housing inspection. Under a PRI program, rather than wait for a complaint to trigger a housing inspection, the locality inspects all covered rental housing on a periodic basis. Though the specifics vary by locality, PRI programs typically share the same basic structure: registration, periodic inspections, and enforcement. A PRI system doesn’t replace a complaint-based system and can help both property owners (by incentivizing routine maintenance that prevents costly repairs) and tenants (e.g., by ensuring equitable access to services for vulnerable populations that may be unaware of or fearful of exercising their rights under a traditional complaint-based system).

Resource/tip: [ChangeLab Solutions’ A Guide to Proactive Rental Inspection Programs and Model Proactive Rental Inspection Ordinance](#) explains how proactive rental inspections can help protect vulnerable residents, preserve safe and healthy rental housing, and work to increase neighborhood property values.

Establish Supplementary Programs

Jurisdictions can establish auxiliary programs that increase code enforcement effectiveness by educating community members, incentivizing and/or financing repairs, and helping residents move when necessary.

Resource/tip: [Up to Code: Code Enforcement Strategies for Healthy Housing](#) contains several examples of supplementary programs that other communities have established to support their code enforcement activities.

Evaluate the Code Enforcement Program

Code enforcement programs should collect and analyze data regularly to better understand their strengths and weaknesses. Evaluation can help monitor functioning, identify areas for improvement, help to justify resources, and provide accountability. Communities may also consider tracking key performance metrics by census tract or neighborhood to ensure equitable access and that the system is working well for all residents.

Resource/tip: [Data collection and analysis can provide valuable information to both government agencies and the community. Whenever possible, communities should work to establish data](#)

***Technical Assistance for Code Transformation and Innovation Collaborative
(the TACTIC Project) – Final Report for the City of Bay City, Michigan***

sharing with other agencies or programs and, as appropriate or feasible, make data publicly available.

Citation

ChangeLab Solutions (eds.). (2015, May). Up to code: Code enforcement strategies for healthy housing. Oakland, CA: ChangeLab Solutions. Retrieved May 23, 2019, from https://changelabsolutions.org/sites/default/files/Up-tp-Code_Enforcement_Guide_FINAL-20150527.pdf

Appendix B: Code Comparison Tool Results

I. Background

Location	Property Maintenance Code	Other Code Sections	Other Documents
Battle Creek* Uses IPMC 2015	Part 14, Title 4, Chapter 1450: Property Maintenance Code International Property Maintenance Code 2015	842 Rental Housing 1456 Vacant or Abandoned Structures	Rental Permit Application Rental Property Checklist Vacant or Abandoned Registration Form
Bay City Uses IMPC 2012	Chapter 26 Buildings and Building Regulations Article VII. Property Maintenance Code International Property Maintenance Code 2012		Rental Housing Checklist Rental Housing Fees
Detroit* Based on the 2000 IPMC	Chapter 9, Article 1: Property Maintenance Code	Chapter 9, Article 1, Division 3: Rental Property Chapter 26 - Housing Chapter 24, Article X: Lead Poisoning Prevention Testing and Prevention	
Flint* Uses IPMC 2015	Chapter 5, Article 3: Property Maintenance Code International Property Maintenance Code 2015	Chapter 5, Article 3, Sec. 5.3-3 on: Certificate of Compliance for rental properties	
Grand Rapids* Uses IPMC 2012 with amendments	Title VIII, Chapter 140: Property Maintenance Code International Property Maintenance Code 2012	Title VIII, Chapter 140, Sec. 8504: Amendments to the Code including certificate of compliance for rentals	

**Technical Assistance for Code Transformation and Innovation Collaborative
(the TACTIC Project) – Final Report for the City of Bay City, Michigan**

Location	Property Maintenance Code	Other Code Sections	Other Documents
Muskegon Uses IPMC 2015	Chapter 10 Buildings and Building Regulations Article VI. Property Maintenance Code International Property Maintenance Code 2015	2015 Michigan Building Code	Property Maintenance Standards Printable Brochure
Michigan* State Lead Law	Public Health Code, Act 368 of 1978, Part 54A: The Lead Abatement Act		Lead Hazard Control Rules

*These cities were reviewed in year one of the TACTIC project.

II. Code Comparison Tool

This report was generated by the Code Comparison Tool, available from the National Center for Healthy Housing at http://bit.ly/NCHH_CCT. The NCHH Code Comparison Tool (CCT) gives communities the opportunity to compare their current housing/property maintenance code to the National Healthy Housing Standard (NHHS) and the International Property Maintenance Code (IPMC).

SECTION E: Chemical Hazards – Building Products

Questions: 10

Total Responses: 25

Answered: 25

Percentage Complete: 100%

Status: Below Average

Questions E1-E6: Lead

Significant Opportunities for Improvement. Your responses indicate your community may benefit by being more protective of health in this area. You can review the National Healthy Housing Standard (NHHS) provisions in this area – NHHS Provisions (7.1, 7.2.1, 7.2.2, 7.2.3, 7.2.4, 7.2.5) to explore ways to improve your code. Consider implementing some or all of the provisions listed below.

Questions E7-E8: Asbestos

Significant Opportunities for Improvement. Your responses indicate your community may benefit by being more protective of health in this area. You can review the National Healthy Housing Standard (NHHS) provisions in this area – NHHS Provisions (7.3, 7.3.1, 7.3.2, 7.3.3) to explore ways to improve your code. Consider implementing some or all of the provisions listed below.

Questions E9-E10: Toxic Building Materials

Significant Opportunities for Improvement. Your responses indicate your community may benefit by being more protective of health in this area. You can review the National Healthy Housing Standard (NHHS) provisions in this area – NHHS Provisions (7.4.1, 7.4.2) to explore ways to improve your code. Consider implementing some or all of the provisions listed below.

NHHS Provisions that You Reported Already Exist in Your Local Code

No provisions exist.

NHHS Provisions that Your Local Code Does Not Include (in Part or in Full)

NHHS Provision 7.1. All chemical and radiological agents in dwellings, premises, and accessory structures, including but not limited to deteriorated lead-based paint, friable asbestos-containing material, formaldehyde, volatile organic compounds, radon, pesticides, and methamphetamine, shall be contained, stored, removed, or mitigated in a safe and healthy manner consistent with federal, state, and local laws and regulations. When an applicable regulatory limit is more protective than the level included in this section, the more restrictive limit shall apply.

NHHS Provision 7.2.5. Lead-based paint shall not be applied to the interior or exterior of any dwelling or dwelling unit.

NHHS Provision 7.2.1. Lead levels at or above federal regulatory limits pursuant to 40 C.F.R. § 745.65 are deemed hazardous:

1. Lead-based paint on an existing painted surface – 0.5% by weight or 1.0 milligrams per square centimeter;
2. Dust on floors – 40 micrograms of lead per square foot of settled dust ($\mu\text{g}/\text{ft}^2$);
3. Dust on interior windowsills – 250 $\mu\text{g}/\text{ft}^2$;
4. Dust on window troughs (wells) – 400 $\mu\text{g}/\text{ft}^2$;
5. Bare soil in children's play areas – 400 parts per million (ppm) of lead; and
6. Bare soil in areas of the yard that are not children's play areas – 1,200 ppm.

*Technical Assistance for Code Transformation and Innovation Collaborative
(the TACTIC Project) – Final Report for the City of Bay City, Michigan*

NHHS Provision 7.2.2. Painted surfaces shall be maintained intact. With the exception of paint that is tested and found not to contain lead-based paint in accordance with *40 C.F.R. § 745.82(a)*, deteriorated paint at a property built before 1978 shall be repaired in accordance with the renovation requirements of *40 C.F.R. § 745, Subpart E*, and the underlying cause of the deterioration shall be corrected.

NHHS Provision 7.2.3. All renovation, repair, and painting work that disturbs a painted surface in a pre-1978 dwelling shall be performed in accordance with the renovation requirements of *40 C.F.R. § 745, Subpart E*, unless the paint has been tested and found not to contain lead-based paint in accordance with *40 C.F.R. § 745.82(a)*. Dust clearance testing shall be performed at the conclusion of the renovation work.

NHHS Provision 7.2.4. With the exception of paint that is tested and found not to contain lead-based paint in accordance with *40 C.F.R. § 745.82(a)*, a painted surface shall not be disturbed using methods that involve (1) open-flame burning or torching or operating a heat gun at temperatures above a maximum of 1,100° F (593° C); or (2) power sanding, grinding, power planing, needle gun, abrasive blasting, or sandblasting unless such machines have shrouds or containment systems and a high-efficiency particulate air (HEPA) vacuum attachment that collects dust and debris at the point of generation. The shroud or containment system shall release no visible dust or air outside the shroud or containment system.

NHHS Provision 7.3. Every owner shall maintain in good repair all asbestos-containing material on the premises. All asbestos-containing material shall be maintained non-friable and free from any defects such as holes, cracks, tears, and/or looseness that may allow the release of fibers into the environment.

NHHS Provision 7.3.1. Friable asbestos-containing material shall be abated by licensed asbestos professionals in accordance with federal, state, or local requirements.

NHHS Provision 7.3.2. Any renovation, demolition, or other activity that will disturb asbestos-containing materials shall be preceded by asbestos abatement performed by certified asbestos professionals in accordance with federal, state, or local requirements.

NHHS Provision 7.3.3. Abatement, removal, and disposal of all asbestos-containing material shall comply with all appropriate federal, state, and local requirements.

NHHS Provision 7.4.1. Building materials consisting of hardwood plywood, medium-density fiberboard, and particleboard as defined by *15 U.S.C. 2697(b)(2)* shall not be used in maintenance and renovations within dwellings, unless the materials have been certified to meet the formaldehyde emission standards of *15 U.S.C. 2697(b)(2)*:

*Technical Assistance for Code Transformation and Innovation Collaborative
(the TACTIC Project) – Final Report for the City of Bay City, Michigan*

1. Hardwood plywood with a veneer core, 0.05 parts per million (ppm);
2. Hardwood plywood with a composite core, 0.05 ppm;
3. Medium-density fiberboard, 0.11 ppm;
4. Thin medium-density fiberboard, 0.13 ppm; and particleboard, 0.09 ppm.

NHHS Provision 7.4.2. Building materials used in maintenance and renovations, including but not limited to paints, coatings, primers, glues, resins, adhesives, and floor coverings, shall be certified as having no volatile organic chemicals (VOCs) or low VOC emissions, and having no halogenated flame retardants (HFRs).

NHHS Stretch Provisions (Not Assessed in Online Tool)

NHHS Stretch Provision 7.2. Lead present at or above the following limits is deemed hazardous:

1. Lead-based paint on a friction, impact, or chewable surface, damaged or otherwise deteriorated, or non-intact – 0.06% by weight;
2. Dust on floors – 10 micrograms of lead per square foot of settled dust ($\mu\text{g}/\text{ft}^2$);
3. Dust on interior windowsills – 100 $\mu\text{g}/\text{ft}^2$; and (4) 40 $\mu\text{g}/\text{ft}^2$ on porches.

Why Chemical Hazards – Building Products Matter

Lead is a heavy metal that accumulates in the body when ingested and has toxic effects on the nervous system, cognitive development, and blood-forming and other systems. Sources of lead include lead-based paint and the dust it generates, soil, drinking water, and consumer and other products. Lead-contaminated soil may be found particularly around older buildings contaminated by flaking external paintwork, adjacent to industrial premises using (or previously having used) lead, and near busy roads from the exhaust fumes from leaded gasoline. Lead is readily absorbed from the intestinal tract, especially in children, and its absorption is enhanced by dietary deficiency of iron and calcium.

Exposure to asbestos increases the risk of developing lung disease. Asbestos products were historically used extensively in building materials. Vermiculite insulation in homes may be contaminated with asbestos. Vermiculite insulation should be assumed to be contaminated with asbestos and should not be disturbed. Trained professionals must be hired to remove vermiculite insulation. Formaldehyde is a prominent VOC found in household and construction products. It is a colorless, strong-smelling gas that can cause watery eyes, nausea, coughing, chest tightness, wheezing, skin rashes, and allergic reactions, and a burning sensation in the eyes, nose, and throat.

Formaldehyde is classified by the World Health Organization as a known human carcinogen. The most significant source of formaldehyde in the homes has been pressed-wood products made using adhesives that contain urea formaldehyde (UF) resins.

Suggested Next Steps

You have your results. Now what? Here are some suggested next steps:

- Review your results and identify places where your code is already strong and where there may be an opportunity to improve your local codes.
- Use the graphic provided (or export your data and create one yourself) to create a memo or presentation summarizing these results to start a conversation about whether there is an opportunity for action in your community.
- Download the National Healthy Housing Standard for reference as a model code.
- Read about how other communities have used the NHHS to strengthen their local codes and are using codes to improve health.
 - Healthy Housing Codes:
<https://nchh.org/information-and-evidence/healthy-housing-policy/state-and-local/healthy-housing-codes/>
 - Proactive Rental Inspections:
<https://nchh.org/resources/policy/proactive-rental-inspections/>
 - Incentivizing Healthy Housing:
<https://nchh.org/resources/policy/incentivizing-healthy-housing/>
 - APHA: Healthy Homes:
<https://www.apha.org/healthy-homes>
- Ask for technical assistance or help getting connected to a peer mentor. Contact Jonathan Wilson (jwilson@nchh.org).

Appendix C: TACTIC Site Visit Notes

Meeting One: March 4, 2020 – City of Bay City Offices

Attendees:

Debbie Kiesel, Community Development Director, City of Bay City
Sue Coggin, Code Enforcement Coordinator, City of Bay City
David Jacobs, Chief Scientist, National Center for Healthy Housing
Sarah Goodwin, Policy Analyst, National Center for Healthy Housing.

Program Structure/Capabilities

Bay City employs two full-time and one part-time code inspector on their staff. Inspectors receive on-the-job training; the full-time and the part-time inspector are lead certified. They expect to get future training through the Michigan Association of Housing Officials (MAHO).

Bay City requires rental units to register and undergo an inspection every three years. The inspections include a visual inspection for peeling and chipping paint, which was a new requirement in the last five years.

Inspections for a single-family home take about 30 to 45 minutes. There are about 5,000 total units in Bay City, 2,800 of which are registered. About 70-75% of units need follow-up inspections, and it takes an average property three inspections to get into compliance. Common violations include broken stairs, missing smoke detectors, missing handrails, and deteriorated paint. They estimate that up to 80% of the units have issues with paint.

Bay City has a civil infraction process. After two inspections and no response from the landlord, they will issue a notice of violation and a \$100 fine, giving them 10 days to reply with a timetable for getting the work done. If they get no response, they issue a civil infraction notice and schedule a hearing in court. They typically serve about 100 notices of violation and take 10 landlords to court a year.

Within the last 4-5 years, they've built a new rapport with a group of local landlords, which has been good for discussing potential changes.

Potential Opportunities and Challenges

- The code program is currently funded only by its revenue; using CDBG could be a possibility.
- They expect to amend their codes soon due to anticipated changes at the state level.
- They can check with the health department to share data.

***Technical Assistance for Code Transformation and Innovation Collaborative
(the TACTIC Project) – Final Report for the City of Bay City, Michigan***

- Potential challenges include staff time and cost of tests.