



Rhode Island Green Buildings Act Study

The Energy Efficiency Group

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Executive Summary

The Rhode Island Green Buildings Act ([RIGL § 37-24](#)) established requirements for public agencies in Rhode Island to improve the environmental impact and sustainability of public facilities in the State. The Act requires all public agencies (e.g. State offices, municipal boards, public education institutions, etc.) to ensure that major renovations and new construction projects for public facilities are designed and built using high-performance green building standards (e.g. LEED, SITES, NECHPS, etc.). The Rhode Island Green Buildings Act Study was conducted to provide recommendations for the Green Buildings Advisory Committee (GBAC), drawn from best practices from the field for implementing similar legislation and evaluation of current awareness and application of the Act in Rhode Island.

Section 1. Best Practices for Implementing Green Building Standards

Best practices for implementing green building standards were collected from eight jurisdictions across the country, combining information from informational interviews with key officials, their public reports, and published articles. Success must begin with clear mandates from the legislature or council and executive orders. When asked how they enforced green building requirements in the public sector, many respondents simply noted that it was the law and hence every department knew they needed to comply. Nonetheless each jurisdiction invested heavily in education by sharing the goals and purposes of their green building mandates, marketing their success stories, and bolstering training of other government employees and tradespeople. Rather than focus on enforcement, respondents noted that the first question they asked was how can they support anyone engaged in green building practices. While usually one energy or sustainability department took the lead, they were heavily networked across agencies with representatives working together to achieve their goals.

Typically the laws that each group enforced had built upon previous versions, which made each more ambitious goal more attainable. One of the most important

developments from this gradual approach was a change in culture across all departments, who were more invested in green building because they understood its economic and social benefits. Finally, these jurisdictions defined their success based on clear metrics: meaning benchmarking and other sources of information such as the number of certified buildings. This information allowed them to reflect and adjust their goals over quarters, years, and decades to make progress.

Section 2. Awareness and Understanding of the Green Buildings Act

The study for awareness and understanding of the Green Buildings Act documents findings from the study assessing to what extent people and agencies in Rhode Island are working towards compliance with the Act. In addition to collecting data on awareness of the Act, the study sought to uncover barriers to compliance and recommendations for the future. Data were collected through interviews and surveys, providing both rich descriptive data along with more general understanding.

The key findings were that Rhode Islanders need to have a greater awareness of the Act and additional support is needed to better integrate the Act into building and renovation projects. Three primary strategies were identified from these findings that will improve awareness and thus compliance with the Act, which are 1) widespread education, 2) dedicated staff or resources to support compliance with the Act, and 3) funding to support up-front costs for agencies.

Section 3. Recommendations

The final section of this report provides four recommendations for the GBAC, drawn from the best practices identified in Section 1 and the findings from the awareness and understanding study in Section 2. The recommendations focus on prioritizing next steps for the Committee to ensure public agencies compliance with the Act, recognizing that additional barriers to compliance may emerge as efforts are tracked. The Energy Efficiency Group recommends that the Committee:

- 1. Establish GBA Coordinator(s), as staff responsible for coordinating with public agencies to ensure compliance with the Green Buildings Act.**
- 2. Coordinate widespread awareness and education efforts across a variety of stakeholders.**
- 3. Create and communicate a clear path for verification that utilizes existing systems.**
- 4. Utilize incentives to support compliance, through funding for education, planning, and implementation.**

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1. Best Practices for Implementing Green Building Standards

1.1 Introduction

This section explores the best practices for implementing green building standards in eight different jurisdictions that are among the most successful and respected in achieving their goals. It begins with a brief literature review and a description of the jurisdictions and their relevant laws, rules, departments, and councils. An overview of how each place defines and achieves its success is then followed by sub-sections on measuring, tracking, and enforcing benchmarking and construction, on their approach to marketing and generating awareness, on resources, partnerships, and connections with stakeholders, and on their approach to equity. Information for each location comes from a variety of sources including research papers and news stories, but especially from each agency's publicly available reports and interviews generated with key stakeholders and administrators.

This section provides a broad description of best practices, either as reminders or new information for its readers, while offering specific anecdotes and details from on-the-ground experiences that make a significant and sometimes surprising contribution to achieving success. The practitioners who shared their expertise for this report were very generous with their time and were eager to ensure the best green building practices extend beyond their own jurisdictions. A full list of participants can be found in Appendix A, as part of the acknowledgments.

The purpose of this section is to support the Green Buildings Advisory Committee's role in implementing the Rhode Island Green Buildings Act by highlighting best practices. Current practices in Rhode Island are not addressed in this section, instead, it offers an

opportunity to identify an overview of best practices, many of which may already be occurring in RI. See Section 2 for summary of current practices in RI.

1.2 Literature review

While new reports continue to be published, such as this memo, the most useful papers are not always the newest ones. Governments and individuals have been doing this work for a long time. Many of the programs in this memo, though significantly evolved, began in the early 2000s. While this section will highlight the details that matter and the lessons learned from each jurisdiction's successes and failures, the broad outline of how to approach green building has not changed significantly even if the standards (and expectations) for construction practices and materials have changed dramatically.

Change is a necessity, but sustainable progress requires clear goals and processes that necessitate a steady evolution. The one major exception to this sense of continuity has been the creation of building performance standards (BPS) with hard requirements and multiple pathways to compliance. The 2021 EPA report on BPS is an excellent resource.

Second, most of this literature is not specific to public buildings, but rather high-performance buildings in general. The goals and processes are overlapping at different scales. Concern about climate change serves as one catalyst, and the improvements in building performance in both public and private buildings can contribute to reducing greenhouse gas emissions. Many of the jurisdiction's key programs are "leading by example" programs precisely because they want to showcase what is possible and what the best practices are for any building.

All stakeholders need to be involved in the process including elected officials, government staff, trades, builders, utilities, architects, inspectors, and community representatives. The varied priorities of the stakeholders need to be considered, and most importantly, there must be dedicated staff members who coordinate these stakeholders. Likewise, coordination across departments/agencies is crucial with clear

staff leads. In particular, consider how to engage with facility directors and managers. There should be incentives and not just mandates to promote participation, however, they should be cost-effective. Furthermore, an engaged staff team can point to and support applications for existing financial programs related to green building both within and beyond the jurisdiction.

Leading by example on green buildings demonstrates the success of new technologies and creates the expertise necessary to build new markets. Education is crucial and can include a lecture series, and specific program training. For certain agency staff members and builders, some of this training should be mandatory. Another key point reiterated later in this review, is that much of this information is not specific to one jurisdiction, hence in addition to in-house training, people should be empowered to seek out other resources and earn continuing education credits for doing so. Alongside these training and lecture series, there should be an opportunity for reflection and to use existing successful projects as models. A marketing plan should communicate both goals and results to stakeholders and the wider public.

The best way to establish clear targets is to start with an existing program that sets building construction and efficiency standards. For example, many jurisdictions use the LEED rating system. This also applies to benchmarking: rather than creating something new, using ENERGY STAR Portfolio Manager is going to save time and work better for its users. Having third-party tools can reduce staff labor, however, the jurisdiction still needs to build the staff expertise to work with these systems and have enforcement and checklist protocols in place. In short, the jurisdiction sets the goals and leads a team to achieve these goals by coordinating, funding projects, having clear enforcement guidelines, and sharing expertise that all stakeholders can rely on.

The following guides and documents informed this section and they each provide a useful overview and specific details and case studies for implementing a green building program.

- [Building Performance Standards: Overview for State and Local Decision Makers](#) from Benchmarking and Building Performance Standards Toolkit By Environmental Protection Agency (Published 2021) (This is the single most relevant and helpful document to review.)
- [Public Buildings Portfolio Management-Implementation Guide](#) By New Buildings Institute, EcoEdge, Malka, and, NEEA (Published 2018)
- [Going Beyond Code: A Guide to Creating Effective Green Building Programs](#) By the U.S. Department of Energy (Published 2011)
- [Good Practice Guide: Municipal Building Guide](#) By C40 Cities Leadership Climate Group (Published 2016)
- [Energy Efficiency Programs in K-12 Schools: A Guide to Developing and Implementing Greenhouse Gas Reduction Programs](#) By the Environmental Protection Agency (Published 2011)

1.3 Jurisdiction and Administration Introduction

This section introduces the jurisdictions with their most relevant laws, executive orders, regulations, administration, key language, and councils related to public green buildings. These jurisdictions were chosen in consultation with the Office of Energy Resources based on their accomplishments and relevance to RI. The most recent dates for the laws are included first with previous rules stated when relevant. Given the changing laws, this overview is meant to be representative of key goals and does not include every single law related to green buildings. While there is generally one main law or executive order that applies to this work, parts of many different laws also apply to green buildings in general and public green buildings—typically it is a patchwork of laws with one main directive informing the focus.

There are several different, overlapping teams doing this work in most jurisdictions: for example a policy/technology group, a lead-by-example group, and a government

building sustainability group. Several team leaders repeatedly emphasized the importance of both supportive commissioners and strong laws: when the law says that buildings must decarbonize then there is no debate over gas boilers and the conversations can focus on collaborating on the best plan.

a.) Massachusetts

i.) [2022- State Law- “Act Driving Clean Energy and Offshore Wind”](#)

Includes a requirement that the “Massachusetts School Building Authority shall conduct an assessment of elementary and secondary school buildings relative to energy efficiency, building conditions, safety, and public health.” It also requires benchmarking for all buildings over 20,000 square feet.

ii.) [2021- State Law- "An Act Creating a Next Generation Roadmap for Massachusetts Climate Policy"](#)

Sets statewide goals for reaching net-zero emissions by 2050. Includes the creation of an environmental justice council to advise the Secretary of Energy and Environmental Affairs.

iii.) [2021- Executive Order- No. 594: “Leading by Example: Decarbonizing and Minimizing Environmental Impacts of State Government”](#) (Revision of 2007 Leading by Example Order 484)

The Leading by Example Program is staffed by the Department of Energy Resources to work with all state agencies. The Leading By Example Council is comprised of representatives from agencies, higher education institutions, and quasi-public authorities to provide feedback to the program staff. The Division of Capital Asset Management and Maintenance (DCAMM) is tasked with ensuring LEED silver or higher for all new construction of public buildings and that they meet targets for energy use intensity reduction. Any agency with more than 75 employees must appoint at least one

Leading By Example coordinator. On an annual basis, LBE shall be responsible for tracking and collecting building and vehicle energy consumption, clean energy development, GHG emissions, and other relevant information associated with state government operations. LBE shall report annually on progress toward meeting the targets and objectives of this Order. Every five years, starting in 2025, LBE shall publish a comprehensive review of portfolio progress and efforts undertaken.

b.) Washington

- i.) [2022 and 2019- State Law- “Clean Buildings Law”](#)- All buildings over 50,000 sq feet must comply with the Clean Buildings Performance Standards run through the Department of Commerce.
- ii.) [2020- Executive Order- 20-01- “State Efficiency and Environmental Performance.”](#) Agency directors are required to make new buildings net-zero or zero energy capable. A Governing Council reports directly to the Governor on the most cost-effective opportunities for reducing GHG emissions and improving the energy efficiency of state government operations. The Council chair will be policy staff from the governor’s office. Each covered agency has to appoint both an executive-level manager and a staff member to work with the Office of State Efficiency and Environmental Performance (SEEP) to adhere to the order. SEEP is the Governing Council administrator.
- iii.) [2020- State Law Revised- “Greenhouse gas emissions limits for state agencies.”](#) contains goals to reduce emissions on a decade-by-decade basis. Agencies must report to SEEP every two years on actions planned to reduce emissions and their long-term

strategy. The Department of Enterprise Services may create the report for agencies with fewer than five hundred employees.

- iv.) [2009- State Law- Chapter 39.35D RCW- "High-Performance Public Buildings"](#) superseded by Executive Order 20-01 above. It builds on a 2005 law requiring all major projects from the state capital budget to meet at least the LEED Silver standard.

c.) California

- i.) [2017- State Law- AB 802-](#) All buildings over 50,000 square feet are required to submit an Energy Benchmark Report to the California Energy Commission (CEC). CEC also establishes building energy efficiency codes that are updated every three years.

- ii.) [2012- Executive Order- B-18-22-](#) (Superseded 2004 EO which first required LEED for all new construction of state buildings)- All state agencies must reduce emissions with a 50% goal by 2020 and 100% goal for 2025 that all state building construction and renovation projects be zero net energy. Buildings over 10,000sq feet must obtain LEED Silver or higher. Department of General Services works with other agencies to develop policies for maintenance and operation to achieve efficiency improvements and incorporate them in the State Administrative Manual. (Builds off 2006 State Law, AB-32, California Global Warming Solutions Act). The Office of Sustainability is in the Department of General Services.

d.) New York

- i.) [2022- Executive Order No. 22- "Directing State Agencies to Adopt a Sustainability and Decarbonization Program."](#) (Leading by Example) Includes the creation of GreenNY Council co-lead by

directors from major state agencies related to building operations and energy, responsible for implementing the EO. Most state agencies are required to appoint a sustainability coordinator to liaise with the council and are encouraged to create a sustainability team within their agency, who will respond to an annual survey from the Council. The agencies must work with the New York Power Authority (NYPA) to ensure they are meeting efficiency goals. New construction must also strive for no fossil fuels and low-embodied carbon in the construction process. Also builds on EO no 166 (2017) which ordered all state entities to reduce GHG by set percents, with leadership from the Department of Environmental Conservation and New York State Energy Research and Development Authority

- ii.) [2019- State Law- "Climate Leadership and Community Protection Act"](#) - Has a goal to reduce emissions by 40 percent by 2030 and no less than 85 percent by 2050 from 1990. Provisions for state agencies are detailed in the 2022 Executive Order.
- iii.) [2012- Executive Order 88- Established BuildSmart NY-](#) Through the NY Power Authority, BuildSmart tracks, advises, audits, and plans for projects contributing to energy savings in state-owned buildings.
- iv.) [2009-State Law- "State Green Building Construction Act"](#) -All new state buildings and major renovations must comply with green building guidelines established by the Office of General Services.

e.) Vermont

- i.) [2020- State Law- "Global Warming Solutions Act"](#) - Requires Vermont to reduce GHG to 26% below 2005 levels by 2025. Then 40% below 1990 levels by 2030 and 80% below by 2050. This

legislation included the creation of the Climate Council with members from state agencies, and also a range of stakeholders appointed by the legislature; the Council is responsible for creating an action plan.

ii.) [2018- "State of Vermont Department of Building and General Services Design Guidelines"](#) - Guidelines to exceed energy savings of standard code. They require collaboration between the design team and energy efficiency utilities. If an RFP does not state a certification level, then new buildings are built to a minimum LEED Gold and existing buildings are renovated to a minimum of LEED Silver.

iii.) [2006- State Law- "State Energy Management Program"](#) -First created in 2006 with an additional fund coming online later. A revolving loan fund program to promote efficiency savings in public buildings called the State Resource Management Revolving Fund and State Energy Revolving Fund. The Energy Office is in the Department of Buildings and General Services and works closely with Efficiency Vermont.

iv.) [1992-State Law- "State Agency Energy Plan"](#) - Since 1992 every six years this plan (SAEP) is updated by the Department of Buildings and General Services. The places contain clear and measurable reductions in total energy consumption, expanding renewable use, and reduction in GHGs. Each state agency must prepare a biannual Agency Energy Implementation Plan.

f.) New York City

i.) [2019- "Climate Mobilization Act"- Local Law 97](#) Led by the Mayor's Office of Climate and Environmental Justice and implemented by the Department of Citywide Administrative Services (DCAS)

Division of Energy Management (DEM). Sets GHG emission reduction targets for municipal buildings (different targets for other buildings) with a 40% reduction in GHG emissions by 2025 and 50% reduction by 2030 from a FY2006 baseline.

- ii.) [2014- “Local law to amend the administrative code of the City of New York, in relation to reducing greenhouse gases by eighty percent by two thousand fifty”](#) -Local Law 66 Updated a previous 2008 law to require an 80% reduction in greenhouse gas emissions by 2050 over 2005 levels for city government operations.
- iii.) [2005 and Amended 2016- Local Law 86 and then 31 and 32- “The City Green Capital Building Program.”](#) Led by the Director of the Mayor’s Office of Environmental Coordination (MOEC). “Most capital projects with an estimated construction cost of \$2,000,000 or more involving the construction of a new building, addition to an existing building, or the substantial reconstruction of an existing building, across most occupancy groups, are required to be designed and constructed to achieve a LEED gold or higher rating, or other alternative green building standards.” “Across most occupancy groups, similar city-owned projects are required to be designed as a low energy intensity building.”

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g.) Washington D.C.

- i.) [2018- “Clean Energy Omnibus Act”](#)- Includes the establishment of the Building Energy Performance Standard (BEPS), which applies to all District-owned buildings over 10,000 sq feet. Under BEPS all applicable buildings must meet a minimum energy performance, and if they fail to meet the threshold then they must take steps to improve their energy performance. The BEPS program is run by the Department of Energy & Environment. The act is a product of

multiple working groups and stakeholder interviews. Also includes a lead-by-example plan of energy retrofits for D.C.'s existing public buildings and the development of a Strategic Energy Management Plan for the Department of General Services buildings.

- ii.) [2008- "Clean and Affordable Energy Act"](#)- Required annual benchmarking and disclosure of building energy performance through Energy Star Portfolio Manager. For public buildings over 10,000 sq feet and 50,000 for private buildings. Operated by the Department of Energy & Environment.
- iii.) [2006- "Green Building Act"](#)- Includes specifications for projects that are District-owned or at least 15% of the total cost is financed by the District. Must meet or exceed Leed Silver.

h.) Federal Government

- i.) [2021- Executive Order 14057- "Federal Building Performance Standard"](#)-Sets a goal of a net-zero emissions building portfolio by 2045 with a 50 percent emissions reduction by 2032. "The Chair of the Council on Environmental Quality (CEQ) and the Director of the Office of Management and Budget (OMB) shall review the targets, and agencies shall incorporate such targets into the performance management systems." New construction and modernization projects over 30,000 sq feet shall all be net-zero by 2030. Each agency shall "implement CEQ's Guiding Principles for Sustainable Federal Buildings in building design, construction, and operation of all new Federal buildings and renovated existing buildings."
- ii.) [2021- Federal Rule- Department of Energy](#)- Starting in 2025 any new or renovated federal building will have to reduce on-site emissions by 90% relative to 2003 levels, with full decarbonization required by 2030.

- iii.) [General Services Administration](#)- as the largest civilian landlord coordinates with other agencies including EPA and DOE. Also contains the Office of Federal High-Performance Green Buildings, created by Congress through the “Energy Independence & Security Act,” in 2007.

1.4 Success Defined

This section explores how jurisdictions have defined and achieved success in broad terms. The original RFP for this report noted that while there is no single criteria for success the following apply: “Minimize total lifetime costs of owning, maintaining, and occupying buildings. Minimize greenhouse gas emissions of the building stock. Optimize buildings to enhance non-energy benefits, including but not limited to occupant health, safety, and productivity. Maximize the use of sustainable materials and minimize waste. Other objectives as they advance state policy goals.” While certain metrics like the number of LEED buildings may encompass multiple goals, it still does not capture the whole. Furthermore, success should not only be defined as past accomplishments as some programs have been in place for decades and others have just started. All of the jurisdictions reviewed in this section are among the leaders in the United States, but their success, goals, and resources still vary widely.

In the federal government, the Office of Management and Budget includes a scorecard on sustainability that applies to each agency, so that they can be assessed individually in their approach to sustainability. Teams such as the Office of High-Performance Federal Buildings set specific goals for themselves on the road to net-zero public buildings. The associated Green Building Advisory Committee’s success rests on the focus of its task groups and the specific problems they seek to collaboratively solve such as building decarbonization or approaches to leasing government offices that meet net-zero emissions standards.

Vermont's State Energy Management Program has clear financial goals for each project as well as the entire program. This includes a goal of lifetime savings from the efficiency projects that exceed what was invested in the program. On a yearly basis, one revolving fund is expected to achieve \$150,000 in new annual savings. In some years the longer-term goal is met whereas the short-term goals are not met. The financial terms of the program make the outcomes clear, though the shorter payback period limits its ability to engage in more ambitious projects.

For jurisdictions like Massachusetts that have been engaged in this work for many decades, almost all of the low-hanging efficiency work has already been completed. The larger projects move much slower, but part of their long-term achievement is also how the facilities partners have become committed to this new path. Success is judged in part by a changing culture where formerly uninterested stakeholders now feel invested and take an active role in contributing to more efficient and less carbon-intensive buildings. For programs like Massachusetts' Leading By Example, the completion of each individual, major project matters too. These big projects not only represent progress toward a larger goal, but they also show what is possible for other facilities across the state and beyond.

The Office of General Services Resiliency and Sustainability team in New York state has also largely moved past simpler efficiency work to focus on bigger decarbonization projects. Thus even as they look at making reductions in energy use as one ongoing metric of success in the short term, they reflect on their progress toward their more ambitious goals. Alongside short and long-term quantitative measures in terms of carbon and energy, success is also measured in terms of their ability to meet the needs of their tenants that include other factors such as comfort. In addition, deferred maintenance on state buildings in NY (but also true elsewhere) represents both a challenge and an opportunity to plan and finance a big leap forward in more sustainable and productive buildings.

Using its benchmarking data, California has already reduced GHG emissions by 67% in state buildings since 2010. Each individual agency creates its own sustainability

roadmap that allows them to explain its achievements, failures, and targets for the future. The Office of Sustainability in the Department of General Services annually creates strategic goals for that year along with a five-year plan. In addition to working towards longer-term goals such as decarbonization, regular renewable energy and energy efficiency projects that require no capital and save the state money contribute to their ongoing sense of success. Finally the growing number of state-owned LEED buildings, that date back to a 2004 executive order, also stand as an enduring achievement.

Four jurisdictions, the federal government, Washington State, Washington D.C., and New York City are now focused on a building performance standard that is being implemented in various phases. While past achievements and relationships with agencies and facilities managers give these teams confidence, they are focused on the future. Just as each building manager has to follow a path to ensure they are complying with the building performance standard, so too do those who implement the standard. Thus, in Washington State, one current metric of success is its ability to reach and educate the owners and managers of thousands of buildings who will need to comply with this standard. For a team equivalent to seven full-time employees, this is a great accomplishment. Though success is judged on each step of implementation, the purpose of building performance standards is clear. For example, Washington D.C.'s Building Energy Performance Standard came as a result of a 2018 law that will reduce greenhouse gas and energy consumption by 50% by 2032.

New York City's Division of Energy Management (DEM) in the Department of Administrative Services (DCAS) has had tremendous success building capacity through training and funding staff members throughout the city. DCAS provides funding to other city agencies to hire and train city staff to sit on those agencies' Energy Teams to implement energy efficiency and clean energy projects and operations within agencies. These staff work to implement the City's goals. NYC has also mandated the hiring of Agency Chief Decarbonization Officers at the highest emitting agencies to direct agencies' decarbonization efforts. DCAS has significant financial resources because of

the mandated legislation and policy prioritization by City Council and the Mayor. City Council passed legislation and the Mayor's Office of Climate and Environmental Justice introduced policy due to a strong advocacy community both in terms of technical experts and climate and environmental justice advocates. DEM takes many different approaches by working closely with agencies and using systems-based approaches that allow them to scale projects like lighting efficiency. They use information, not just benchmarking, but past experiences working on individual buildings, to be proactive by creating service plans and a continuous series of improvements that provide preventative maintenance and increased efficiency.

Given that most jurisdictions have distinct and overlapping laws, definitions of success also vary between the different teams and programs even as they work towards a common if unstated goal of saving money, reducing energy use, and creating better buildings to work in. Several people interviewed for this report also described the way in which despite the long history of sustainability work within their agency or jurisdiction—that the goals and achievements are both happening at an accelerated pace. This relates to a common refrain that success was defined not only in quantitative terms but also qualitative and even cultural in regards to building a bigger team that extends beyond the core energy/sustainability office. Their route to public green buildings is not only coming from above but also because of changing priorities among facilities managers and stakeholders who are invested in this process.

Finally, failure to meet goals consistently may also reveal that certain goals may have been too aggressive. The ENERGY STAR team at the EPA suggests regularly checking the feasibility of one's goals and what can be done. This ground-truthing need not be an extensive audit, but simply using the existing benchmarking data and as well as surveys with stakeholders to make sure that one's goals are aligned with what is possible.

1.5 How jurisdictions measure, track, and enforce implementation

As mentioned earlier in this report, it bears repeating that strong and specific laws matter. Several teams noted that decarbonization laws in particular made their work much easier and more streamlined with no need for debate about certain topics like gas boilers. This is also true of the new building performance standards. Alongside these laws and executive orders, many team leaders emphasized the increased support and focus from their commissioners and governors. When the commissioner of the general services department states that sustainability is one of their top goals then that makes a big difference, especially given that the number of people working on green building teams is relatively small.

Even with clear legislation, plenty of grey areas exist that still require a certain level of accommodation and negotiation with facilities managers and partner agencies. For example, in Washington State, the Building Performance Standard applies to all larger public and private buildings. Failure to comply with these standards results in a fine applied on a square foot basis and there is a mechanism to fine public buildings as well. To be clear, such a fine would be a measure of last resort and there are exemptions for financial hardship. In the District of Columbia, the Department of Energy & Environment cannot fine public buildings for failing to meet the standards. Instead, there is an expectation of good faith collaboration and further political pressure from constituents if agencies do not meet their goals. In general energy teams' first approach to working with stakeholders is "How can we help you?" rather than highlighting the consequences of not meeting standards.

There are two separate if related issues regarding tracking of green buildings, the first is identifying the buildings themselves and the second is benchmarking in order to assess and achieve specific goals. While data tracking and analysis is a priority for all teams, it is rarely streamlined and the data lead's primary responsibility is often locating and centralizing many disjointed streams of information. Jurisdictions typically have an existing database of buildings, however, there are sometimes gaps in this knowledge

and they may still be listed separately such as K-12 buildings and higher education campuses separate from other agency buildings. Likewise, tracking of LEED projects requires creativity, for example in Massachusetts they use a single LEED email to register projects so that staff turnover does not mean this information can get lost. Their e-builder project management software has a LEED checklist included.

Like the data related to construction and physical buildings, benchmarking data flows in from multiple directions. Since each jurisdiction typically has overlapping laws and teams (a topic discussed in more detail in the subsequent section), the information often has to pass through several entities. In California, the process is relatively streamlined with agencies entering into ENERGY STAR Portfolio Manager once a year along with auto-uploaded information from the utilities. Massachusetts has an energy insight tool that pulls directly from utilities along with information from statewide contract reporting and real-time metering from certain agencies.

Benchmarking is an absolute necessity for prioritizing green building. All of the jurisdictions studied rely on ENERGY STAR Portfolio Manager for their benchmarking needs. For some jurisdictions, this has been a requirement since the early 2000s. This benchmarking data form the basis of long-term planning: for example, the worst-performing buildings revealed through benchmarking receive a higher priority.

Washington D.C. has a robust data team that not only uses its information to plan, enforce, and consider equity outcomes but has also created an impressive visualization tool that is accessible to a public audience:

https://buildingperformancedc.org/#dc/2021?layer=energy_star_score&sort=energy_star_score&order=desc&lat=38.865374851611634&lng=-76.98652267456055&zoom=12

This contributes to public understanding and hence greater pressure to meet or exceed the requirements for public green buildings. Data transparency plays a big role in encouraging compliance. Some other examples include Massachusetts Leading By Example's forthcoming data dashboard, and the Federal Office of Management and Budget's annual scorecard on agency performance on energy efficiency and

sustainability. Whatever the bureaucratic hurdles, no agency director wants to receive a poor performance review on their sustainability performance.

1.6 Partnerships, resources, training, and tracking of stakeholders

A key theme that emerged in the research and writing of this report is the flexibility of each team. Data, funding, and partners all come from multiple sources. Respondents mentioned that their work frequently involved “coralling” or “cat herding.” While there may be room for streamlining, especially in regard to data, the distributed nature of this work offers much flexibility that should be viewed as a strength.

Partners not only include other government officials, but adjacent non-profit organizations as well. The National Association of State Energy Officials (NASEO) “facilitates peer learning among state energy officials, serves as a resource for and about State Energy Offices, and advocates the interests of the State Energy Offices to Congress and federal agencies.” In the Northeast, the Northeast Energy Efficiency Partnerships (NEEP) has worked closely with many teams. For example, Washington D.C.’s back-end compliance system for its Building Energy Performance Standard was created at a competitive rate by NEEP. These organizations also play a key role in supporting the networks needed to sustain this work across stakeholders. Events that offer training and an opportunity for individuals to meet and share their experience and expertise informally have had great results. Based on the success of the Community Energy Network in Connecticut, NEEP is developing similar networks in other jurisdictions.

The federal government partners with state and local governments through a number of programs. The Department of Energy has a State and Community Energy Program and State Energy Program that helps provide funding and technical expertise. The Environmental Protection Agency’s ENERGY STAR Program provides training: <https://www.energystar.gov/buildings/training?testEnv=false> They also have a dedicated team focused on state and local governments to explain the value of Portfolio Manager

and the ways in which benchmarking and performance standards can form the foundation of a successful energy program. Caterina Hatcher and Brendan Hall are the current program managers and can be contacted at Hatcher.Caterina@epa.gov and hall.brendan@epa.gov

Non-profit efficiency programs like Efficiency Vermont do a high volume of projects and have lots of expertise and services they can offer public green building teams. Many groups also work closely with the utilities in their jurisdictions. And finally, there is a vast network of private energy consultants that both public and private building managers rely on. (This report being one example of such a relationship.) These various partners help to explain why relatively small numbers of staff work on any given program since they can rely on a network to scale up and meet their jurisdiction's ambitious goals. In some cases, certain work that was once outsourced like LEED certification is now in the process of being done in-house in places such as California.

Most jurisdictions have a variety of teams that do distinct and complementary work. For example in New York State, The Office of General Services Resiliency and Sustainability is focused on implementing green buildings for state buildings. They work closely with the New York Power Authority (NYPA) and the New York State Energy Research and Development Authority (NYSERDA) to discuss policy, project management, and technology. In Massachusetts, the Leading by Example team collaborates with the Energy & Sustainability team in the Division of Capital Asset Management & Maintenance (DCAMM). MA's Leading by Example program has funded studies that DCAMM is in turn using to plan some of its projects. While some groups such as the Federal Office of High-Performance Buildings consider themselves a "think and do tank," there are benefits to having different teams focused on policy, technology, and implementation. For example, given that a massive state-capital electrification project might be one of the first projects to encounter grid limitations, it makes sense that the public buildings teams are in conversation with a wide network of energy officials.

Various councils, committees, and working groups help to glue these varied groups together. In the federal government, the Interagency Sustainability Working Group (ISWG) includes members from all federal agencies. In their own words ISWG “Serves as a forum for information exchange and promotes agency implementation of goals for sustainable buildings. Fosters discussions on widespread adoption of sustainable design and operations in the federal sector. Develops technical guidance and tools to support implementation of agency sustainability policies for federally owned, operated, and leased buildings.” All councils follow some version of this model that includes planning, training, and the creation of consistent standards.

Meeting leaders make a conscious effort to make such monthly or bimonthly meetings “not too bureaucratic.” Content and form are varied. Inspiring and interesting speakers present on a range of topics. Agendas and slides are typically released in advance so that attendees know what to expect. Larger meetings will sometimes use breakout sessions into smaller groups so that more people can be engaged and share back with the whole group. It is helpful for someone to actively track meeting content and solicit feedback on future meetings. A few other examples of such meetings include California’s Sustainable Working Group, the GreenNY Council, and Massachusetts’ Leading by Example Council. Attendees are either strictly government representatives or include other stakeholders such as architects and builders.

There are requirements for agencies to appoint clear staff leads to participate in these conversations. In some cases, the primary energy/sustainability team will fund the positions in other agencies. NYC’s DCAS has one such program, described here: “Since 2011, DCAS has provided funding for dedicated energy management staff at partner City agencies. These staff include Energy Managers, Energy Analysts, Energy Coordinators, Solar Project Managers, and Directors of Energy and Sustainability. They are charged with developing, implementing, and tracking their agency’s energy and emissions reduction efforts. They help identify potential energy efficiency projects, apply for competitive funding, create accountability at the agency level for meeting emissions reduction goals, and support cultural change across their organizations. DCAS works

with all agency energy management staff to coordinate efforts citywide and share best practices across agencies. Currently, DCAS directly funds 22 energy management staff members at 12 of the largest City agencies.”

While the monthly or bimonthly meetings do provide some training, some jurisdictions offer their own training programs. For example, NYC’s DCAS has its own Energy Management Institute created in partnership with the City University of New York, which has been attended by over 1,800 NYC employees. The programs are free to all employees with priority given to the City’s public buildings staff. In most cases, however, a number of courses and trainings that are not affiliated with any particular agency are promoted to meet the skills gap and steep learning curve of new projects.

1.7 Marketing and awareness

The role of communication varies across departments within each jurisdiction. For example, Massachusetts’ Leading by Example program has a team of five with one dedicated communication lead responsible for press releases and their annual awards. Most teams focus on reaching their key stakeholders whether limited to public buildings or all larger buildings. All programs have some type of email list that they have built up over the years with whomever they consider the relevant stakeholders such as sustainability leads in each agency and facilities managers. This long-standing tool should not be discounted. Unless the email list is inundated with messages, it remains an effective tool for updating projects and meetings.

Many programs rely heavily on their websites to reach people. Nearly every jurisdiction includes a range of reports, recorded meetings, and FAQs on their websites. These websites are generally well-designed and accessible with clear headings and sections, and limited large blocks of text. The importance of these sites is especially true of newer programs such as those implementing a building performance standard that have to educate and answer a range of questions.

District of Columbia’s Department of Energy and Environment has created a Knowledgebase site with information organized in clear themes. <https://dc.beam-portal.org/helpdesk/kb/>

Washington’s Department of Commerce Clean Buildings’ homepage includes overlapping sections on their primary queries including: “How to comply,” “Frequently asked questions,” “Clean buildings library,” “Customer support and resources,” “Clean buildings portal,” and “Early adopter incentive program.”

<https://www.commerce.wa.gov/growing-the-economy/energy/buildings/>

Within California’s Office of Sustainability website, their “LEED Certified State Buildings” page has clear, expandable sections on “Requirements,” “Types of LEED certifications,” “Resouces,” and finally a chart that shows the Cumulative number of LEED Certified buildings by year. <https://www.dgs.ca.gov/OS/Resources/Page-Content/Office-of-Sustainability-Resources-List-Folder/California-LEED-Certified-State-Buildings>

1.8 Equity

While all jurisdictions consider equity, it is in places where specific mandates from the legislature and governor/mayor are the clearest that the most steps are being taken. Some interviewees also noted the fact that public buildings are more likely to be in a disadvantaged community which makes working on public buildings as a whole relevant to equity.

The most important program related to equity links all of the jurisdictions. The Justice 40 initiative, an Executive Order signed by President Joe Biden “has made it a goal that 40 percent of the overall benefits of certain Federal investments flow to disadvantaged communities that are marginalized, underserved, and overburdened by pollution.” These “certain Federal investments” include those related to climate change, clean energy, and energy efficiency. The Federal government continues to release guidance, but other jurisdictions are mobilizing to figure out how to incorporate these rules and

funding into their own work. This initiative has a requirement that all programs “engage in stakeholder consultation and ensure that community stakeholders are meaningfully involved in determining program benefits,” a process relevant to public green buildings. The Federal government has also created a Climate and Economic Justice Screening Tool that is being used by federal agencies but could be adapted for use by other jurisdictions: <https://screeningtool.geoplatform.gov/en/#8.3/35.968/-94.158>

New York State has its own requirement for funding dedicated to disadvantaged communities, which like the Federal government’s screening tool goes down to the census tract level. Their Environmental Bond Act “will advance equity and environmental justice by directing at least 35% of total funding towards disadvantaged communities that are often the most impacted by pollution and climate change.”

Many grant programs like those in Massachusetts and Washington include extra incentives for applications incorporating equity into their proposals. In Washington, one grant program collaborates with the Department of Health and their environmental health impact map in order to promote green building and prioritize cleaner air. The sustainability roadmaps created by state agencies in California also consider equity in their plans.

2. Awareness and Understanding Evaluation

2.1 Overview

This section documents findings from the study assessing to what extent people and agencies in Rhode Island are working towards compliance with the Rhode Island Green Buildings Act (“the Act”). The study addressed awareness and understanding of the Act, along with identification of barriers to compliance and recommendations for the future. Data were collected through interviews and surveys, providing both rich descriptive data along with more general understanding.

The key findings were that Rhode Islanders need to have a greater awareness of the Act and additional support is needed to better integrate the Act into building and renovation projects. Three primary strategies were identified from these findings that will improve awareness and thus compliance with the Act, which are 1) widespread education, 2) dedicated staff or resources to support compliance with the Act, and 3) funding to support up-front costs for agencies.

2.2 Methods

Interviews (N=8) were used to collect data from people in Rhode Island who were familiar with the Act and actively complying with the regulations. Participants were recommended by members of the Green Buildings Advisory Committee (GBAC), and recruited through targeted sampling to represent a variety of roles and familiarity with the Act. Ultimately, ten people participated across eight interviews, representing people involved in managing building projects or energy usage, administering funding for building projects, and coordinating work between agencies. Interviews took place in October and November 2023 through video calls, each conversation lasting approximately 30-60 minutes. Topics covered in the interviews included the participant's understanding of the Act and related building construction or energy efficiency standards, reflections on success and challenges around complying with the Act, and recommendations for resources needed for compliance.

Surveys (N=60) were used to collect data from a broad range of people in Rhode Island representing roles and agencies that should be aware of or responsible for compliance with the Act. The recruitment list was drawn from prior data collection efforts, recommendations from GBAC, and searches for new contacts. Surveys were conducted through an online survey and took place from November 2023 through January 2024. The survey was sent to 432 people, 67% of whom represented state and/or municipal entities, 27% with public education entities, and the remaining 6% represented other

related organizations.¹ While the overall response rate for the survey was 14%, under 10% of all those recruited indicated they had responsibilities related to the Act and completed the survey. Topics on the survey included awareness and understanding of the Act, compliance with the Act, barriers to compliance, and recommendations for resources. The survey instrument is included in Appendix B.

One **limitation** of the study was a notably low response rate, though this may suggest a gap in awareness that prevented engagement with the survey, and may be connected to a broader lack of compliance with the Act. While there are no definitive benchmarks for a “good” survey response rate, a similar survey reaching out to professionals might expect a 20-25% response rate. The survey had a 14% response rate, with an additional 11% of people who opened the link and did not start the survey, suggesting that from the recruitment email it seemed applicable to their work. For those who participated in the survey, about half of respondents either did not complete the survey or reported that their role was not related to the Act. Ultimately, beyond indications of limited awareness, survey findings represent only 28 people, or 6% of the recruited sample. Additionally, due to the general lack of awareness, cost-benefit or similar analyses of the Act were not feasible at this time, and data should be collected as part of ongoing monitoring and verification.

2.3 Findings

Interviewees who were familiar with the Act and working towards compliance offered a few successful resources or strategies that they were aware of for supporting compliance with the Act. Some of the discussion around these strategies noted that GBA was written to bring more agencies in alignment with already adopted standards, so those already following an approved set of standards might not be aware that they were GBA compliant. Successful strategies included:

¹ The final count includes a snowball sample (additional emails collected through the survey) and does not include invalid or bounced emails (27).

- aligning GBA requirements with municipal or organizational goals, such as Providence’s Climate Justice Plan;
- aligning GBA requirements with existing standards or those already in use, such as NECHPs;
- communicating compliance requirements with contractors, by including language outlining requirements in requests for proposals;
- planning compliance and engaging multiple stakeholders early in the process, such as bringing RI Energy into conversations during the planning stage.

More often, in both the interviews and surveys, participants identified a variety of challenges or barriers they currently face with their work or anticipate being a challenge in the future. These highlighted that people and agencies in Rhode Island need additional support to increase awareness and compliance with the Green Buildings Act. The primary needs identified by participants included widespread education about the Act, dedicated staff or resources to support compliance with the Act, and funding to support up-front costs for agencies.

When asked what motivated their organization to comply with the Act, many survey respondents expressed multiple motivations for following GBA or similar guidelines. Most often they indicated state funding to support projects (14 of 16) and to be in compliance with laws and regulations (13 of 16). Many respondents also were motivated by shared values, as 10 people indicated long-term financial savings and 8 said that the Act aligned with their organizational mission. This suggests incentives would drive compliance with the Act, but many agencies may prioritize compliance if they are better aware of the benefits or understand how the Act aligns with their mission.

The sections below explore the barriers identified by interview and survey participants, along with their recommendations to address the challenges. The themes are interconnected, therefore better compliance with the Act would be supported by a

person or group being responsible for day-to-day coordination of education efforts, helping people navigate the Act, and obtaining funding for projects. The recommendations are presented thematically, however the approaches outlined could be individually prioritized or adopted as a group of priorities.

2.3.1 Widespread education is needed to support general awareness and compliance, as people who were familiar with the Act were generally knowledgeable about how it applied to their work.

Interviewees were selected as representatives who were familiar with the Act, and so, were already actively working towards compliance. They described the Act as an effort for Rhode Island to have more energy efficient buildings in order to offset rising energy costs, move away from fossil fuels, and bring up the minimum standards for buildings. Most survey participants (n=41) were not aware of the Act or did not feel that it was applicable to their job. While they initially indicated that their role was not related to compliance with the Act, 8 people later described their role as planning/designing construction or renovation projects and managing policy/regulation compliance at public agencies in Rhode Island. For those who had heard of the Act (n=19), 9 said they use it as a guideline for their work, 6 said they did not know how to comply with the Act, 4 said they did not know how it applied to their work.

People who are already aware of the Act are likely to pay attention to updates and will actively work towards compliance, however the broader picture is that many people are likely unaware of the Act or not familiar enough to effectively comply. Fewer than half of people familiar with the Act (9 of 19 people) understood how to use it in relation to their work, these people were more likely to keep up with changes to the Act and reference multiple standards for their work. Survey respondents who were familiar with and used the Act said that they used it as a guideline for their work and were generally aware of the 2022 Amendment to the Act. Those who are aware of the Act were more likely to refer to multiple standards when doing construction and renovation work, with 5 of 20 people referring to two or more standards (all of whom use the Act for guidance), 8 people referring to a single set of standards, and 6 people saying that they do not

currently follow any standards. People learned about the GBA from a variety of sources, such as seeking out regulations related to their job or learning about it from someone else, though there are not strong patterns for how people learn about the Act, indicating opportunities for widespread education efforts.

Responses from both samples suggested that understanding the Act is not the primary barrier for their compliance, though both mentioned situations that they were not confident to whether or not the Act applied. Interviewees broadly identified the awareness and understanding of the Act as a barrier to compliance, ranging from people not knowing the Act exists to needing highly knowledgeable individuals or departments that would prioritize compliance. They talked about staff that lack expertise or experience to make informed decisions for green buildings, lack of communication between people doing similar work, and insufficient understanding for how upfront costs can lead to long-term savings. Similarly, survey participants felt that they needed access to experts or guidance for their work, along with not enough vendors being familiar with GBA requirements.

Both interviewees and survey participants identified a specific gap in understanding related to the Act around non-standard cases, and how those would trigger additional project work to be compliant with the Act. For example, would a renovation planning to replace and upgrade lighting or windows across a building trigger additional project work in order to be in compliance with the Act. Some survey respondents (n=5) similarly indicated a need for clarity in specific cases, such as impacts on historic preservation, how the 2022 changes affect projects already underway, or whether specific fixture upgrades would expand the scope of a project. One survey participant asked *“Does the GBA apply to specific measure improvements at a facility? (e.g. replacing all the lights or upgrading the HVAC controls that go across the whole building, but are specific to that measure and not a renovation per se).”* Participants made suggestions around creating and sharing clarifying resources, rather than changes to the Act itself.

Interview and survey participants offered a range of recommendations to address challenges related to awareness and understanding of the Act, such as concise

documentation and active education efforts, as detailed in Table 1. Some recommendations from participants assume non-existent challenges or overlap with current resources or programs. These suggest a lack of awareness for available resources or support, and so would best be addressed through communication with and education for agencies. One example of this is participants recommending more education for contractors in charge of planning and design. As discussed with the Committee, the expertise is readily available, however, decision makers may not have sufficient knowledge to recognize the expertise. Therefore, this needs to be addressed through education for procurement staff within agencies.

Table 1: Recommendations to address awareness and understanding of the Act through direct outreach and education.

Theme	Recommendations
Provide short explainer documents	<ul style="list-style-type: none"> ● 1-2 pg summary of GBA requirements / benefits ● Planning timelines, when to involve different people / departments ● Planning guidelines, understanding GBA requirements for non-expert stakeholders ● Compliance checklists
Directly communicate with agencies and municipalities	<ul style="list-style-type: none"> ● Directly inform or remind agencies of current or updated processes ● Direct agencies to available resources (e.g. website) ● Ensure stakeholders across many roles and levels of hierarchy are aware of obligations
Educate contractors and industry professionals	<ul style="list-style-type: none"> ● Identify and fill contractor skill gaps ● Support or incentivize training and upskilling ● Provide requirements or guidance for planning post-construction energy needs and usage ● Broad education / awareness campaign to industry

	professionals responsible for doing GBA compliant work
Provide documentation explaining needs and benefits of GBA	<ul style="list-style-type: none"> • Education around procurement and offsetting costs • Make connections between GBA and other state/city legislation • Communicate reasons or justifications for GBA compliance • Education to support organizational culture shifts to prioritize GBA-related work
Provide documented examples of compliance with GBA	<ul style="list-style-type: none"> • Example RFP language that requires GBA compliance • Examples for projects that are not clearly applicable to the Act • Example applications of interpretation of standards
Outline post-construction guidelines	<ul style="list-style-type: none"> • Information or standards for post-construction energy usage • Require / encourage entities to plan for post-construction energy needs early during process
Educate agencies and municipalities	<ul style="list-style-type: none"> • Staff education around principles and priorities related to GBA compliance • Directing staff to existing resources
Educate the public	<ul style="list-style-type: none"> • Public education around GBA and requirements, to help foster support for funding local green building projects • Communicating or demonstrating long-term public benefits that offset initial costs

2.3.2 Public entities could better comply with the Act if there was an individual or group responsible for helping agencies navigate compliance requirements and maintain a central system for monitoring and verification.

Interviewees identified barriers around the staff expertise and capacity to comply with the Act, particularly as it felt like the burden of compliance was an individual's responsibility rather than a widespread collective effort. In addition to the broad need for education around the Act as discussed in the section above, smaller municipalities could not support the full range of staff expertise needed. Municipalities would benefit from access to subject matter experts that could work across regions. Interviewees also emphasized a need for monitoring and verification, through a simple and centralized system. Without such processes, agencies do not prioritize GBA compliance and current reporting is insufficient to evaluate progress towards widespread improvements to infrastructure in Rhode Island.

Survey respondents shared similar barriers, as about half (7 of 16) indicated that access to experts and resources would help agencies understand how to comply with the Act. Specifically, they wanted clarity on navigating how specific use cases apply, with one person writing that they wanted *"clear, online guidance document as to what projects are, or are not, subject to GBA"* and another simply requesting *"examples [and] access to experts for guidance."* Some respondents (5 of 16) felt that the compliance process was unclear or burdensome and that there was a need for oversight or accountability. A few people (3 of 16) shared that processes or requirements were not clearly communicated to vendors.

Interview and survey participants offered recommendations to address challenges related to supporting implementation, verification, and monitoring compliance with the Act. This included 1) creating systems to make navigating peculiarities of a given situation easier or 2) setting up active monitoring and verification systems, as detailed in Table 2. As discussed in the Best Practices section of this report earlier, Washington State's Department of Commerce's Clean Buildings' homepage includes easily navigated links for how to comply, frequently asked questions, incentive programs, and

additional support resources. The current GBA website could be adapted to house all necessary resources for agencies, providing a central location that agencies can turn to. Overlap with existing resources or programs suggest a lack of awareness for available support or understanding of how their current work is connected to the Act. Additionally, some recommendations may be outside the scope of the Act, suggesting greater awareness of the Act is needed.

Table 2: Recommendations to support implementation, verification, and monitoring compliance with the Act.

Theme	Recommendations
Establish dedicated staff to coordinate GBA compliance	<ul style="list-style-type: none"> ● Centralized oversight and accountability ● Staff that can follow-up and check-in on agencies at multiple points in the planning and building process ● Staff responsible for communicating GBA requirements and determining project eligibility ● Staff responsible for monitoring and verifying compliance with the GBA
Provide access to shared subject matter experts	<ul style="list-style-type: none"> ● Certified energy managers ● Energy coach or energy advocate, available for reviewing existing structures or future plans ● Grant writers
Coordinate access to experts and specialists	<ul style="list-style-type: none"> ● Experts that understand contracting for sustainable buildings / energy use ● Experts reviewing contracts and aligning with GBA requirements ● Guidance around tracking and understanding energy procurement and usage ● Guidance for balancing restrictions and requirements for

	<p>building projects</p> <ul style="list-style-type: none"> • Architect, builder, and contractor recommendations (or certification)
Establish active verification of compliance	<ul style="list-style-type: none"> • Follow-up or annual reporting through a portfolio manager • Use or adapt check-lists from standards outlined in GBA • Inspections • Actively monitoring compliance from start to finish, reaching out directly to and communicating with agencies
Adopt simple, digital systems for monitoring and verification from planning through completion	<ul style="list-style-type: none"> • Digital streamlined systems for collecting and reviewing plans to report on progress towards compliance from initial planning through project completion • Digital, streamlined systems for post-construction monitoring (e.g. EPA Dashboards) • Narrative report sections to justifying choices, especially for those not obviously "green"
Support navigating standards and/or resources	<ul style="list-style-type: none"> • Knowledgeable staff who can answer questions and direct people to resources related to GBA • Staff that can identify issues before they become a problem • Guidance when navigating non-obvious applications and exemptions for compliance with GBA
Create a community and culture of peer learning	<ul style="list-style-type: none"> • Build a culture that supports prioritizing GBA compliance because it benefits the agencies • Model community of practice off of public school efforts, support cross-district communication • Shared learning opportunities, across agencies and staff

	<p>roles</p> <ul style="list-style-type: none"> ● Community of practice between agencies, specifically aimed at supporting less-resourced entities ● Facilitate conversations between agencies, contractors, suppliers, etc. ● Coordination between senior staff at an agency
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2.3.3 Additional funding would help people comply with the Act to support staff time around navigating design and construction, as well as the added expense of construction

Interviewees discussed funding as generally being a barrier to compliance, with some focus on the upfront costs related to audits and certifications along with the costs related to actually implementing green building standards. One interviewee specifically talked about how their projects use the LEED checklist but were not certified due to the associated costs. Another focused on the upfront building costs, and how projects can get derailed when the needs are greater than the available resources. Similarly, half of survey respondents (8 of 16) also generally identified cost of implication or certification and general access to funding to support construction and renovation projects as a barrier to compliance with the Act.

Participants offered a few recommendations to address funding-related barriers to compliance with the Act, such money to support third-party verification or building costs, as detailed in Table 2. Overlap with existing resources or programs suggest a lack of awareness for available support. While this section includes the fewest identified barriers and recommendations, procuring funding appears to be a substantial challenge. Additionally, the resources and programs suggested in the previous two sections would require funding to create and disseminate resources or establish and maintain systems.

Table 3: Recommendations for direct funding to support or incentivize compliance with the Act.

Theme	Recommendations
Provide funding for audits and/or certifications	<ul style="list-style-type: none"> ● Funding for energy audits in order to be eligible for existing grants/funding opportunities ● Funding to pay for LEED or other certification processes ● Funding for additional staff or 3rd-party oversight
Provide financial support for upfront costs	<ul style="list-style-type: none"> ● Financial incentives for net zero buildings ● Funding greater than increased costs of green building design and construction ● Incentives for going beyond the minimum standards ● Supporting additional staff time needed to ensure compliance

2.4 Impact / Resource Matrix

The impact / resource matrix, Figure 1, categorizes the recommendations from survey and interview respondents, using impact and resources as the primary factors. Resources represent multiple types of initial investment, including direct funding needs, staff time to develop or communicate resources, time for agencies to adopt systems, systems infrastructure, or other resources. The categories are:

- **High impact** solutions are expected to make a notable or significant difference for many agencies to comply with the GBA.
- **Low impact** solutions are expected to support small increases overall, and may make a difference for some people or agencies.

- **High resource** solutions require greater initial investment to start or maintain over time, taking into account both financial support and staff time.
- **Low resource** solutions require minimal initial investment, and likely can be developed cheaply and/or quickly.

The matrix is best used as a planning tool to prioritize short term priorities and long term goals. Recommendations are not permanently fixed in a particular category, as recommendations are refined into implementable plans the potential impacts or resource requirements may change. Implementing a recommendation may lead to different levels of impact based on the users, for example small municipalities may need greater support or resources than the larger cities or school districts, which have embedded policies that put individual entities in a position to easily comply with the Act. Resource needs are categorized assuming that each recommendation needs to be built from the ground up. However, some of the high resource recommendations could be low resource if leveraging existing systems, for example using the ARC platform used in LEED certification as a project verification tool.

Figure 1: Impact / Resource Matrix

High Impact / Low Resource	High Impact / High Resource
<ul style="list-style-type: none"> ● Directly communicate with agencies and municipalities ● Provide short explainer documents ● Coordinate access to experts and specialists ● Provide documented examples of compliance with GBA 	<ul style="list-style-type: none"> ● Provide funding for audits and/or certifications ● Provide financial support for upfront costs ● Establish dedicated staff to coordinate GBA compliance ● Provide access to shared subject matter experts ● Establish active verification of compliance ● Adopt simple, digital systems for monitoring and verification from

	planning through completion <ul style="list-style-type: none"> • Support navigating standards and/or resources • Create a community and culture of peer learning
Low Impact / Low Resource	Low Impact / High Resource
<ul style="list-style-type: none"> • Provide documentation explaining needs and benefits of GBA • Outline post-construction guidelines • Educate agencies and municipalities 	<ul style="list-style-type: none"> • Educate the public • Educate contractors and industry professionals

3. Recommendations and Next Steps

This report documents best practices in the field for green building initiatives along with an overview of current awareness and understanding of the Act in Rhode Island. Findings from each study are brought together to provide four recommendations for the Committee to support best widespread compliance with the Act. These recommendations are ordered from highest to lowest priority, however are also interconnected and would best work in tandem together. At this time, recommendations are focused on supporting awareness and uptake of the Act, and do not include any suggestions for amendments to the Act. As staff and public agencies become more aware of the Act and intentionally comply with the requirements, the Committee should re-evaluate and refine priorities for supporting compliance with the Act. The current landscape around efforts for Rhode Island to be more sustainable and resilient includes a variety of legislation and programs that will shift and change over time. Efforts to support compliance with the Act would benefit from coordinating with these other programs to minimize unnecessary redundancy or conflicts.

Recommendation 1: Establish GBA Coordinator(s), as staff responsible for coordinating with public agencies to ensure compliance with the Green Buildings Act.

To support the ongoing nature of the Act, the first recommendation is to establish a person or group of people that are accountable for overseeing implementation of the Act. From the study of best practices, jurisdictions have filled this need in a variety of ways, through program managers, departments, or external groups. They are often responsible for coordinating across stakeholders, connecting agencies to funding programs and other resources, or maintaining the systems required to monitor and verify compliance. The awareness study indicated that staff at public agencies in Rhode Island want to have someone who can be the dedicated point of contact who serves as the go-to to resource for information. This person would serve as both a connector to educational or financial resources and a contact point for monitoring and verification. Establishing GBA coordinator(s) is a high-priority recommendation, as there is no one currently fulfilling this role and it was identified as a major need by study participants. The role, referred to here as GBA coordinator(s), would be most effective if built upon existing structures and expertise. For example, this role could be housed in a department that is already doing work aligned with the goals of the Act, such as within the RI Office of Energy Resources. While this could be an individual position fully dedicated to supporting GBA implementation, responsibility would ideally be held by multiple people, bringing together a variety of expertise and ensuring work is not hindered by staff turnover.

Initially, GBA Coordinator(s) would serve as a central contact point for agencies across the state and primarily be responsible for developing relationships with individual agencies and connecting people to resources. These efforts would support widespread awareness and understanding of the Act across Rhode Island. As staff dedicated to the implementation of the Act, they would also be responsible for coordinating with related efforts in the State, like the Resilient Rhode Island Act (§ 42-6.2-1) or recently proposed Building Decarbonization Act (HB7617), and serve as an advocate for GBA within these

other initiatives. Additional responsibilities would include acting as a liaison between the Committee and agencies' daily efforts implementing the Act, developing awareness and education programs, or overseeing monitoring and verification of compliance. An example job description is included in Appendix C. Over time, other responsibilities or team members may need to be added, focused on compliance or finance.

Recommendation 2: Coordinate widespread awareness and education efforts across a variety of stakeholders.

The second recommendation is to implement systems to support widespread awareness of the Act, such as direct outreach and education around implementation. The study of best practices outlined a variety of strategies that support staff responsible for compliance. Primarily, developing a coordinated effort to communicate goals, benefits, and metrics to stakeholders across the State. Beyond general awareness, jurisdictions may host lectures or training programs (some of which may be mandatory for certain agency or staff positions), empower individuals or agencies to seek out resources proactively, or offer continuing education credits as incentives. From the awareness study, many participants suggested a handful of resources needed to help them comply with the Act, ranging from documented successful compliance examples, help navigating “what if” questions, and access to “how to” documents that connect the legal language to concrete examples. Detailed suggestions are available in Section 2.3.2. Some agencies' projects are in compliance with the Act, such as schools that build to NECHPs standards, however lack of awareness hampers efforts to understand impacts of the Act. Education should also include raising awareness that the Act is compulsory legislation, as some study participants indicated that they were under the impression compliance was only loosely required for State funding. In short, GBA coordinator(s) would ensure all potential stakeholders understand the law and their role in compliance, along with establishing themselves as a resource for understanding how the GBA affects public agencies and municipalities.

The current GBA website is a good repository of existing resources, however the primary need for education is around connecting individuals and agencies to existing

resources or programs. A secondary emphasis should be on creating new resources to help agencies navigate and comply with the Act. GBA Coordinator(s) could be responsible for coordinating efforts around education, including identifying the gaps between those who are completely unaware of the Act, accidentally complying with the Act, or intentionally complying with the Act. Additional strategies to support the Act include seeding a community of practice, which could connect the smaller siloed agencies to help them learn from and support each other. This helps build capacity for individuals to actively champion compliance with the Act throughout the State.

Recommendation 3: Create and communicate a clear path for verification that utilizes existing systems.

The third recommendation is to create and communicate a clear path for verification of compliance, supported by staff that can help agencies navigate the system. Successful strategies for verification from other jurisdictions included aligning with existing standards, using third-party tools, and creating education efforts to support using the systems. From the awareness study, participants emphasized the importance of low-effort monitoring from the planning stage through the end of construction, to follow the spirit and letter of the law. They also indicated a need for financial and staff support for LEED certification or similar, as well as a central contact to address questions about compliance when the project changes.

The Act already aligns with best practices, by requiring compliance with existing programs or standards, such as LEED certification or NECHPS. While the current verification system is simple, lack of awareness creates a barrier to reporting compliance. As the current system is used more widely, it will need to be evaluated to understand what additional barriers exist for agencies. Efforts to communicate systems and educate agencies could be led by the GBA Coordinator(s), which could help connect the ways people are already complying with the Act to being able to report impacts across the State. As part of their work connecting stakeholders, GBA Coordinator(s) would also help connect agencies with partners to ensure successful certification. For example, involving RI Energy Utilities early to support planning

decisions. Post-implementation monitoring of energy use was also suggested for the Act. While this is currently outside the scope of what is required for compliance, it is needed to support the Committee's annual reporting. Agencies could be encouraged to share access to ongoing energy use data using existing systems, such as the EPA's ENERGY STAR Portfolio Manager®.

Recommendation 4: Utilize incentives to support compliance, through funding for education, planning, and implementation.

The final recommendation is to utilize incentives to support compliance. The study of best practices identified multiple examples of incentivization, particularly to promote participation in education efforts, all of which can be cost-effective. The awareness study highlighted that most people are motivated to comply with the Act due to the legal requirements, funding opportunities, and shared goals. Funding was also identified as a need to support staff time and certification costs to demonstrate compliance, as well as to support actual implementation or construction costs. Incentives can help provide much-needed funding to offset these upfront costs, and make the compliance process less burdensome.

In fact, incentives may prove to be the most powerful tool on hand to achieve compliance, as evidenced with the NECHPS program. A highly successful incentive implementation can be seen in the example of the NECHPS program in Rhode Island public schools. The NECHPS program provides the platform for the R.I. Dept. of Education's School Building Authority to give motivational incentives for school building projects over 5,000 square feet to be built to a greener, safer building standard. The program operates as a design-level requirement in exchange for receiving funding from the School Building Authority (SBA) in the form of incentives that reimburse up to 50-100% of the project cost from the state. Since 2012, schools in Rhode Island have received 18 winning awards, and the R.I. SBA received the U.S. Education Department's Green Ribbon Schools Director's Award in 2021. These achievements make Rhode Island one of the greenest programs for schools in the country.

NE CHPS standards align and comply with the Green Buildings Act. In fact, NE CHPS uses 12 out of the 18 bullet point practices listed in the Impact-Cost matrix. This shows that Rhode island doesn't need to reinvent the wheel when seeking to achieve GBA compliance. There are already overlapping successes and compliance areas of Green building standards being practiced in Rhode Island. Also, as evidenced, it is not necessary to check off every bullet point in the recommendation matrix in order to achieve compliance. This study's recommendation to the GBAC is the same; Rhode Island does not need to reinvent the wheel but look to the recommendation matrix and the success of NE CHPS as guidance.

Some funding opportunities already exist, however agencies may not be aware of these programs, so the GBA Coordinator(s) could help connect agencies to programs. Also, green building practice usually results in long-term savings, so the need for additional funding may be addressed through better education of costs and benefits of complying with these standards. As the requests for funding were often vague, there may be additional use cases for funding that emerge over time.

Implication for Future Studies & Data Gathering

The findings of our study do not necessitate amendments to the Green Buildings Act, but rather, recommendations on how to achieve successful implementation. However, it should be noted as widespread attempts at compliance are carried out, needs to amend the Act may emerge. The primary outcome of our recommendations is widespread and intentional compliance with the Act, which would in turn impact overall energy use reduction, greenhouse gas emission reduction, and further benefits as discussed in Appendix D.

Future studies are advised, and our recommendation is to periodically measure progress towards widespread awareness, understanding, and adoption of systems that support compliance with the Act. The expectation is that support systems will need refinement over time. These recommendations serve as a starting point to make the

highest impact, short-term solutions that will achieve compliance with the Green Buildings Act the quickest.

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Appendix A: Acknowledgments

Thank you to the numerous people who took the time to share their experience and expertise through the two studies in this report. In addition to the individuals who participated in the awareness study anonymously or confidentially, we would like to extend our gratitude to those who share their experiences and expertise through the best practices study.

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Appendix B: Awareness and Understanding Survey

1. **Does your role involve planning, soliciting, managing, or executing plans for construction and renovation projects larger than ten thousand (10,000) gross square feet, for public buildings in Rhode Island?**

“Public buildings” means any public institution, public facility, public equipment, or any physical asset owned, including its public real-property site, leased or controlled in whole or in part by this state, a public agency, a municipality or a political subdivision, that is for public or government use.*

- Yes
- No

2. **To what extent are you aware of the Rhode Island Green Buildings Act (RIGL §37-24)?**

- I have not heard anything about it
- I have heard about it, but don't know how it applies to my work
- I have heard about it, but don't know what I need to do to comply with it
- I have heard about it, and use it as a guideline for my work

3. [If “I have heard about it... in Q2] **Are you familiar with the 2022 amendments to the Green Buildings Act?**

- Yes
- No
- I don't know

4. **How does the Green Buildings Act relate to your work?**

5. **How have you learned about the Green Buildings Act?**

6. **What is unclear or confusing about the Green Buildings Act?**

7. What standards do you reference when planning, soliciting, managing, or executing construction and renovation projects in Rhode Island? (Select all that apply)

- USGBC LEED green building rating system
- USGBC LEED for Neighborhood Development
- Green Building Institute's Green Globes rating system
- Northeast Collaborative for High Performance Schools NE CHPS rating system
- Rhode Island's Stretch Code (RI-amended IGCC)
- Sustainable SITES rating system
- Other (please specify): _____
- N/A we do not currently follow any green building standards in public construction or renovation projects

8. What motivates your organization to follow the Green Buildings Act or similar green building guidelines? (Select all that apply)

- State funding to support projects
- Organizational mission alignment
- Long-term cost savings
- Compliance with laws and regulations
- Other (please specify): _____
- N/A we do not currently follow any green building guidelines in public construction or renovation projects

9. Please share 1-2 examples of strategies or resources that have helped you follow green building standards:

10. What challenges or barriers do you face when following green building standards?

11. What resources would most effectively support your efforts to follow the Green Buildings Act? This could include education resources, staffing support, access to experts, access to funding, etc.

12. What is your title / role? _____

13. What aspects of construction and renovation projects are you involved in? (Select all that apply)

- Securing and/or managing financing
- Planning and/or designing projects
- Soliciting and/or bidding on contracts
- Negotiating and/or managing contracts
- Construction and/or project management
- Managing policy or regulation compliance
- Other (please specify): _____

14. What type of organization do you work for?

- State/Municipal office
- State/Municipal board
- State/Municipal commission
- State/Municipal bureau
- State/Municipal department
- Public education institution (K-12)
- Public education institution (University, college, etc.)
- Public facility
- Design professional (e.g. architects, engineers, etc.)
- Building contractor (e.g. builder, tradesperson, project manager)
- Other (please specify):: _____

15. Which Rhode Island municipality (or municipalities) do you work in?

Appendix C: Example Job Description

Job Description:

GBA Program Coordinator

Job Summary:

This role will be a new position within the Department of Administration and its primary focus will be supporting Rhode Island state agencies with their compliance of the Rhode Island Green Buildings Act. The Green Buildings Act ([Green Buildings Act \(RIGL §37-24\)](#)) was signed into law in 2009 and was further updated on June 27, 2022. The Act requires that all new construction and renovation projects over 10,000 gross square feet, constructed by a public agency be designed and constructed to a LEED Certified or an equivalent high performance green building standard. Public agencies it applies to include all State departments, municipalities, and public institutions of education. Even with clear legislation of the Green Buildings Act, plenty of gray areas exist in achieving widespread implementation of the law. Additional support is needed by facilities managers and state agencies to better integrate the Act into their building and renovation projects. The three primary areas of support that this individual will be responsible for are 1) widespread education and outreach, 2) helping agencies navigate funding support for their projects. and 3) providing resources and support for the compliance process with the Act. This individual will work alongside state agencies and stakeholders to achieve the overall common goals of saving money, reducing energy usage, and creating better buildings for Rhode Islanders. The Office of Energy Resources and Department of Administration will serve as key resources and advocates for the achievement of these goals.

Appendix D: GHG Emissions Reductions

Estimate GHG emissions reductions & GBA alignment with the 2021 Act on Climate:

The findings of our study do not necessitate amendments to the Green Buildings Act, but rather, recommendations on how to achieve successful implementation. If implemented successfully, the Green Buildings Act has immense potential to reduce the state's greenhouse gas (GHG) emissions among all applicable public buildings, and thus, align with the 2021 Act on Climate.

The Green Buildings Act requires all applicable public buildings be built to a high performance green building standard, particularly LEED-certification. This reduces the climate impacts of the building and its occupants. On average, LEED buildings use 18–39% less energy per floor area than their conventional counterparts. LEED certified buildings are designed, constructed and operate in a highly efficient manner that reduces energy use, water use and landfill waste. Since buildings are responsible for roughly 40% of total energy use in the United States (75% of all electricity use and 35% of the nation's carbon emissions), they offer some of the greatest potential for GHG reduction (Shoemaker, 2023).

LEED buildings show significantly reduced greenhouse gas emissions than their conventional counterparts. Specifically, LEED buildings contribute 50% fewer water-related GHG emissions, 48% fewer solid waste-related GHG emissions, and 5% fewer transportation-related emissions. Thus, buildings that comply with the Green Buildings Act are more energy efficient, have lower Energy Use Intensity (EUI), and place a lower energy demand on the grid (Huynh, 2021).

LEED (or equivalent) buildings reduce energy use and greenhouse gas emissions in a variety of ways. Electrified buildings reduce or eliminate combustible fuel use (like natural gas, oil and propane) and reduce thermal energy use. LEED buildings have lowered energy demand and reduced electricity consumption by utilizing more

efficient lighting, insulation, heating and cooling, windows and water usage. Additionally, the Arc tool utilized by LEED-certified buildings provides inhabitant feedback by showcasing building performance, which can further influence reductions. The higher degree of LEED certification a building achieves, the greater the GHG emissions reductions. For example, LEED Platinum buildings reported operational emissions of 0.004 mTCO₂e/sf; 56 percent lower emissions intensity than their LEED-certified counterparts. Retrofitted buildings also produce greater energy-efficiency post certification and economically meaningful improvements (Pyke, 2019).

How will LEED buildings specifically impact Rhode Island's GHG emissions? Rhode Island's 1990 GHG emissions baseline has previously been referred to as 12.48 MMTCO₂e. Rhode Island's 2019 gross greenhouse gas emissions are estimated to be 10.82 MMTCO₂e, and are the most recent inventory on record (RIDEM, 2022). While we do see an average of 8-10% GHG reductions in LEED-certified office buildings, there is not a reliably accurate method to predict total GHG reductions (Scofield, 2021). Because LEED buildings often rely more heavily on electric energy, their unique GHG footprint depends on the energy mix of their electric grid's energy sources. As Rhode Island transitions from a natural gas-heavy to a more carbon-free electric grid, this positions Rhode Island's LEED buildings to reduce their GHG emissions exponentially.

Certifying existing buildings to LEED standards prove to show significant energy and operational savings, and thus result in an attractive benefit-cost ratio.. A study done on an existing building on the UCF campus shows retrofit costs totaled \$40,050, including the \$1,200 LEED v4 O+M registration fee and \$38,850 in professional commissioning and administrative costs. On average, marginal costs of LEED buildings are less than 2% higher than conventional buildings, and can show up to 2x cost savings to the initial investment within one year. This example presents a benefit-cost ratio of 2.0 and significant return on investment (UCF, 2018).

The 2021 Act on Climate set statewide and economy-wide climate goals that are both mandatory and enforceable. The Act requires GHG emissions be reduced 45% below 1990 levels by 2030, 80% below 1990 levels by 2040, and net-zero emissions by

2050. As discussed, the significant energy savings and GHG emissions reductions of LEED-certified buildings, will significantly contribute to these reduction goals and allow Rhode Island to simultaneously achieve the goals of both the Act on Climate and the Green Buildings Act.

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