

Action Plan

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Action Plan Summary:

The Metropolitan Area Planning Council (MAPC), Greater Boston’s regional planning agency is partnering with the City of Boston, with other municipalities anticipated to join and others in the housing field to advance the following project to address the severe shortage of both market-rate and affordable housing that exists in our region. We are committed to doing so through a mechanism that will create quality jobs in the housing construction field, with livable wages, benefits, and worker protections. The Commonwealth of Massachusetts, MAPC, and the participating local governments are all actively working to address our region’s housing needs, but the problem is too large to solve with one silver-bullet strategy or by one individual entity. Greater Boston desperately needs to pick up the pace of housing production, especially housing that is affordable to low and moderate-income households. New housing also needs to be resilient, energy-efficient, and located in areas with good transit access so residents can easily get to jobs, services, schools, and amenities.

This project addresses Greater Boston’s housing needs by seeking to reduce several significant barriers to the production of new housing units in our region, the foremost of which is high construction costs. Offsite housing construction is a well-proven way to reduce construction costs and timelines while maintaining the highest quality standards and often increasing energy

efficiency due to the controlled environment of a manufacturing facility. Increasing offsite construction can also reduce two other key barriers to housing production: the time it takes to construct new housing and local opposition to new construction projects. With our partners, we have carefully constructed a regional approach to research and incentivize innovative offsite construction methods on strategically located sites to reduce these barriers to the production of housing that is naturally affordable or includes deed-restricted affordability. We recognize that traditional on-site wood and steel frame construction is a vital part of our construction industry and produces quality homes, particularly high-density, high-rise housing developments. We see an opportunity to complement these on-site construction projects, underway and planned throughout the region, by supporting the use of offsite construction methods with a focus on mixed-income and deed-restricted affordable projects of various sizes and scales and smaller, infill housing developments whose small scale often makes feasibility a challenge, including single-family, duplexes, townhomes, and small multi-family structures. By diversifying our construction methods and exploring offsite methods regionwide, we are confident that we can more quickly meet our housing and climate goals, while also creating a greater diversity of good jobs with good wages and benefits in the construction field.

Research that informed this project, which included extensive engagement with subject matter experts and stakeholders, highlighted that one of the greatest barriers to the widespread use of offsite construction in Greater Boston is the lack of a manufacturing facility within 50 miles of Boston. Without a local facility, those who are developing with modular units are often not reaping the associated cost benefits because of the added transportation and logistical costs.

To attract a large manufacturing facility to the region, there must be sufficient demand. Based on our research, the optimal pipeline needed to support a large manufacturing facility is approximately a minimum of 1,000 housing units per year for at least three years. The acute demand for new housing units, especially affordable housing units, in our region is great enough to achieve this required demand, but it cannot be achieved by one municipality alone, hence the need for a regional approach. Our goal is to support the creation of a new manufacturing facility and produce the first units of affordable modular housing by the close of 2030.

As this proposal was developed, the project team engaged labor representatives and heard hesitancy around expanding offsite construction, as it is viewed as having potential to supplant on-site construction-related jobs. An important aspect of this project addresses the concerns voiced by labor representatives. Part of the grant activities are aimed at exploring and securing workforce requirements expected of any offsite construction methods. MAPC and its municipalities are committed to working with statewide and local labor organizations and their members to continuing conversations to understand the nuances of the construction industry and to ensure that offsite construction will create new jobs with good benefits for more residents of Greater Boston. Through the project's Advisory Committee and Working Groups, MAPC will work with labor representatives to understand how offsite construction jobs can complement on-site construction jobs to improve the overall construction industry and result in quicker, but still high-quality and durable, housing development. Research activities will explore how labor agreements and other components of any solicitation¹ for a new facility can ensure the jobs

¹ A solicitation could take the shape of a Notice of Funding Opportunity (NOFO) or Request for Proposals (RFP), two legal documents that often are employed by public agencies to enter into public/private partnerships or agreements.

created meet local labor standards and offer new opportunities for women and minority workers. We are excited to continue learning from offsite construction facilities elsewhere in the country, where workers have been unionized or labor agreements have been leveraged to create a highly skilled workforce with good wages, benefits, and protections. We envision this project setting a new precedent for how offsite construction can provide quality jobs and continue to work hand-in-hand with onsite construction methods. To fully address the region, and nation's, housing shortage, we need to embrace and continue to improve all construction technologies. We are confident we can contribute to this effort, while also staying true to Greater Boston's commitment of creating high quality jobs for our residents.

The project has been developed with the primary municipal grant partner, the City of Boston, playing a central role. MAPC has engaged with a range of cities and towns in the region that share a commitment to advancing housing goals. These communities largely comprise the [Metro Mayors Coalition Housing Task Force](#) (MMCHT). To date, Arlington, Cambridge, Everett, and Newton have joined as municipal partners alongside City of Boston. We anticipate the number of participating communities will grow, particularly to include all 17 members of the MMCHTF, but others may join who are not part of this task force.

Boston, Cambridge, Everett, and Newton have provided formal letters of support. Additional letters of support are likely to be provided by Arlington, Malden, and Medford. Participating communities will also sign Memorandums of Understanding in Phase I of the project to solidify their commitment to the project.

Resources and Budget:

At this time, no formal commitments have been leveraged for this application. However, the project expects that participating municipalities will leverage resources against the grant funds to provide the development pipeline aspect of the solicitation. These leveraged resources may take the form of monetary commitments, publicly-owned land, waived fees, or other benefits.

Activity 2 includes an in-depth process to review resources available to cities and towns and tradeoffs for different methods of providing a development pipeline. Additionally, the MA Executive Office of Housing and Livable Communities has indicated an interest to partner on the project and potentially contribute resources to build the development pipeline outlined in Activity 2. Activity 2 may also identify partnerships with MA Association of Community Development Corporations (MACDC) and other affordable housing developers who may be able to contribute resources to the development pipeline.

Detailed budget is included in the attachments to this action plan. Based on the grant award, the budget has been scaled back to 3 million dollars from the 6 million dollars initially proposed. Budgets associated with all the activities were scaled back accordingly.

Need:

The supply of affordable housing is failing to keep pace with the growing need of our region. The data clearly highlights the critical issue of inadequate affordable housing supply across our anticipated partner municipalities, which underscores the pressing need for action. The MAPC region is home to a number of HUD-designated priority geographies.

Ratio of Household at or below 80% AMI to Affordable Housing Units available: A comparison between the count of households at or below 80% AMI and the Subsidized Housing Inventory (SHI) within our partner municipalities finds Boston holding the majority share of Subsidized Housing Inventory (SHI) units in the region at almost 60,000 SHI units in total, and almost 140,000 units being households at or below the 80% AMI threshold. Although the other cities and towns included in this analysis are well below Boston's unit counts, this may be to population size. To put this into perspective, in Everett, there are nearly 12 families at 80% AMI competing for each available affordable housing unit, while in Watertown, the ratio stands at 5 families for every unit. Source: HUD, EOHLC.

Rental Affordability: Analysis on the median advertised rent for two-bedroom properties from 2018 to 2023 highlights a rising trend in rental prices. It's important to highlight that the median listing prices consistently exceed what can be considered affordable for both very low-income (\$1,875) and extremely low-income (\$1,250) households across all communities. This concerning trend has persisted throughout the entire period, with rental prices reaching as high as \$3,300 in Cambridge, and even the lowest rates, such as those in Watertown, remaining significantly high at up to \$2,500. Source: MAPC Rental Housing Listing Database.

Rent Burden: The severity of the housing crisis is further underscored when we examine the data on rent burden. In terms of the percentage of income that rental households in each of the participating municipalities, as well as the broader MAPC region, spend on housing, nearly a quarter, or approximately 25%, of rental households face an extreme rent burden, allocating more than half of their income toward rent. This translates to an approximate total of 134,000 households grappling with this overwhelming financial strain. Source: ACS 2017-2021

Sale Prices: The urgency for housing becomes even more pronounced when examining the data on sale prices. Median sale prices of single-family homes across all the participating municipalities have consistently gone up from 2013 to 2022. Communities like Everett and Chelsea have witnessed a doubling of their median house prices over the course of the decade. Watertown has seen the smallest increase, which is still significant, an increase of more than a third. Source: MAPC, Real Estate Database from the Warren Group.

Key Barriers to Affordable Housing

In addition to availability of funding for affordable housing and outdated regulatory barriers (such as antiquated zoning codes and lengthy development approvals processes), producing affordable housing in the Greater Boston area is hindered by high construction and development costs. Related to this, construction timelines and local opposition to the production of new housing units impede housing growth. Offsite construction provides the biggest opportunity to

lower barriers related to high construction and development costs, while also offering relief to construction timelines and local opposition.

According to data compiled by the City of Boston Mayor’s Office of Housing, over the past five years, the median time between permit application with the City’s Inspectional Services Department, through project completion, for all new residential construction projects, is just shy of 3 years (1,089 days). Statewide, analysis from RS Means, a national construction data tracking service, highlighted that multifamily housing construction costs are 20 percent higher than the national average, dampening the potential for private housing developers to produce both market-rate and affordable units.² Climbing construction costs mean that more public dollars must be contributed to produce affordable housing. Interviews with dozens of local and regional developers indicate that overall development costs can easily be more than \$500,000 per unit in the urban core of Metro Boston and more than \$400,000 elsewhere in the region.

Local opposition to the construction of new housing remains a barrier to increasing housing supply. In 2018, Boston University researchers Katherine Levine Einstein, Maxwell Palmer, and David Glick published an article titled, “*Who participates in local government? Evidence from meeting minutes,*” sharing findings following the compilation and analysis of a novel data set that coded thousands of instances of citizens speaking at planning and zoning board meetings in Massachusetts concerning housing development. They found that individuals who are older, male, longtime residents, voters in local elections, and homeowners are significantly more likely to participate in these meetings and overwhelmingly (and to a much greater degree than the general public) oppose new housing construction. The researchers ultimately conclude that these participatory inequalities have important policy implications and may be contributing to rising housing costs. Modular construction addresses local concerns related to onsite disruptions by spending much less time building homes onsite, compared to traditional construction methods that can impact neighborhoods for months or years.

Prior Efforts

MAPC supports housing production, preservation, and stability through state-level legislative advocacy and local technical assistance to advancing housing strategies. MAPC provides over \$1.25M in technical assistance grants each year to cities and towns located within Greater Boston. Often, up to \$400,000 or more of these grants go to land use and housing planning projects, where MAPC planning staff work with cities and towns on a variety of projects, such as housing production plans, mixed-use/smart growth zoning, inclusionary zoning ordinances, fair housing plans, land disposition for affordable housing, housing needs assessments, and more. MAPC has helped cities and towns establish Affordable Housing Trusts, Housing Partnership Committees, and other groups to advance implementation of housing plans and strategies. MAPC’s technical assistance program is crucial to ensuring cities and towns have the capacity to tackle challenging housing issues and projects.

MAPC also provides support to municipalities and state partners through housing-related research products. Notably, MAPC’s [Zoning Atlas](#) highlighted the need for massive zoning

² [Building Momentum: New Housing Policies to Unlock the Commonwealth’s Potential](#), Massachusetts Housing Partnership, August 2023.

reform to remove regulatory barriers to housing development. The [Housing Submarket Analysis](#) gave local planners and policymakers greater insights into local housing conditions and offered a suite of policy interventions to combat rising housing prices and displacement risk. A 2017 study on the [impacts of housing production on school enrollment](#) dispelled myths that new homes automatically lead to more students in local districts. In 2021, MAPC's [Rethinking the Retail Strip](#) research highlighted specific parcels that would be suitable for redeveloping with more dense housing options and a mixture of uses with improved connectivity, to transition the region from auto-dependent separated land use patterns to more walkable, "complete neighborhoods". The report found that if just 10% of the identified parcels were redeveloped, as many as 124,000 new homes could be created.

Use of Funds – Soundness of Approach:

Vision

Collectively, the Greater Boston region imagines a future where all residents have safe and comfortable homes that they can afford in the communities that they prefer.³ This project, through creation of more and diverse homes built by workers with good benefits throughout Greater Boston, advances the regional vision and regional housing initiatives, including the [Metropolitan Mayors Coalition](#) (MMC) – a group facilitated by MAPC and comprising the chief executives of 17 cities and towns in the urban core of Metro Boston, where more than 1.4 million people reside – and their [Housing Task Force](#), established in 2017 to address collectively their serious housing needs. The MMC Housing Task Force set a landmark housing production goal: 185,000 new units between 2015 and 2030 in their 17 communities. To achieve this goal, the region needs to continue to remove barriers to conventional housing production, while also researching and promoting alternative and innovative construction technologies that can complement but not replace our thriving construction industry.

Grant activities will advance our vision by seeking to address three barriers to the production of new affordable housing units in the Greater Boston region: 1) high construction costs; 2) time to construct new housing; and 3) local opposition to new construction projects. By developing a regional strategy to research and incentivize the use of innovative offsite construction methods (as opposed to traditional, wood and steel frame construction), we will reduce these barriers to affordable housing production. Offsite manufacturing methods are often organized into three categories or degrees of enhancement (or prefabrication) or level of completion/finish: (1) kit-of-parts (1D systems), panelized (2D), and modular (3D) systems.⁴ All of these systems have been used to build housing in the Greater Boston area, though steel and wood-frame onsite construction remains the predominant method of construction.

³ Housing Vision, [MetroCommon2050](#) Regional Plan, Metropolitan Area Planning Council, 2021.

⁴ https://drive.google.com/file/d/1AnG_FMUS-gfCDC8HyOS186yzH0JLcsVz/view

With a regional approach, we will effectively tackle one of the largest barriers to the widespread use of offsite construction in the Greater Boston area: the lack of a manufacturing facility in close proximity to cities and towns in which most of the State's new housing is being built. Through extensive engagement with subject matter experts and stakeholders, it has become apparent that the lack of a manufacturing facility within 50 miles of Boston is the most significant barrier to modular construction due to both the transportation and logistical challenges of transporting modules across state and country boundaries, and the pressure to employ local residents throughout all phases of construction projects. To attract a large manufacturing facility, there must be sufficient demand. Based on our research, the optimal pipeline needed to support a large manufacturing facility is approximately and at a minimum 1,000 housing units per year for at least three years. The acute demand for new housing units, and especially affordable housing units, in the Greater Boston area is great enough to achieve this required demand, but individual resources are not sufficient for one municipality to demonstrate such a pipeline, hence the need for a regional approach. Our project goal is to support construction of a new manufacturing facility and produce at least the optimum amounts of affordable modular housing units by the close of 2030.

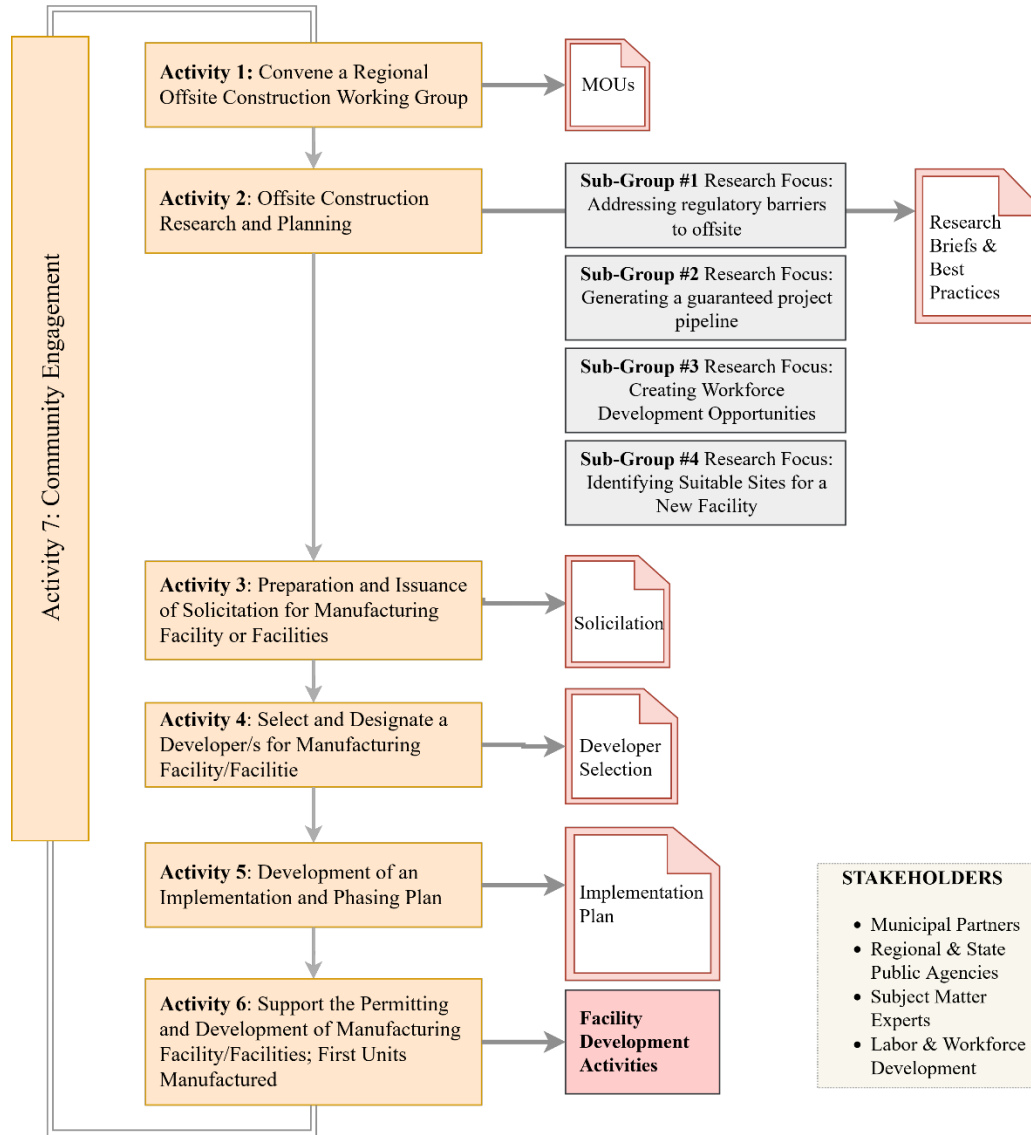
The siting of a manufacturing facility or facilities to advance housing production in the Boston metropolitan area will benefit low- and moderate-income persons, helping to achieve a national objective of the CDBG program, pursuant to section 101(c) of the Housing and Community Development Act of 1974, by increasing the region's capacity to efficiently construct housing units affordable to these households. While offsite construction methods are certainly not limited to affordable projects and have been more widely used to produce market-rate units in the region, the primary objective of this initiative will be to accelerate the production of housing units affordable to low- and moderate-income households by incentivizing the use of offsite construction methods. In our research, we found that the key to efficient, cost-effective production of affordable housing is replicability. We plan to work with a manufacturer or manufacturers to design basic modules that can be situated in a variety of contexts, including accessory dwelling units (ADUs), duplexes, small multi-family buildings (e.g., triple deckers or triplexes, townhomes, etc.) and other infill, "missing middle" housing typologies that allow for the addition of "gentle density" in neighborhoods across Greater Boston.

Our proposed plan includes completion of the following eligible activities as outlined in the grant NOFO:

- Planning and policy activities supporting affordable housing, including 1) developing new incentive programs for affordable housing development; 2) developing proposals to eliminate restrictions on lower-cost housing types such as prefabricated or manufactured homes; and 3) creating affordable housing planning resources for member jurisdictions.
- Development activities, specifically providing large-scale technical assistance to entities that lead to the development of affordable housing.

The figure below visualizes the grant activities to demonstrate the variety of tactics that will be employed to better understand and address the barriers and opportunities for increasing offsite construction in Greater Boston, in partnership with stakeholders, including municipalities,

manufacturers, labor groups, and community-based organizations. More detail on each of the proposed activities is explained below.



Activity 1: Convene a Regional Offsite Construction Advisory Committee and Working Groups

Timeframe: January – June 2025

Major milestone/deliverable: Signed Memorandums of Understanding

MAPC will form an advisory group to guide implementation of the grant. Stakeholders will include state and municipal leaders and regulators, affordable housing developers (including non-profit), manufacturers, architects, researchers, housing planners, regional and state labor partners, and general contractors. Many of these partners continue to remain engaged during the grant application writing process providing letters of support and post award period.

Participating cities and towns will sign Memorandums of Understanding (MOU) with MAPC to formalize each municipality's commitment to studying and eventually committing resources to create a pipeline of affordable housing units (the mechanics of which will be developed as part of the planning process, see Activity 2). Supplementary partner agreements with other stakeholders (such as researchers and subject matter experts) will be developed in this phase to specify roles and responsibilities.

In addition to forming the overall Advisory Committee, MAPC will work with partners to assemble Working Groups to conduct research and planning activities outlined in Activity 2.

Activity 2: Offsite Construction Research and Planning

Timeframe: July 2025 – March 2026

Major Milestones/Deliverables: Meetings of Working Groups; engagement activities with stakeholders; briefing papers that outline research findings and recommendations; amended Memoranda of Understanding to address unit commitments, resident employment guarantees, and other provisions that may result from this research phase.

The second major activity constitutes the largest body of work associated with this initiative. The Advisory Committee will convene the four Working Groups formed in Activity 1 to focus on different aspects of offsite construction technologies, including barriers to offsite construction and opportunities to generate good jobs producing affordable homes.

Working Group #1 Research Focus: Addressing regulatory barriers to offsite construction

Members: Municipal and state regulators, developers, architects, manufacturers, lenders, etc.

Deliverable: Briefing paper summarizing the Working Group's work and findings

MAPC will convene a Working Group of regulators, developers, manufacturers, lenders, and others who often navigate the permitting process to site and install modular housing. The Working Group will be focused on understanding offsite construction, through presentations from subject matter experts and potential site visit(s) to manufacturing facilities and sites with modular development. Once the Working Group has a solid understanding offsite construction, the work will shift to exploring the regulatory barriers – both regionwide and specifically in participating municipalities. Regulatory barriers may be found in local zoning codes, local and state building codes, permitting processes and requirements, or other controls. A focus group with construction lenders will increase understanding of financial regulations that may hinder the use of offsite construction methods. The Working Group will likely convene additional focus groups and conduct interviews to better understand regulatory conditions and opportunities for policy/regulatory interventions. Peer regions such as Chicago, Philadelphia, and San Francisco will be studied to understand where Greater Boston may be unique or similar and what case studies or best practices employed elsewhere may be applicable in Greater Boston. Findings from this research will be presented to the Advisory Committee to inform recommendations for policy and regulatory change.

Working Group #2 Research Focus: Generating a project pipeline

Members: Municipal leaders and staff; state housing partners; community-based developers

Deliverable: Potential amendments to Memoranda of Understanding to reflect Working Group recommendations; memo summarizing the Working Group's work and findings

MAPC will work with participating cities and towns to understand their unique housing needs and housing toolkits to support housing production. Cities and towns have a variety of different ways to influence housing production – through municipal housing authorities and affordable housing trusts; investments from Community Preservation Act funds; disposition of publicly-owned land, etc. MAPC will draw from existing municipal housing plans like housing production plans, neighborhood plans, or comprehensive plans – many of which have been drafted by MAPC – to understand the local context, identify resources to commit to modular development, and generate a list of likely sites and projects that could proceed once a manufacturing facility is up and running.

State entities also have resources to encourage and influence housing production. MAPC will convene the Working Group to work with state and municipal leaders and staff to explore different options for creating a pipeline of likely or permitted projects that could serve as an incentive for a new manufacturing facility to locate in Greater Boston. The Working Group will explore smaller scale projects that allow for more on the project learning, aiming to not negatively impact the existing employment systems. MAPC will work with individual municipalities to develop their pipeline and provide confidence of future construction. Potentially, state partners may identify opportunities to incentivize the facility or help cities and towns to meet build out their pipeline of units.

This Working Group will also discuss and recommend how to pace unit creation/installation to ensure housing production is increasing across all participating communities and how to track and evaluate unit placement. Tracking will be important to measure how this project advances fair housing and racial equity goals. Lastly, the Working Group will prepare guidance on how modular housing can be coupled with traditional construction methods to combat the overall housing shortage. This guidance could include identifying the types of development better suited for offsite construction components in the future, where prefabricated components could improve or enhance older housing stock, or what sites might be better suited for modular or prefabricated homes.

Working Group #3 Research Focus: Generating Good Jobs for Boston Area Workers

Members: Representatives from Greater Boston Labor Council, Massachusetts Building Trades Council, Carpenters Union (North Atlantic States Regional Council), and/or other labor organizations; regional economic development planners and researchers; municipal leaders and staff; and other stakeholders, to be determined from subsequent outreach and engagement during Activity 1

Deliverable: Memo summarizing the Working Group's work, findings, and recommendations for minimum qualifications to be required of any manufacturing facility regarding jobs, wages, and benefits.

MAPC and the participating municipalities are committed to securing good jobs, benefits, and worker protections for local residents. Modern advancements in alternative construction

technologies and modern offsite construction techniques mean that today, this segment of the construction industry can provide good-paying jobs with workforce development and training. We have been actively researching workforce development models associated with manufacturing housing types to support the creation of jobs and job training for local residents. Examples of unionized facilities and fair labor agreements have been employed in other parts of the United States, and as close as New Hampshire, as well as abroad. MAPC will convene this Working Group to research all of these issues and emerging best practices, alongside a variety of labor and workforce partners and economic development professionals to understand challenges and opportunities to securing good jobs, wages, benefits, and protections for local workers manufacturing and installing modular housing in Greater Boston. We also hope to better understand how onsite construction has already been utilizing offsite or prefabricated components, as we understand this is happening in Greater Boston. Additionally, part of this research will look into the impacts of expanding this type of manufacturing to employ historically under-resourced groups like women, people of color, and people with less educational attainment. For example, while the traditional construction industry employs fewer women (only 9% of the workforce today), manufacturing jobs offer women more of a chance at economic prosperity (30% of manufacturing jobs are held by women). These nuances will be explored as part of this Working Group's research to more fully understand how these two industries – aimed at the same goal of producing more housing – can both thrive and offer economic opportunity for local residents. The Working Group will also hold focus groups with local workers – in both construction and trade and manufacturing jobs – to better understand workforce challenges, opportunities, and needs.

The Working Group's work will culminate in recommendations for labor requirements to be included in any solicitation or incentives for the manufacturing facility. A briefing paper will also summarize the Working Group's engagement process, findings, and broader recommendations to set a precedent for creating good jobs at offsite construction facilities across Massachusetts. This research will be useful for regions across the country and complement existing research underway at HUD.

Working Group #4 Research Focus: Identifying Suitable Sites for a New Facility

Members: Municipal leaders and staff; economic development planners and researchers

Deliverable: Memo summarizing the Working Group's work, findings, and recommendations for manufacturing facility solicitation

MAPC has expertise in industrial/manufacturing sector research and recently completed a baseline study to better understand Greater Boston's industrial sector. The study, "[Land, Economy, Opportunity: Industrial Land Supply and Demand for Greater Boston](#)," assessed industrial space supply, industrial vacancy rates, industrial rents, and projected demand and will serve as a starting point for this Working Group's work to identify suitable sites for a new manufacturing facility. MAPC will review other regional and local economic development and industrial planning documents to guide and inform the group's work. Focus groups and interviews with owners and operators of manufacturing facilities will help the Working Group understand what site characteristics are most desired to best meet their needs and enable a facility to get online and running most quickly and efficiently. The Working Group will explore different options with partnering municipalities, including redevelopment of vacant industrial

spaces, consideration of one large site vs. multiple smaller sites, etc. The Working Group will also explore the different incentives to include in the solicitation. The Working Group will make a recommendation to the Advisory Committee about facility siting and work with the host municipality(s) and their legal counsel to prepare for Activity 4.

The findings and recommendations from these four Working Groups will be shared with the Advisory Committee and will inform Activity 3.

Activity 3: Preparation and Issuance of Solicitation for Manufacturing Facility or Facilities

Timeframe: March – Sept 2026, Responses due March 2027

Deliverable: Solicitation, may take the form of a Notice of Funding Opportunity (NOFO) and/or Request for Proposals (RFP)

With the research and recommendations provided in Activity 2, MAPC will work with the Advisory Committee and partner municipalities to prepare recommendations for solicitation that may include, but are not limited to, any of the following components: seed funding for a manufacturing facility (coming from this grant proposal), land, specialized financing arrangements, details about a development pipeline, and expedited permit pathways. The host municipality(s) will finalize and advertise the solicitation in accordance with their local procurement processes.

Activity 4: Select and Designate a Developer(s) for Manufacturing Facility/Facilities

Timeframe: April-June 2027

Deliverable: Legal documents to confirm selection of chosen developer

Upon receipt of responses to the NOFO, RFP, or similar offering document, MAPC will work with the municipality(s) hosting the facility(s) to convene a review committee (formed with input from the Advisory Committee and consisting of at least one designee from each participating municipality and stakeholder representatives) to select and designate a developer for the manufacturing facility or facilities. MAPC and the municipality(s) overseeing the procurement process will consult with legal counsel, as needed, to ensure all procurement and selection processes adhere to necessary federal and state laws and regulations.

Activity 5: Development of an Implementation and Phasing Plan

Timeframe: July –December 2027

Deliverable: Implementation and Phasing Plan

Activities 5 & 6 may occur simultaneously. The development of an implementation and phasing plan to permit, construct, and begin manufacturing modules will be created. MAPC and the host municipality(s) will work with the chosen developer, seeking input from the Advisory Committee and Working Groups as necessary. The implementation and phasing plan will be shared with the Advisory Committee and Working Groups for review and comment. The phasing will allow for a coordinated “unit ordering” process once the manufacturing facility is constructed. The Advisory Committee will engage the selected developer/manufacturer to understand the facility’s capacity in terms of output and sequence production of housing units in alignment with projected demand and availability of sites.

As part of this Activity, MAPC, the municipalities, and (if they wish) labor organizations, will work to ensure that a package of wages, benefits, and worker protections are available to all workers to be employed at the facility, as well as workers charged with installing prefabricated modules on-site. MAPC will coordinate with local and regional workforce boards to help generate trainees and employees. MAPC will also coordinate with unions and other labor organizations to ensure that their members have the opportunity to seek employment at the facility, to participate in on-site installation, and to establish connections, if possible, between labor apprentice and training programs and the search process for workers.

As a testament to our commitment to workforce development and our ability to secure funding for impactful initiatives, it is noteworthy that in the past, MAPC partnered with the City of Boston as the lead applicant to successfully secure funding from the Economic Development Administration. This funding supported the establishment of the Greater Boston Regional Workforce Training System and is catalyzing job creation, forging pathways that lead individuals to attain family-sustaining wages, access employer-sponsored benefits, and pursue educational advancement. Drawing upon the invaluable experience gained from this successful venture, MAPC is well-positioned to leverage our expertise and insights to enrich the workforce development activities outlined in this action plan.

Throughout this endeavor, we are committed to actively engage in outreach, identify training needs, and facilitate employment opportunities for the residents of the participating municipalities. Additionally, we are dedicated to ensuring that individuals from diverse racial backgrounds, women, and other marginalized groups who contend with higher rates of unemployment or underemployment are included in our efforts.

Activity 6: Support the Permitting and Development of Manufacturing Facility/Facilities; First Units Manufactured

Timeframe: Jan 2028– December 2029

MAPC, the host municipality(s), and the Advisory Committee will support the developer through the permitting and development process in the municipality where the facility or facilities is/are proposed to be built. Based on our conversations with stakeholders and subject matter experts, we anticipate that a facility/facilities could be constructed (to the point of receiving a certificate of occupancy) as quickly as two years after gaining site control and appropriate financing. We hope that the facility will be online and producing modular housing units by the end of 2030. There is a strong potential for 500 modular housing units being in the pipeline or constructed by the end of 2030, with each year after this grant period ends resulting in additional modular homes that can be sited and installed throughout Greater Boston over the following decade(s).

Activity 7: Community Engagement

Timeframe: Throughout, beginning in January 2025

Deliverable: Community Engagement Plan; project webpage and newsletter with periodic updates to stakeholders and interested parties

MAPC will work with the Advisory Committee to create a community engagement plan that centers on inclusive and frequent communication with a variety of stakeholders. MAPC and the Advisory Committee will work to inform the general public about the project and the potential impact to addressing local affordable housing and workforce needs. A project webpage will be created, and a project newsletter will allow anyone to subscribe and follow the project progress. Focus groups, interviews, pop-up events, online forums, and other engagement strategies will be employed to hear from project stakeholders and local residents, particularly those who have been historically underrepresented (renters, people of color, people with lower incomes, veterans, seniors, people with disabilities), at key points in the process. The project budget includes gift card incentives or other forms of compensation for involvement of residents of protected classes in the grant project, including one-off engagement events or participation the Advisory Committee or Working Groups. MAPC will work with partnering municipalities and their existing communication channels to further expand the project reach.

An important goal and outcome of the project's community engagement strategy will be to shift the perception of prefabricated or modular housing across different groups. MAPC and the Advisory Committee will hold focus groups to gain a better understanding of how modular housing is perceived today. Depending on the feedback received during these focus groups, MAPC and the Advisory Committee will design a public campaign to share information about recent innovations in the field and how this type of manufacturing can complement traditional construction methods, address housing challenges, and provide good jobs with benefits for local residents.

Overcoming Barriers

The City of Boston's Housing Innovation Lab has spent the last few years researching alternative construction technologies to understand barriers and opportunities. Here, we outline findings from this research that we hope to address through this grant project.

Barrier #1: Construction Timelines. Modular Construction Has Potential to Reduce Construction Timelines and Waste, Both of Which Translate into Cost Savings

A preliminary analysis completed by the Boston Housing Innovation Lab of construction budgets and timelines for mid-sized housing development projects in Boston, New York City, and Los Angeles concluded that modular construction has the potential to reduce construction timelines by 20-30%, since modules can be manufactured while foundations, masonry, and slab work happens simultaneously on-site. Timeline reductions continue to grow as local manufacturers and other players progress along the learning curve. Shorter timelines, in turn, translate to reduced carrying costs of construction financing.

Offsite construction methods also yield considerable reductions in construction waste. Fabricating modules in a controlled factory setting enables manufacturers to pass unused materials from one project to the next without the risk of physical degradation or added transportation costs. Because modular units are not exposed to the elements during construction, they also tend to be more durable than materials stored and assembled on an exposed project site. Offsite construction techniques are similarly efficient at the point of demolition. When a modular

building needs to be moved or demolished, volumetric units can be disassembled and even reused on a different project site, potentially extending the lifespan of a building.⁵

Barrier #2: Lack of Local Manufacturing Facilities. Siting a new facility within Greater Boston will decrease transportation and logistics costs, leading to lower housing costs.

Transportation and logistical challenges increase as the distance between the manufacturing facility and module-placement site increase. Given the limited number of manufacturing facilities in Massachusetts, most modules that end up in Greater Boston are trucked across state lines. This presents challenges, as states enact unique requirements for trucking operations, meaning that rules for lead times and costs, allowable times of day for transport, escort car rules, etc. may differ. State requirements on dimensions, weight, and carrier connections of offsite construction product freight that can also impact the design and associated cost of offsite construction for housing, sometimes even eroding the method's financial benefits over traditional construction techniques. Locating a facility in Massachusetts minimizes costs and coordination needs for transportation and logistics, leading to lower housing costs overall.

Barrier #3: Local Opposition. Modular Construction Techniques Can Result in Less Disruption to the Local Neighborhood

Traditional construction methods typically result in significant disruptions to residents and businesses surrounding a given project site, ranging from air and noise pollution to scaffolding, sidewalk closures, and increased traffic congestion. Disturbances often continue for months, if not years on end, and can deepen community opposition to new housing development. Modular construction techniques lead to a substantial reduction in the amount of work to be completed on site, which in turn compresses project timelines and diminishes interruptions to neighborhood life. In some modular multifamily projects, 'setting,' or the assembly of prefabricated modules on site, can be completed within a matter of days or weeks.

Alignment with Existing Planning Initiatives

Incentivizing the use of offsite construction methods through the siting of a nearby manufacturing facility aligns with a variety of existing planning efforts, helps the region plan for expected population and household change, and is consistent with our State and local land use, sustainability, economic development, and equity and inclusion initiatives.

Planning for expected household change MAPC prepares forecasts of population, households, and employment by sector out to the year 2050. By the year 2050, the MAPC region will need 200,000 new homes to accommodate population growth. Nearly half of that demand will occur by 2030. Because of the "business as usual" model assumptions, this is a bare minimum number. It is expected to grow with more welcoming national immigration policies and removal of zoning barriers under Section 3A MBTA Communities (multi-family zoning). As production increases and housing prices stabilize, more people may also choose to move to the Greater Boston region due to high quality of life and access to good jobs. Given this housing unit demand, it is

⁵ <https://learn.aiacontracts.com/articles/modular-construction-is-a-sustainable-way-to-build/>

imperative that municipalities in the Greater Boston region explore all avenues to efficiently produce quality and affordable new housing. This project, by exploring offsite construction as a complement to traditional construction methods, can help us meet our housing need.

Consistency with Land Use and Transportation Initiatives: By increasing our region’s capacity to construct new housing units more efficiently, our approach is in alignment with local and regional planning initiatives, including the aforementioned Multi-Family Zoning Requirements for Communities near Transit Stations (MBTA Communities). Removing zoning barriers like this is one significant step towards meeting housing production goals, but we also must think creatively about how to fast-track production of quality and safe housing in these smart growth locations. This project offers a solution to work alongside our traditional construction methods for producing new homes. Under Activity 2, when assessing and determining a project pipeline for a new manufacturing facility, MAPC and the participating municipalities will be focused on identifying sites that have access to transportation options and other neighborhood amenities like parks, public services, and jobs. The project pipeline will also consider a community’s current housing stock, documented housing need, and municipal population and household projections. Housing options that are in short-supply in a community – such as smaller, more affordable units for aging residents or family-sized subsidized apartments for families earning lower incomes – can be targeted for the project pipeline.

Consistency with Environmental Initiatives: Scaling up the use of offsite construction technologies for housing construction will advance regional and local environmental initiatives. MetroCommon2050, the regional plan, calls for more energy-efficient buildings and climate-smart growth. Aligned with state goals, the region aims to make deep cuts in greenhouse gas emissions by 2030 and reach net zero emissions by 2050. Furthermore, the Metropolitan Mayors Coalition has formed a Climate Task Force to coordinate regional and cross-governmental work to prepare for climate change. Participating municipalities recognize that housing and climate goals overlap and see the opportunity for this project to advance both goals. An example of how cities are connecting climate and housing planning is Boston’s Climate Action Plan, released in 2019, which charts a clear course for reaching the City’s 2030 and 2050 carbon reduction goals. Boston’s buildings account for approximately 71 percent of our community carbon emissions and represent the greatest opportunity for emissions reductions. Decarbonizing Boston’s building sector depends on shifting to zero net carbon (ZNC) new construction by 2030 and retrofitting and electrifying at least 80 percent of our existing buildings over the next 30 years. Advances in building materials and offsite construction technologies hold great promise in helping the City, region, and state reach its climate goals.

Consistency with Economic Development Objectives: Siting an offsite manufacturing facility in Greater Boston will generate economic development opportunities through the creation of quality jobs and locally produced building components. Jobs in manufacturing facilities have the potential to offer better working conditions than those on traditional stick-built construction projects due to their climate-controlled nature. Modular construction is generally regarded as a safer method than traditional construction methods; a 2021 peer-reviewed academic journal article by Gilsu Jeong et al., reports, “there is also an opportunity to reduce safety accidents [in manufacturing facilities] because [they are] not profoundly affected by external environmental

factors, such as rainfall and wind. Workers can become familiar with the workspace and work because they perform repetitive tasks in manufacturing factories.”⁶

The Working Group’s focus on identifying appropriate site(s) for a new facility will rely on state, regional, and local economic development policies and plans. Many of the cities and towns throughout Greater Boston have vacant industrial sites that are ripe for redevelopment. MAPC will work with its member municipalities to identify and study industrial redevelopment opportunities that are located in areas with good transportation access, keeping in mind that freight access is important for transporting modules, while transit access is also important for workers. If necessary, MAPC will facilitate conversations with the facility developer and participating municipalities to include transportation demand management strategies within the NOFO and/or RFP to ensure traffic to and from the site is managed effectively and does not negatively impact the community.

Consistency with Equity and Inclusion Initiatives: Our project most directly advances equity and inclusion initiatives by creating new jobs with rich benefits for local residents, especially those who have historically not had access to such opportunities. With labor partners, we hope to partner and continue to diversify local workers to ensure the local workforce reflects the diversity of the community in which they work; expanding the share of affordable housing, particularly in high opportunity neighborhoods to make strides towards decreasing the racial and social wealth gap; and recognizing transportation equity as a key consideration for siting new facilities and jobs.

To further provide an example of how this project and its associated workforce development and labor components are consistent with equity and inclusion initiatives, we provide some local context from the City of Boston. The project’s goal to create jobs will allow local construction projects to satisfy, or exceed, the requirement for job hours completed by Boston residents, women, and people of color as established by the [Boston Resident Jobs Policy](#). Under Activity 2, MAPC will research municipal equity and inclusion policies around economic opportunity to ensure labor agreements and employment considerations align with regional and local commitments to racial and social equity.

Research indicates that the construction industry continues to grapple with workforce availability challenges, which have resulted in rising costs in housing design and construction (Nguyen et al., 2020). Off-site construction has emerged as a recognized approach to tackle the diminishing labor force issue by optimizing labor efficiency and productivity (Smith, 2016). Research also indicates that presently nationally, nine percent of the construction labor force comprises women, in contrast to the manufacturing sector, where a 30-percent female workforce is more typical. Offsite manufacturing holds promise for drawing in a workforce that has been less inclined to enter the construction industry as a whole. Further investigation is necessary to ascertain effective strategies for recruiting female and minority demographics into offsite manufacturing employment, thereby enhancing diversity within the labor force. Our strategy includes engagement methods to bring key stakeholders together to identify challenges and opportunities, adding to the local and national body of research around off-site construction.

⁶ <https://www.tandfonline.com/doi/full/10.1080/13467581.2021.1877141>

Furthermore, our project will allow our region to accelerate the pace of affordable housing production, allowing for a greater number of low- and moderate- income households to secure safe, stable housing in the region. Through Activity 1, MAPC will reach out to a variety of cities and towns to share information about this project and encourage participation to expand affordable housing across the region. Outreach efforts will hone in on the importance of expanding production of affordable housing in areas with high opportunity.

Lastly, when carrying out Activity 2 and assessing potential sites for a new facility(s), transportation equity will be considered. Sites that are accessible by public transportation will be prioritized to expand access to those who may not be able to afford a personal vehicle or expensive transportation costs. Offsite construction jobs may be viewed as more reliable for workers in this regard, since onsite construction sites may or may not be easily accessible and may require workers to pay higher transportation and parking costs to commute to and from work.

Simplification and harmonization of land-use regulations across multiple municipalities Research into regulatory barriers under Activity 2 will highlight opportunities for regulations to be amended to support modular or prefabricated construction. Particularly, the recommendations will encourage municipalities to adopt similar regulations when possible. Engaging state officials in this conversation can also influence statewide regulations such as building codes.

Geographic Scope

The geographic scope spans multiple geographies. Research and planning activities will focus on the MAPC region, comprised of 101 cities and towns. When possible, MAPC will conduct outreach and engagement through the different geographic subregions. There will likely be opportunities to apply recommendations and findings across the State of Massachusetts, and state partners involved in the project will help advance these, when possible.

Siting of the new manufacturing facility(s) is likely to occur in one of the cities or towns participating in the Metro Mayors Coalition Housing Task Force. Housing production is most likely to occur in one of the Housing Task Force communities, but cities and towns interested in participating in this project will not be limited to this group of communities. Outreach under Activity 1 will refine the geographic scope for subsequent grant activities.

Producing more housing and finding ways to lower costs and deliver new homes more quickly benefits all of the communities in Greater Boston. As a region, housing is gravely unaffordable (see map below showing median home prices in the MAPC region) and options are severely limited due to exclusionary zoning policies and local opposition to new growth. This project seeks to change public perception of modular and prefabricated housing and show how it can benefit communities and provide much needed affordable housing to low- and moderate-income households.

Research activities embedded in this project will focus on how modular construction can help address the region's aging housing stock (shown in map below) and create new housing choices as preservation and infill development/redevelopment takes place.

Fair Housing

Massachusetts, MAPC, and participating municipalities are committed to affirmatively furthering fair housing. As a regional planning agency, MAPC does not prepare a fair housing plan. However, MAPC advocates for fair housing issues and supports the advancement of fair housing policy in a variety of ways in Greater Boston. MAPC sits on the Fair Housing Committee coordinated by Citizens' Housing and Planning Association (CHAPA), a leading housing advocate across the state of Massachusetts. CHAPA's Fair Housing Committee brings together groups like MAPC and other stakeholders from across the state to intentionally advance fair housing and serve as a place to share information, work on legislation, coordinate efforts, and educate ourselves.

As part of this project, the participating municipalities will supply their fair housing plans under Activity 2 and the Advisory Committee and Working Groups will work to incorporate fair housing recommendations into overall project recommendations to continue commitment to affirmatively furthering fair housing.

Equity Informed Projects

MAPC and its partners have committed to advancing racial and social equity. Greater Boston is rich with research, resources, and other educational materials that informed this proposal and our general approach to planning projects overall. Namely, MAPC's State of Equity Policy Agenda is a touchstone for MAPC's work to reduce inequities and MAPC's Housing Team regularly analyzes housing metrics by race and social categories to understand where disparities might exist. When identified, MAPC works with our municipal clients to help them create policy and programmatic recommendations to diminish racial and economic disparities. MAPC's Equity Team, a core group of individuals from across various departments, works across the agency to operationalize equity in project work. Their involvement in Activity 7 and throughout the project will ensure that project elements and engagement are designed to advance racial equity and are inclusive and equitable.

Sadly, because of decades of under-production and loss of rent control policies, the majority of cities and towns across Greater Boston have become "high-cost" communities where it is hard for moderate or low income families to find affordable housing. Affordable housing opportunities in all neighborhoods across Greater Boston are desperately needed. Due to the wide disparity in income and net wealth between white and BIPOC households, neighborhoods lacking housing units affordable to low- and moderate-income households are widely inaccessible to many BIPOC households, fueling segregation. Our project promotes desegregation by planning to accelerate the pace with which new affordable housing units can be produced and reducing the cost to construct them.

Meeting housing needs for residents with disabilities

Offsite construction methods are effective at developing housing units to accommodate the unique housing needs of people with disabilities because while the greatest benefits of offsite methods are realized through standardization of unit specifications, individual customization is part of the design process. As such, units can be designed and built to accommodate the needs of people with disabilities to ensure compliance with the Americans with Disabilities Act (ADA) and accessibility requirements under the Fair Housing Act. Units with design features to accommodate people with disabilities can be manufactured separately from units with standard specifications, the details of which can be arranged with the selected manufacturer. By accelerating the pace at which we can produce new housing units in the region and reach the density of housing units on infill and transit-oriented development sites in close proximity to transportation and supportive services needed to support diverse populations, our project will support independent living. Since we anticipate that affordable units produced by the manufacturing facility will be subsidized using City, State, and Federal funds, units will be designed and marketed in accordance with City, State, and Federal regulations.

Supporting minority-, women-, and veteran-owned businesses during the housing production process

Research indicates that off-site construction offers a substantial potential to diversify the construction workforce by including women and individuals with fewer skills or employment challenges. This approach has the potential to yield considerable advantages for both families and the environment, including reduced commuting and enhanced job stability. Each of the participating communities have local goals and strategies in place to support minority-, women-, and veteran-owned businesses. As part of Activity 2 research, MAPC will collect these policies to inform labor recommendations and standards for the future developer of the manufacturing facility(s).

Mitigating Risk of Displacement

The use of offsite construction methods would allow us to densify our supply of affordable housing in the region, reducing displacement risk. Our project does not directly call for the demolition or rehabilitation of housing units, and we are committed to ensuring that our project does not result in the displacement of residents. MAPC will work with the participating municipalities to engage residents of neighborhoods where units may be constructed, to understand displacement concerns and offer solutions to minimize impacts of neighborhood change. The use of modular construction reduces displacement by decreasing the disruptive nature of new construction projects on sites with existing residential units, removing the need for existing residents to move during construction.

Use of Funds – Method of Distribution (State grantees only):

Not Applicable.

Grantee and Partner Capacity:

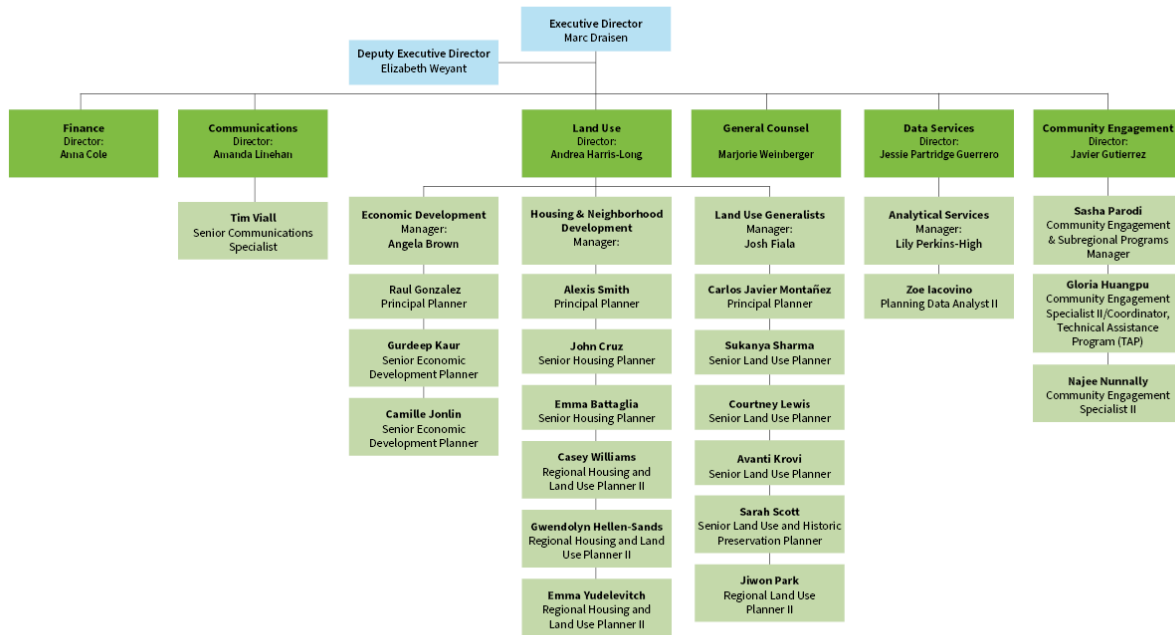
MAPC is experienced at managing large federal scopes comparable in size and scope to this project. MAPC received and successfully managed a \$4M HUD grant under the FY2010 Sustainable Communities Regional Planning Grant program. Since that time, MAPC has been awarded large federal grants related to public health, emergency preparedness, economic development, and transportation. MAPC also is the designated Economic Development District for Greater Boston under the Federal Economic Development Administration and regularly coordinates to share and track federal grant opportunities through this program. MAPC's Finance, Legal, and Administrative teams are prepared to administer and track all necessary reporting requirements of this grant program. MAPC is also currently in the process of creating a new position solely to manage administration of federal grants.

Beyond the financial and administrative management of the grant reporting requirements, MAPC's housing team, and specifically the Manager of Housing and Neighborhood Development and Director of Land Use, has expertise in project management and will lead implementation of the proposed activities, managing the day-to-day work and partner communications. The Director of Land Use and Manager of Housing and Neighborhood Development will work closely with the entire MAPC housing team, which collectively has experience in federal grant project management, housing planning and policy development, land use regulations, long-range or comprehensive planning, public land disposition for affordable housing, architecture, urban design, development financing (both for-profit and non-profit), and community engagement. Several other MAPC departments will be part of the overall project team:

- MAPC's Land Use team – particularly the Economic Development Division – will be part of the MAPC project team and will work closely with the project manager on grant activities related to workforce development and facility siting.
- MAPC's Data Services team will coordinate data collection and analytical services to support research and planning activities.
- MAPC's Communications team will build a project webpage, project newsletter, and communication materials to share information with stakeholders and interested parties throughout the duration of the project.
- MAPC's Community Engagement team will play a significant role in crafting a community engagement plan, implementing strategies to engage different stakeholders, and evaluating how engagement is going throughout the process. Based on evaluation of engagement, the community engagement plan may evolve to ensure a variety of different perspectives are heard through the project.

MAPC's Municipal Collaboration team oversees multiple collective purchasing and procurement programs and has extensive experience facilitating cross-jurisdictional agreements and will be available to advise throughout the project.

Organizational Chart



As a regional planning agency, MAPC views regional collaboration and convening at the heart of its mission. MAPC works with municipal partners on local technical assistance projects – more than 100 projects are undertaken by the agency each year. MAPC also convenes subregional groups of municipal staff and officials on a regular basis to share best practices, challenges, and opportunities for collaboration. MAPC also manages several different coalitions of municipal, public, non-profit, and private partners to advocate for policy and legislative positions. An example of one such group is the Metro Mayors Coalition Housing Task Force, which is managed by the MAPC Housing Team (project manager of this grant).

The success of the project does depend on cities and towns working together to assess and present a pipeline of projects to include in an incentive package for the NOFO and RFP. The proposal builds in significant amount of time for MAPC and partnering communities, along with partners at the state, to explore this idea and find different solutions that both 1) work for the participating cities and towns and 2) provide enough of an incentive to attract responses from developers.

This project will have three (3) types of partners: Core Partners, Working Group Partners, and Advisory Partners. Core Partners will play a central role in advancing project deliverables and steering the effort to maintain alignment with overarching goals. Working Group Partners will serve as key thought-partners, contributing to research, facilitating discussions, and developing recommendations for research briefs. Advisory Partners will provide subject matter expertise, offering critical guidance on specific topics to deepen insights and refine outcomes.

A subset of these partners will sign Memorandums of Understanding (MOUs) to formally commit to mutually agreed-upon responsibilities, with a focus on supporting the development

pipeline and contributing to a facility incentive package. Participating municipalities will be key partners in this work. As part of the Memorandum of Understanding, each participating jurisdiction will be responsible for identifying the relevant staff members with the needed skills and knowledge to advance this effort. This is presumed to include but is not limited to director-level decision makers, land use and development review planners, building inspection staff, GIS specialists, and data analysts. Our ability to successfully design an enticing solicitation to attract a manufacturer depends on the willingness of jurisdictions in our area to work with us to identify a pipeline of projects that could be committed to being produced using the selected manufacturer. We expect to execute a preliminary MOU at the outset of the project that may be modified following completion of our research activities (at which point each jurisdiction will have a clear sense of the projected pipeline of projects).

Subject matter experts with demonstrated expertise will serve as advisory partners to support the Working Group activities. A key research partner is MODX, which is also leading a complementary HUD-supported project at a national scale titled “HUD Breakthrough Pilot Handbook: Growing Offsite Construction for Housing Through Regional Pilot Projects.” MAPC has been identified as one of the regional partners in the Northeast for this initiative. Both projects will mutually benefit from cross-collaboration at local and regional scales.

The City of Boston, a core project partner, has demonstrated capacity to redress the acute housing needs of its residents. According to the 2022 Income Restricted Housing Report prepared by the City of Boston Mayor’s Office of Housing, Boston has the highest percentage of income-restricted housing of any major city in the country, with 19.2 percent of its total housing stock designated as income-restricted. In the past 10 years, Boston has permitted 8,975 income-restricted housing units, which is 21.4 percent of all permits during that time. In 2022 alone, 30 percent of all units permitted were income-restricted (1,299 units). A number of different strategies, outlined in more detail below, have contributed to consistently developing affordable housing. The City also has an effective Inclusionary Housing Ordinance which has enabled the creation of approximately 7000 affordable housing units as per 2022 data estimates. The city eliminated the parking minimums for affordable housing developments to reduce construction costs and boost production. Additionally, the city has an Acquisition Opportunity Program that provides funding to developers to purchase and preserve affordable housing to prevent displacement. As of 2023, the city has supported acquisition of 632 units.

Massachusetts also has a strong network of housing partners at the state level who we plan to engage in this project. The Executive Office of Housing and Livable Communities, Massachusetts Housing Partnership, and MassHousing are just a few examples of allied organizations who bring housing development and economic development expertise. We anticipate their participation throughout the process as advisory partners, in various capacities from serving on the Advisory Committee to participating in Working Group research activities.

Beyond the work done in partnership with MAPC through the technical assistance program, cities and towns in Greater Boston continue to take steps to produce more affordable housing. MAPC has helped many cities and towns adopt or update inclusionary zoning to produce more affordable homes. Over 60 communities in Greater Boston have some form of inclusionary zoning.

In 2005, the Massachusetts State Legislature passed the Municipal Affordable Housing Trust Fund Law, simplifying the process for cities to establish a local housing trust fund and enabling all communities to create a housing trust through their local legislative body. Since passage of the law, approximately 98 communities have established municipal affordable housing trust funds.

Stakeholder Engagement and Public Participation Summary

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During application development process continuing through the post award period (as project start up tasks), MAPC conducted outreach with cities and towns, partners in labor and workforce development, state housing partners, and subject matter experts in modular and prefabricated construction methods. The full list of potential partners engaged as this proposal was developed is listed below (some of these partners were able to provide letters of support ahead of the application deadline):

- Municipal outreach included Town of Arlington, City of Boston, City of Cambridge, City of Chelsea, City of Everett, City of Newton, City of Somerville, and City of Watertown during the application development process. Post award, MAPC continued outreach to additional communities including City of Medford and City of Malden.
- State housing partner outreach included Massachusetts Housing Partnership, Executive Office of Housing and Livable Communities, and MassHousing during the application development process.
- Labor outreach included Massachusetts Building Trades Union and Greater Boston Labor Council. Post award, MAPC has continued making outreach to our labor partners.
- Housing industry outreach included researchers, subject matter experts, architects, and developers with experience in offsite construction.
- Subject matter expertise related outreach also included outreach with multiple offsite construction businesses active regionally and within United States.

One of the first grant activities that is already underway is in-depth stakeholder mapping exercise to formalize partners and form a Core Advisory Committee (AC). Once an initial AC is formed, MAPC will facilitate another round of stakeholder mapping to potentially expand the AC, if necessary, but more importantly, the stakeholder mapping activity will inform a detailed community engagement plan that will be adjusted throughout the project to ensure grant activities are carried out transparently and inclusively. The following list denotes potential stakeholders who are likely to be engaged through this grant project: Persons with unmet housing needs; Residents of public housing or other affordable housing units; Persons from all protected class groups under the Fair Housing Act; Regional and State public agencies that provide funding or technical assistance for housing, transportation, and social services (e.g., Massachusetts Housing Partnership, MassHousing, MassDevelopment, Executive Office of Housing and Livable Communities, Citizens' Housing and Planning Association (CHAPA), etc.); Community organization such as community development organizations and other

community-based groups; For-profit and non-profit housing developers; Architects; Community Land Trusts; Housing Authorities; Advocacy organizations; Owners of modular and prefabricated manufacturing facilities; Labor organizations; Construction industry workers; Economic development organizations; Workforce development organizations; and Subject matter experts and researchers focused on offsite construction technologies.

MAPC, in partnership with the City of Boston, is in the process of developing a white paper to provide context for both the Advisory Committee and potential Working Group members. The paper will outline the review of existing research on existing offsite construction industry challenges and opportunities, a survey of existing projects and conditions in the Greater Boston region, and a description of the project goals and partners and Working Groups. The City of Boston, Housing Innovation Lab have done similar research and are co-authors of the white paper.

To ensure transparency and engagement, MAPC will soon launch a dedicated project webpage that will feature:

- A comprehensive grant overview
- Working Group details and updates
- Project deliverables and milestones
- A newsletter-signup option for interested parties to join our mailing list for regular updates.

Another engagement document will be a one-pager project overview target for a more general audience and informational campaign and public events debunking myths about modular construction. These grant activities align with the project goal to engage and educate on what is offsite construction and why it is important in addressing affordable housing for our region.

Long-Term Effects

This project presents an immense opportunity for Greater Boston to expand the local construction industry and embrace alternative construction technologies that can complement onsite construction methods to meet housing and climate goals in a more timely and cost-efficient manner. This project will set Greater Boston on a new trajectory, with labor organizations at the table, to collectively find ways to allow onsite construction methods to continue while also making room for different options, particularly in neighborhoods where infill development and smaller-scale housing options are better suited for offsite methods and less appealing for traditional contractors. We see a variety of permanent, long-term effects and outcomes beyond the grant period ending in 2030. If successful, we will have greatly reduced key barriers to producing and preserving affordable housing and have measurable outcomes to show HUD and other regions across the nation.

Upon completion of the grant-funded activities, we hope to be the first metropolitan planning agency to successfully execute a coordinated strategy working across municipal boundaries to pool production demand for an offsite construction manufacturing facility(s) to serve our region's desperate need for the rapid production of high-quality affordable housing units.

Deliverables

Deliverables associated with each activity anticipated to take place during the grant period are described below:

	Task	Anticipated Deliverables*
1	Convene a Regional Offsite Construction Advisory Committee and Working Groups	Project website, white paper, one-pager, project branding and templates Advisory Committee and Working Groups Objectives, Agendas, and Meeting Schedule; Memorandums of Understanding; Partner Agreements
3	Offsite Construction Research and Planning	Four research reports on the following topics: Addressing regulatory barriers to offsite construction in participating municipalities; Generating a project pipeline to support a regional manufacturing facility; Creating workforce development opportunities; and Identifying suitable sites in the region for a manufacturing facility or facilities. Amended MOUs, if necessary Webinars or other communication materials to share research findings with broader network of housing professionals
4	Preparation and Issuance of Solicitation for Manufacturing Facility or Facilities	Solicitation for manufacturing facility, including incentive package
5	Select and Designate a Developer(s) for Manufacturing Facility/Facilities	Scoring rubric for selection committee; developer selection notification memorandum; developer designation memorandum; letter committing funds for the construction of the facility
6	Development of an Implementation and Phasing Plan	Plan detailing the order in which development projects will be submitted for manufacturing (informed by Activity 2 deliverables)
7	Support the Permitting and Development of Manufacturing Facility/Facilities ; First Units Manufactured	Development progress reports; permits and certification of occupancy for manufacturing facility
8	Outreach Engagement	Focus group/interview protocols; communication materials; social media assets; public campaign for educating about alternative construction technologies

*Additional deliverables will likely result as work gets underway. This outlines the bare minimum, and in the case of engagement/communication materials, a sampling of what may

result. Throughout the project, we hope to share information about research findings and project milestones, to serve as resources for HUD and others in the housing field across the country.

Implementation of Project

In terms of siting a manufacturing facility or facilities in the region, community and stakeholder engagement throughout all phases of project planning and implementation will be critical to minimize delays and barriers posed by litigation, environmental review, and regulatory/permitting processes, including design review. To minimize hurdles imposed by local permitting requirements, a key activity in our project includes studying and streamlining regulatory and permitting pathways for projects developed using offsite construction methods. As a state with an approved third-party inspection infrastructure for plan review and inspection of offsite components, Massachusetts has a favorable regulatory environment for offsite construction methods. If a manufacturer has been approved by the State, so long as the modules have a State stamp, additional inspection/approval by the local jurisdiction in which the modules are placed is not required. As such, and as has been confirmed by conversations with stakeholders and subject matter experts, communication between approval agencies and education about offsite construction methods is a key hurdle to ensuring a smooth process to shepherd projects through the approvals process.

Long-Term Effect on Removing Barriers to Affordable Housing Production

In the long-term, the success of our project will be a less severe affordable housing shortage and decreased societal ills that result from such a shortage. There will be a more balanced supply of housing units affordable to households at a range of income levels as a result of our increased capacity to produce these units (and revised regulatory frameworks mandating the placement of these units across cities and towns due to the passage of progressive policies at the State and local level to mandate a more balanced supply of affordable housing throughout the region, and not in concentrated neighborhoods or cities and towns). Fewer households will be cost-burdened, and a smaller share of our housing units will be overcrowded. Cities and towns in our region will be less segregated, BIPOC households will have greater access to well-resourced areas to allow for advancement in educational attainment, unlocking better quality and higher-paying jobs, and narrowing the racial wealth gap. All of these effects will result in an increased quality of life for residents in our region.

Secondary to accelerating the pace of construction of new affordable housing units to address an immediate need for more affordable housing units in well-resourced areas of our region, our project also seeks to further innovate in the building technology space. The Boston metropolitan area has long been a leader in the advancement of technology and research, due in large part to the concentration of the country's top academic institutions and associated research labs. There is tremendous opportunity for innovation in the offsite construction space in collaboration with colleges and universities in the region. This innovation will be complemented by progressive and high expectations for the types of jobs that result from new and emerging technologies.

Evaluation

We will evaluate the effectiveness of our effort by closely monitoring the number of affordable units produced by the facility (by affordability tier), the locations where these units are placed, and the race and ethnicity of residents in those units. With this information, we will be able to ensure that our effort is effectively allowing for the distribution of affordable housing units across the region, increasing access to high opportunity areas for low- and moderate-income households, and expanding the supply of housing in high-opportunity areas affordable to low- and moderate-income households, the majority of which are BIPOC households.⁷

Examples of measurable outcomes:

- Housing Production & Affordability Related:
 - Number of Housing Units identified for development pipeline
 - Number of Affordable Housing Units identified for development pipeline
- Municipal Participation:
 - Number of municipalities signing MOUs and committing to supporting modular housing production.
 - Types of commitment secured for incentive package for solicitation.
- Workforce Development Related:
 - Number of Jobs Anticipated
- Regulatory Barriers Related:
 - Number of zoning and building code amendments/commitments to amendments facilitating offsite construction.
- State & Local Policy Alignment:
 - Track the integration of modular housing policies with state and local housing plans.
- Solicitation related
 - Number of RFP responses

Potential roadblocks

We recognize that, throughout the nation, opposition to modular housing often includes concerns of residents (quality/aesthetic concerns) and the construction trades (job loss/job quality concerns). Of course, these concerns may challenge the success of our project, but it is also our responsibility and intent to listen to these concerns carefully and to make sure all legitimate concerns are addressed. In our preliminary research into offsite construction methods as part of the process of preparing this grant proposal, we started engaging members of the construction trades. Our project seeks to address their concerns, in part, by focusing on infill housing development projects, which tend to be of a scale that would not compete with projects in which construction trades are typically involved. We also hope to have continued engagement with labor representatives as we see offsite construction methods complementing their work rather than replacing it. MAPC and its partner municipalities would not consider this project a success if local jobs were lost – instead, we are committed to finding ways to increase the diversity of jobs in the construction field to attract more diverse workers with good jobs, pay, benefits, and

⁷ 67% of households in Boston earning 80% of AMI or below are BIPOC households. Source: 2017-2021 American Community Survey 5-Year Estimates, PUMS; HUD 2021 income limits.

worker protections. The project also includes a robust community engagement component to combat public perception against modular or prefabricated housing types.

Environmental Risks

As a coastal region, Greater Boston is more likely to be impacted by climate change through rising sea levels and severe weather events that cause flooding, extreme heat, and other natural disasters. MAPC regularly works with its 101 cities and towns to enact climate resiliency plans, hazard mitigation plans, and climate action plans (which include mitigation and adaptation strategies). Housing planning through Greater Boston takes into account our region's need to locate housing in areas with the least flooding risk and build more energy-efficient and resilient homes. These regional and local climate-related policies will be evaluated under Activity 2 and inform recommendations for potential modular developments and a manufacturing facility to maximize resiliency and energy efficiency.

Providing a model for other communities

We are excited to put forth this project as a regional planning agency because the problems caused by a shortage of affordable housing units are not isolated to one city or town but constitute a regional challenge requiring regional solutions. The deference given to local municipalities to adopt their own land use and regulatory frameworks creates challenges to regional coordination and tackling regional problems such as the supply of affordable housing. Local governments are uniquely positioned to project future housing needs and a pipeline of projects to support the location of a nearby manufacturing facility. We hope that this project can serve as a model for regions across the country who face similar challenges to regional coordination and have an acute need for affordable housing.

Immediate Success

In the immediate term, success of our project will be a high-functioning, sustainable manufacturing facility that produces both high-quality, affordable housing units as well as safe and stable jobs for local residents.

Substantial and Non-substantial Amendments (if applicable):

The content has been reviewed and refined for consistency with the Action Plan guidance, ensuring alignment with its objectives and requirements. No substantial changes have been made to the content; edits were limited to clarifications, and formatting. The budget has been updated to accurately reflect the awarded grant amount.