Memorable, Legible, and Accessible Cities:
Co-Stewarding Historic Preservation and Public Transportation Agendas in Boston and Hong Kong

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ABSTRACT

This thesis seeks to understand how planners, designers, and policymakers can identify and leverage shared goals between historic preservation and public transit planning to support a memorable, legible, and accessible public realm. Preservation and transportation agendas are often described as inherently opposed to one another, and are generally administered through separate bureaucracies. Rather than being in opposition, I argue that the goals of preservation and transit accessibility are well-aligned through a shared commitment to serving the public interest and fostering sustainable development. I explore this alignment by analyzing how two coastal cities, Boston and Hong Kong, have accommodated transit needs alongside the cultural legacy of their built environments—resulting in positive and negative impacts on achieving sustainable development goals. Insights from Hong Kong and Boston neighborhoods, gleaned through interviews, on-site observations, and mapping exercises, inform a set of opportunities for better fostering the synergies between historic preservation and transit planning. These recommendations, organized around opportunities for collaborative governance structures and processes, seek to improve the usability and enjoyment of public transit system and historic sites to create memorable, legible, and accessible cities for the long-term.

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Table of Contents

Chapter 1: Introduction 6

Chapter 2: Conceptual Framework – The Promise of Historic Preservation and Transit Planning 10

Chapter 3: Case Study Findings 24

Chapter 4: Opportunities for Co-Stewarding Public Transport and Preservation Agendas 33

Chapter 5: Conclusion 36

Bibliography 37

List of Figures

Figure 1: Map of the City of Boston's designated Landmark Districts and Protected Areas (dark purple), Massachusetts Historical Commission's historically significant properties (light purple), and the MBTA's subway routes and stations 8

Figure 2: Map of Hong Kong's declared monuments and graded historic sites (dark purple) and the MTR's subway and rail routes and stations 9

Figure 3: Zoomed-in Map of Hong Kong Island's declared monuments and graded historic sites (dark purple) and the MTR's subway routes and stations (interchange/terminus depicted near ferry piers is of the Central MTR Station) 9

Figure 4: Image of Hong Kong's MTR Island Line 13

Figure 5: Key dates from public transit planning and historic preservation moments across the two case study cities, Hong Kong and Boston, contextualized against local, regional, and global influencing factors in the 19th and 20th centuries. Purple dots indicate project examples referenced throughout Chapter 3. 23

Chapter 1: Introduction

Transit planning and historic preservation may appear inherently contradictory. The former is dedicated to expanding access, which often requires significant earthworks and construction that has resulted in demolishing existing structures, while the latter is dedicated to retaining what already exists, which can mean limiting development and services like transit. Planners, policymakers, and advocacy groups often are aligned in their thinking about the importance of both historic preservation and public transportation agendas, but these are rarely discussed in tandem or as explicitly self-supporting. Historic preservation and public transit planning share a responsibility and capacity to generate memorable, legible, and accessible cities, and reinforcing their synergies will better meet their shared responsibility. Moreover, it is important to think about these two topics in 2023 because they both have a significant role in planning for climate change and sustainable and resilient cities. The potential and actual tensions that may arise between transportation planning and historic preservationists may be resolved or overcome by identifying and leveraging their compatibilities. This would ultimately influence an approach to transit-oriented development that prioritizes placemaking and accessibility by protecting memory and culture.

Both public transportation planning and historic preservation, consistent with their respective public interest missions, have the capacity to steward sustainable development across its three pillars: Economic, Social, and Environmental. By intentionally aligning goals and strategies towards sustainable development, both transportation planning and historic preservation will benefit. Meanwhile, accessing historic sites –and respecting the past more generally– is an important way to strategically and thoughtfully plan for future generations. As Kevin Lynch has explained, "[saving] the past can be a way of learning for the future" (Lynch, 1972: 43). The "success" of preserving sites and structures is predicated on whether people can encounter and interact with these places, and public transport infrastructure maximizes the diversity of who can access these sites. This is important to consider because preservation values are informed by those who engage with conserved and preserved sites, and who therefore have the opportunity to contribute to the identity of a place. In the words of James Massey, "The identity of places is very much bound up with the histories which are told of them, how those histories are told, and which history turns out to be dominant" (Massey, 1995).

This thesis will focus on the dynamics between public underground rail service networks and historic sites in the City of Boston, Massachusetts, United States, and in Hong Kong, Special Administrative Region. Boston and Hong Kong are two coastal cities facing high demand for dense development, particularly housing, and have historically responded to space needs through reclaimed land: infilling water bodies to accomplish developable, flat, low lying land areas. They are distinct on many other levels: geographically, politically, culturally, etc., which serve to illustrate different responses to transit planning needs and historic preservation needs, from design strategies to policy structures. The City of Boston has had an underground subway network since the late 19th century, while Hong Kong has had its system since the late 20th century. Widespread legal protections or regulations for historic places in the United States emerged in the mid-20th century, and in Hong Kong in the late 20th century, although concern for protecting built heritage has been documented far earlier than that.

Choosing to focus on underground rail, the subway, as opposed to other forms of public transportation like bus networks, tram networks, or ferry networks, allows a focus on the impacts of long-term, fixed systems that require significant financial investment and construction impacts to be realized. The subway is a significant contributor to the "environmental image" (Lynch, 1960) of a city, which is connected to the memorability and legibility of place. Concentrating on urban neighborhoods and inter-neighborhood connections, as opposed to stand-alone buildings, monuments, or infrastructure elements, is an appropriate scale for understanding how preservation and transport networks contribute to city legibility, since the effectiveness of both is tied to reaching multiple destinations across a navigable system. Neighborhood planning is also the scale at which urban planning and preservation has traditionally intersected, and therefore the appropriate scale candidate for understanding opportunities to reinforce synergies between transit planning and historic preservation.

Chapter 2 of this thesis identifies the synergistic forces between transit planning and historic preservation. To start, the chapter describes how and why planners and preservationists have worked together before elucidating the shared opportunities between transit and preservation. These shared opportunities include creating memorable and legible cities and supporting sustainable development in the name of better serving the public interest. Chapter 3 lays-out the economic, social, and environmental impacts that both transit and preservation actors have had in the public realm, revealing how each agenda has met varying challenges and successes. Case studies within the two cities provide additional detail on how sustainable development-thru-transit-and-preservation has been realized at the

neighborhood scale. Chapter 4 identifies opportunities for co-stewarding transit planning and historic preservation at-large, drawing on findings in Boston and Hong Kong. These opportunities have been organized into a set of recommended design strategies and policy considerations that are geared towards reinforcing synergies between transit planning and historic preservation. Chapter 5 reflects on the thesis process and introduces some ideas for future consideration.

1.1 Case Study Selection

Cities: City of Boston and Hong Kong Special Administrative Region (Hong Kong, SAR)

Understanding the possibilities of how transit planning and preservation can meet their shared goals through the lens of sustainable development requires examining how current systems operate, separately and together. Analyzing several examples in Boston and Hong Kong reveal the impacts of how subway systems developed amidst different stages of historic preservation awareness. These cities were selected because they both have public transit networks (subway systems) and designated historic sites (buildings, landscapes, or districts/ neighborhoods), and because the author is familiar with both.

The City of Boston's subway system serves as the late 19th-early 20th century example of an underground transit system that first emerged before the advent of widespread mid-20th century preservation laws and regulations in the United States. Hong Kong serves as the late 20th century-early 21st century example of an underground transit system constructed after the emergence of international historic preservation guidelines, and amidst the "handover" from the British colonial government to the Hong Kong/China government, while reflecting the latest in underground rail technology.

Despite their varying governance structures and corresponding approaches to both subway planning and historic preservation, both cities share influence from British colonial planning legacies. Both Hong Kong and Boston have a high proportion of reclaimed land, with its most-historic areas distributed across coastal and low-lying zones. Subway routes and historic sites in these areas are particularly susceptible to climate change effects such as sea-level rise, storm surge, and temperature rise. Both cities, but especially Hong Kong, are also grappling with intense real estate development pressure and housing demand, which has been positioned as in-opposition to historic preservation. The selected case studies, both cities that are fore fronting climate change resilience as part of the planning agendas, set the stage for understanding how transit planners and historic preservationists can more thoughtfully contribute to sustainable development.

1.2 Research Questions

Two thesis objectives drove the development of the following research questions. To answer them, I employed a mixed-methods qualitative approach by conducting twelve semi-structured interviews, mapping current sites, performing field visits and observations, and reviewing primary and secondary sources.

Thesis Objective #1: Demonstrate a valid and valuable connection between historic preservation and public transit planning

1. How is historic preservation incorporated as part of the transportation planning process today?
    a. How does memory support legibility in the built environment?
2. How is transit planning incorporated as part of the historic preservation process today?

Thesis Objective #2: Suggest opportunities to re-envision transit planning and transit-oriented development (TOD) approaches by explicitly including historic preservation, and suggest opportunities to re-envision historic preservation approaches by explicitly including transit planning, to support public memory, legibility, and accessibility in cities.

1. What and where are the spatial examples of historic preservation and transit planning issues coming together?
    a. How is design used to reconcile or enhance this interaction?
    b. Which examples have been most successful in honoring historic or cultural values of the place while also meeting transit accessibility needs?
    c. Which have been the least successful? What constitutes a resolution or compromise between planning values?
2. Who makes the decision regarding historic preservation considerations for transit projects? Who decides when or how transit needs are considered for historic preservation projects?

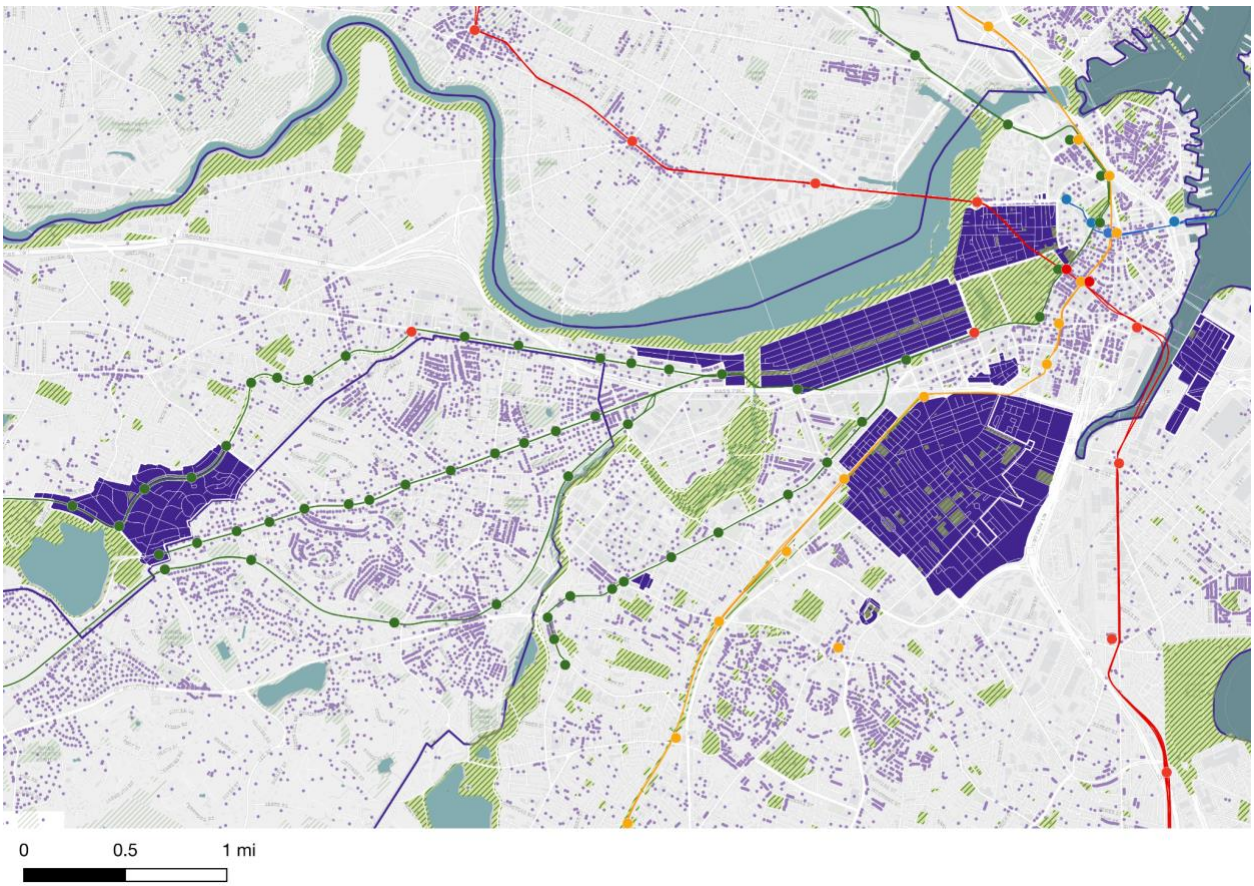

Figure 1: Map of the City of Boston's designated Landmark Districts and Protected Areas (dark purple), Massachusetts Historical Commission's historically significant properties (light purple), and the MBTA's subway routes and stations

Figure 2: Map of Hong Kong's declared monuments and graded historic sites (dark purple) and the MTR's subway and rail routes and stations

Figure 3*:* Zoomed-in Map of Hong Kong Island's declared monuments and graded historic sites (dark purple) and the MTR's subway routes and stations (interchange/terminus depicted near ferry piers is of the Central MTR Station)

Chapter 2: Conceptual Framework – The Promise of Historic Preservation and Transit Planning

In this chapter I demonstrate a valid and valuable connection between preservation and transit planning by exploring how both – separately but especially in tandem with one another–serve the public interest. I do this by explaining how they have historically contributed to neighborhood revitalization (Birch and Roby, 1984) and made cities more memorable, legible, and accessible. The latter focuses on their shared role in building collective memory (Halbwachs, 1950), supporting urban imageability (Lynch, 1964), designing for the human-scale, and fostering opportunities for interactions (Hansen, 1959). Following this, I describe the positive impacts, and limitations, of transit planning and historic preservation on supporting the three individual pillars of sustainable development: economic, social, and environmental. I suggest that adjusting governance structures and re-aligning public-private interests would enable transit planners and historic preservationists to achieve sustainable development goals more holistically, and that this should be a priority.

2.1 A Brief Summary of the Planning and Preservation Dynamic

In their 1984 article, *The Planner and the Preservationist: An Uneasy Alliance*, Eugenie Birch and Douglass Roby describe the evolution of how the planning and preservation disciplines began as separate entities but had started to overlap in scope beginning in the mid 20th century. Prior to coming together, "planners had reformist, rationalist origins," while "the preservationists had patriotic, romantic roots." (Roby and Birch, 1984). Despite their differing theoretical perspectives, these disciplines were brought together when neighborhood-scale planning efforts emerged. For planners, this was a honing-in from regional and citywide planning efforts, while for preservations, this was a broadening from preserving "isolated, individual structures."

At this scale, both disciplines were able to progress "neighborhood revitalization" efforts through integrating the preservationist-determined "community assets" into planning documents (Redaelli, 2021). This strategy supported a "specific economic emphasis," which Eleonora Redaelli describes as "market-driven preservation through heritage tourism." This approach is still pertinent, with a 2009 UNESCO article stating that "cultural endowments such as traditional architecture, unique streetscapes, and historic sites" are "important economic resources in both developed and developing countries" (Ebbe, 2009). The flipside of economic development is the correlation between preservation and gentrification, one of the three primary critiques against preservation's influence on planning traditions. These three critiques include: preservation efforts as an expression of elitism (and relatedly, gentrification), preservation priorities as exclusive of intangible heritage, and preservation as hindering to development (Redaelli, 2021).

Despite this, Andrew Hurley argues that the "historic-preservation movement, for all its shortcomings, remains an ideal vehicle for engaging communities in historical interpretation and directing redevelopment toward locally defined ends" (Hurley, 2010). This is because the historic preservation movement is an important vehicle for public history to be revealed through the built environment. Public history is generally understood as history that is documented outside of academic institutions. Hurley argues that involving the public in the historical interpretation of their neighborhoods is "empowering because the very act involves them in the production of that space" (Hurley, 2010, 53) and "[conceptualizing] the urban landscape as an inheritance confers on its heirs an entitlement to control its destiny" (Hurley, 2010, 53). This thesis is motivated by the possibility that historic preservation has and can be used as a positive tool for community connectedness and respect, and that transportation infrastructure can support both of those outcomes.

Prior studies have investigated the link between transportation projects and impacts on cultural heritage. This includes a 2019 study that sought to "resolve metro-heritage conflict" in the city of Lahore, Pakistan, where the proposed transit route selection, design and vertical alignment were recognized to have a devastating impact on cultural and historical heritage, leading to "serious conflicts" when the transit plans were implemented (Ali et al., 2019). In this case, the authors focused on how heavy-handed, top-down leadership decisions resulted in the loss of important sightlines of, and hindered access to, twenty-six historic sites, which was heavily criticized by the public. The authors warn that "-intense and unchecked urban development without considering the archeological and cultural heritage protection and preservation could lead to urbicide," citing *The Politics of Urban Destruction* by Marin Coward (2006).

Public agencies and private actors have a hand in defining and controlling heritage and preservation ideas. In the United States, preservation compliance is enforced at three scales: at the federal level, through the National Park service, at the state or municipal level, through Landmarks Commissions and historic district commissions, and at a private citizen level, through nonprofit organizations such as preservation alliances and societies. The mainstream understanding of historic preservation grew out of major urban renewal projects in the 1960s, with the National Historic Preservation Act passing in 1966 as the first national policy governing preservation in the

country (National Park Service). Earlier measures include the 1906 Antiquities Act and the Historic Sites Act of 1935. The National Historic Preservation Act was enacted following a report issued by a special committee on historic preservation, titled *With Heritage so Rich*, which "became a rallying cry for the preservation movement" (National Park Service).

Across the globe, different countries have their own philosophies and agencies assigned to determining and enforcing preservation values. Many local heritage policies "draw on norms and good practices disseminated worldwide by international organizations including UNESCO" (Faveaud, 2021). UNESCO enacted its World Heritage Sites program in 1972, and largely defines cultural heritage under the three main categories of "Tangible Heritage," "Intangible Heritage," and "Natural Heritage" (UNESCO, 2009). In 2005, UNESCO adopted the *Vienna Memorandum on World Heritage and Contemporary Architecture - Managing the Historic Urban Landscape*. (UNESCO, 2005), which defined the value of historic urban landscapes. This memorandum includes guidelines that emphasize how planners and designers should "avoid all forms of pseudo-historical design" because "history must remain readable, while continuity of culture through quality interventions is the ultimate goal."

Geographer Doreen Massey would contest UNESCO's insistence on "continuity of culture" and the legibility of history, emphasizing instead that there is no one past or history that a preservationist might claim, since "-places are always already hybrid" (Massey, 1995). She further explains that "-histories of the past, moreover, are constructed so as to confirm the views and convictions of the present," which Kevin Lynch reiterates in *What Time Is This Place?* by stating that "[we] prefer to select and create our past and to make it part of the living present" (Lynch, 1972, 37).

There are numerous examples of transit station designs used to convey historic or artistic legacies of the city they're located in. These are evident in the entries into the Paris Metro, the ornate platforms of St. Petersburg, and the vibrant stations of Mexico City. All of these demonstrate how "the city itself can be a historical teaching device" (Lynch, 1972, 54) while simultaneously functioning as wayfinding and placemaking features to assist navigation through the city. Pursuing underground transportation projects can also reveal historic narratives. For instance, in 2018, a series of archeological sites were uncovered as Rome excavated to expand its metro line (NPR, 2018). The excavation depths required to construct the metro tunnel are significantly deeper than that of a typical archeological excavation, suggesting that these objects– that will ultimately be placed in a museum adjacent to the station– would not have been discovered if not for transit investments. These choices, to design transit stations in an historicizing manner or to plan for a new museum in addition to transportation infrastructure, ultimately add expense and time to an already intensive capital project. However, these choices also help convey "the concept of [the] historic urban landscape" as an "accumulation of the different layers of the city" (Colavitti, 2018), that planners and preservationists might be able to anticipate in future projects.

Transportation planning and historic preservation can be compatible with land use and urban legibility forces through their shared commitment to fostering sustainable development and serving the public interest. Transit supports preservation projects by providing access to historic sites. Preservation efforts support transit goals by informing wayfinding strategies that support circulation through stations, the system, and city at-large. Together, both transit and preservation can strengthen the identity and bonds of a community or city, integrating access to opportunities into collective and individual memories.

2.2 The Role of Memory, Legibility, and Accessibility in Planning

2.2.1 Collective Memory

Transit planning supports historic preservation by providing the infrastructure to access historic sites, while preservation serves transit needs by informing how neighborhoods or destinations are understood– preserving historic structures and sites contributes to the identity of a transit-oriented destination. Public transit infrastructure and "old places... give us a collective memory and a sense of perspective." (Meeks and Murphy, 2016).

Maurice Halbwachs first introduced the concept of collective memory through a posthumous publication, in which he explains that a society's collective memory is based upon a framework or group that individuals belong to. He further claims that this group identity is imprinted in the physical realm, describing how "the urban group really constitutes...a social body with subdivisions and a structure reproducing the physical configuration of the city" (1950). Halbwachs explains that because the physical environment adapts more slowly than the groups that occupy it, the space itself becomes evocative of a group's sense of values and identity over time. He describes

how "-the spatial image alone... by reason of its stability, gives us an illusion of not having changed through time and of retrieving the past in the present. But that's how memory is defined. Space alone is stable enough to endure without growing old or losing any of its parts." (Halbwachs, 1950). The public realm is thereby deeply connected to the collective memory of a people and place. Understanding how the existing spaces of Hong Kong and Boston relate to transit infrastructure and accessibility goals can enhance this collective memory.

For all the promises of an enduring collective memory, spaces are riddled with overlapping and conflicting histories. Some spaces may house histories that one community would like to remember but another would rather forget. The challenge for planners lies in finding a way to allow for hybrid and multiple memories to exist in shared spaces, in the public realm. Hong Kong poses an interesting set of dynamics for historic preservation because the current government and general public have conflicted in its embrace of different narratives: from the British colonial legacy to a dynastic Chinese legacy, to indigenous agricultural legacies, to mid-20th and early 21st century political identities around communism, democracy, and nationalism, and also conflicted in their attitude towards private property rights. Professor Roger Chan notes that Hong Kong has only explicitly engaged with issues of sustainability and preservation since the economic reform policies of the late 1970s and early 1980s.[1] Professor Chan refers to this period, leading up to the final years of British colonial governance, as the first instance of Hong Kong's soul-searching. During this time, the colonial government was in the process of making room for growth, primarily through public education and social welfare programs, and the baby boomer generation was starting to engage with concepts of identity. A significant element of this discourse was the identity of belonging to the "third generation" of Hong Kong residents, and not as new immigrants from mainland China following the 1940s civil war (first generation) or as refugees following World War II and the Vietnam War (second generation).[2]

Professor Christina Lo, of Hong Kong University, personally treasures Hong Kong's intangible heritage over its tangible heritage because of her lack of personal attachment to many of the historic sites graded by the Antiquities and Monuments Office (AMO). She says, "Heritage is something you need to be able to relate to,"[3] suggesting an alignment between preservation values and personal identity or attachment. As a result, she references places like the Star Ferry Pier, which was demolished in 2006 despite significant public protest, as more important to the collective memory of Hong Kong versus select "wealthy people's homes" that have limited contribution to the public realm. Professor Lo further raised the question of scale in relation to collective memory building, stating that although there are no neighborhoods or districts protected by the AMO, which focuses on grading individual buildings and structures, the neighborhood is the scale at which history is appreciated. She references the Tai O fishing village on Lantau Island, and the tong lau tenement houses in the Wan Chai neighborhood, as examples of this. A single fishing platform structure or a single tong lau building are not as impactful or communicative of public history as the entire network.

In the United States, Stephanie Meeks, the President of the National Trust for Historic Preservation, and Kevin C. Murphy, a speech writer for the same organization, argue that communities form over time, and "preservation helps protect them as they grow, giving consistency to the landscape and a shared sense of history to its members" (Meeks and Murphy, 2016). In other words, historic preservation, alongside a consistent and reliable transit network, supports a collective memory by providing multiple generations the opportunity to imprint upon shared spaces–validating and recording their experiences for future generations to learn from and contribute to.

2.2.2. Urban Imageability

Public transit networks and historic preservation practices contribute to the creation of memorable, legible, and accessible cities through providing the means by which to explore and access the city: its spaces, programs, communities, and histories.

In his seminal work, *The Image of a City*, Lynch identifies what he refers to as the five key qualities of an "imageable" city, including: Paths, Edges, Districts, Nodes, and Landmarks. These qualities influence how individuals perceive a city, and therefore how they construct the "-generalized mental picture of the exterior physical world" (Lynch, 1964: 3) of a specific place. These mental maps, or environmental image/s, is "the product both of immediate sensation and of the memory of past experience, and it is used to interpret

[1] Chan, Roger (Professor, Division Head, Division of Social Sciences, Humanities and Design, The Hong Kong Polytechnic University) in discussion with the author, Hong Kong, Hong Kong SAR, January 2023.
[2] Chan, Roger. Interview, January 2023
[3] Lo, Christina (Professor, Faculty of Architecture, Hong Kong University) in discussion with the author, March 2023.

information and to guide action" (Lynch, 1964: 3), through "permitting purposeful mobility" (Lynch, 1964: 124). Subway networks play an important role in enhancing the Paths and Nodes that comprise a city's imageability, while historic sites play an important role in enhancing the Districts and Landmarks that assist with navigating a place.

A subway network functions as a natural extension of pedestrian infrastructure, particularly where the sidewalk meets a subway entrance, and therefore contributes significantly to how people perceive the city while traveling on-foot or via mobility aid. The lengths of time and distance between stations function as part of the Path that an individual can rely upon to move through the city, while the stations themselves–particularly interchange stations between different lines or between modes (i.e., subway to bus)–serve as the Nodes of a city. Lynch also claims this, explaining that "subway stations, strung along their invisible path systems, are strategic junction nodes." (Lynch, 1964). Subway routes are particularly reliable Paths and stations are particularly reliable Nodes for one's mental image of a city, as subway routes are generally composed of an immovable set of tracks within tunnels that connect between unique, immovable stations. This differs from navigating roadways in a car where, although the roads are unlikely to be relocated, a driver may take any number of routes to move from one origin point to one destination point (i.e., multiple routes dilute the mental image of a singular Path). Relatedly, a slew of parking facilities and gas stations do not lend themselves well to functioning as important Nodes in a city. While immovable, many of these driving-related structures may be considered functionally interchangeable if located in the same general area (i.e., within the same driving distance to a desired destination). For this reason, subway networks are often fundamental to how the city is understood and experienced by its inhabitants.

The Island Line subway route follows a Path that parallels Hong Kong Island's northern coastline. A major Node is Central Station, which not only allows subway passengers to switch between three different subway lines, including the Airport light trail line, but also provides connections to the island's main ferry terminal, a popular bus terminal, and multiple commercial buildings and cultural sites. It is aptly named the "Central" station for its location with the city's first Central Business District, although geospatially is neither at the center of the Island Line nor is it at the center of Hong Kong Island itself.

Figure 4: Image of Hong Kong's MTR Island Line

Historically significant sites can contribute to a city's imageability at multiple scales, from standalone Landmarks such as individual buildings, landscapes, monuments, and public art pieces, to larger Districts such as the Boston Landmark historic districts or the general collection of historic buildings in the Central neighborhood of Hong Kong. Lynch defines districts as "relatively large city areas which the observer can mentally go inside of, and which have some common character. They can be recognized internally, and occasionally can be used as external reference as a person goes by or toward them" (Lynch, 1964). He uses the City of Boston as an example of an urban setting that individuals perceive to have distinct districts, such as Beacon Hill or the Back Bay, which share "thematic continuities" including "texture, space, form, detail, symbol, building type, use, activity, inhabitants, degree of maintenance, topography" (Lynch, 1964). These thematic continuities are similarly important when evaluating if a neighborhood should receive historic district status within the city. Landmarks are the "innumerable signs, storefronts, trees, doorknobs, and other urban detail, which fill in the image of most observers" (Lynch, 1964). Historic preservation contributes to making these landmarks noticeable so that they may be used as "clues of identity and even of structure," since "systems of landmarks" tend to be appreciated for their "uniqueness and specialization" (Lynch, 1964) for individuals navigating a city. Using references to history, or enhancing the historic nature inherent to a landmark,

imbues these buildings, monuments, station headhouses etc. with an emotional and cultural connection that makes the landmarks more memorable. For instance, the Art Nouveau-style Paris metro entrances designed by Hector Guimard are unique, memorable design elements that both promote the city's imageability while drawing attention to transit access points. In fact, these station entrances are now protected historical monuments. Both the landmark itself, and the general location where it is situated, become better imprinted within an individual's mental image and supports city legibility overall.

As cities like Hong Kong and Boston continue to grow in response to population and economic changes, transit connections and historic preservation become ever more important in supporting the legibility, and therefore imageability, of these urban environments. Transit planning consultant Jarrett Walker emphasizes the importance of transit system legibility in supporting the shift from car-centrism to transit. He explains that legibility is a critical value in encouraging passengers to "use transit for many purposes, not just a regular trip-," which can be encouraged through station design, clear maps, reliable schedules, and up-to-date websites, among other legibility factors. The impact of transit system legibility on travel behavior is significant, since a "lack of legibility really does add to travel time and crushes any sensation of freedom" (Walker, 2011). Pulling from historic narratives and collective memory when transit planning offers an opportunity to grant this sense of freedom and support accessibility needs. Lynch describes that "[the] need to recognize and pattern our surroundings is so crucial, and has such long roots in the past, that this image [of the city] has wide practical and emotional importance to the individual" (Lynch, 1964). The more a city grows and evolves, the more critical it becomes to adapt how individuals recognize and re-recognize their city.

2.2.3 Designing for the Human Scale

An important aspect of designing a legible, memorable, and ultimately imageable city, is to prioritize the "human-scale." In the realm of transportation planning, this means designing systems and spaces that comfortably accommodate the scale of a human body–ideally accounting for variation of age, gender, race/ethnicity, and other social factors that impact how people are perceived and treated in space. Pedestrian infrastructure is an obvious example of human-scaled design, with sidewalks dimensioned to fit multiple people walking side-by-side, or in a wheelchair, with a stroller, or even on a skateboard but not an automobile. The sidewalk is critical public transit infrastructure because it connects people to and through the public realm. Rebecca Solnit argues that great cities consist of spaces that are designed and built to accommodate "walking, witnessing, [and] being in public" and that "the ideal city is organized around citizenship--around participation in public life." (Solnit, 2000). She critiques the late 20th century urbanization trend of organizing towns and cities "around consumption and production" such as shopping centers and strip malls that results in true public space appearing "merely [as] the void between workplaces, shops, and dwellings" (Solnit, 2000).

Historian Joan Dejean attributes the rise of exploring a city on-foot to seventeenth century Paris, when public infrastructure investment in the middle of the century, including the introduction of sidewalks (1680s), street lights, and urban public transit (1660s), transformed the city into a place of "inherently Parisian experiences" that we associate with it today: department stores, omnibuses, cafe culture, and as the City of Light (DeJean, 2014). The public investment was widespread, and "all over the city, street after street was opened up, evened out...straightened." Notably, DeJean highlights how this "large-scale transformation of a cityscape...was accomplished without the wholesale destruction associated with Paris' second major redesign in the nineteenth century" led by Hausmann (DeJean, 2014). Architects and engineers were largely able to use "barren terrain for their new construction" but "when existing construction did stand in the way of the implementation of their ideas, they deliberated carefully and chose the least radical solution possible" (DeJean, 2014). The author identifies this approach as "an early instance of what is now called historic preservation," where architects studied proposed demolition plans to determine if any existing public works held "architectural merit" (DeJean, 2014) prior to moving forwards.

This decision to expand public infrastructure in Paris was rooted in a new understanding of "great cities" in the early 17th century, which meant more than "a collection of major buildings or a monumental city" but rather a combination of "contemporary architecture...economic life.... cultural activities, and the range of entertainment it offered made it vibrant" (DeJean, 2014). To showcase and allow access to this vibrance, Paris became "the prototype for the walking city, a place where people walked not merely to get around, but by choice and for pleasure" through introducing the first modern bridge and the first modern city square (DeJean, 2014). Through these investments, Paris became a walkable city with "spaces reserved for pedestrians...never before seen in a Western city" and "sights aplenty all along the way." This exemplifies Solnit's understanding of walking as "the beginning of citizenship," a way for "the citizen [to know] his or her city and fellow citizens and truly [inhabit]the city rather than a small privatized part thereof" (Solnit, 2000).

The seventeenth century urban renewal practices of Paris reveal how transit planning and sidewalks, with a sensitivity to historic structures and active streets, resulted in the "city itself [as] the monument" (DeJean, 2014) - an enduring legacy. Dejean argues that the legacy of a city's reputation, whether exciting or lackluster, "tends to survive unchanged for long periods of time." Paris continues to be associated with its seventeenth century promenades, even if mistakenly attributed to the nineteenth century, while Boston has long since been associated with its identity as the birthplace of the American Revolution and Hong Kong with its deep-sea Victoria Harbor and vibrant streets. Like in Paris, the two cities' reputations are reinforced through the environment: Boston's brick and granite sidewalks and building facades across its older neighborhoods (Beacon Hill, South End, North End, etc.) and Hong Kong's ferries, piers, and numerous neon street signs. Even as both cities have transformed with changing population demographics and investment in supplementary business districts, their "historic" reputations remain intact.

Historic preservationist James Marston Fitch describes how "-most central-city districts, in their basic street patterns, predate modern vehicular traffic by centuries. Even when large in extent, they are small in scale, fundamentally designed to facilitate pedestrian movement" (1982). He critiques urban renewal practices from the early to mid-20th century, which occurred just before the advent of national preservation regulations in the United States. This planning era often destroyed historic street patterns that would now perhaps be legally protected, and which Fitch argues is the appropriate scale for navigating a historic district since "such areas can be enjoyed only on foot" (1982). Fitch concludes that not only should cars not be used in historic areas as a means of navigation, but also that they are not the preferred mode to access these sites at all. This is because the private automobile is "compelled to occupy the same space as its owner," and cannot "take itself away under its own power" like a subway, bus, or even taxi can. This "foreign body in the pedestrian zone" literally reduces the amount of space a person can traverse on-foot, and thereby "lowers the whole richness, intensity, and diversity of the urban experience: the very quality of urban life is impoverished and degraded" (Fitch, 1982). Fitch encourages city planners and designers to "minimize the severe spatial dislocation caused by the automobile," explaining that older cities with human-scale street patterns may serve as the model for encountering and experiencing a city on-foot or via personal mobility aid. He further advocates for public transit, over the private automobile, as the preferred mode for traveling into and within cities. Fitch says: "-the subway is unquestionably the most rational means of moving people into and around such [districts]'," which would reduce the number of private automobiles causing spatial dislocation downtown while also "in the long run be the most economic–as they are certainly the most efficient–means of diurnal movement into and out of the center [of the city]." He further argues that "subways can also furnish extremely pleasant transportation" referencing the subway lines in Mexico City, Montreal, and Leningrad as evidence of this (Fitch, 1982). All three cities feature subway lines with significant ornamentation and public art integration.

2.2.4 Accessibility

Expanding and maintaining transit networks and networks of historic sites serves the public interest, with both dedicated to delivering access to opportunities. For the transportation planner this means access to the opportunities that each destination presents, from jobs to healthcare to education to leisure activities, etc. For the preservationist this means access to opportunities for connectedness, identity, and pride-of-place, opportunities for accessing cultural memories and legacies that are relayed through the presence of, and interactions with, historic sites. Transportation planner Walter Hansen defined accessibility as "the potential of opportunities for interaction with locations dispersed over space," ideally "adjusted for the ability and the desire of people… to overcome spatial separation" (1959). This definition is fitting for what planners and preservationists strive to achieve, with the latter perhaps also seeking to overcome cultural, historic, and educational separation. Together, they enrich and strengthen the lived urban experience.

Fostering these "opportunities for interaction" means that both planners and preservationists are motivated to prioritize wayfinding and placemaking. Wayfinding tactics support movement to and through a place, and help individuals develop a mental map that they feel confident navigating. For preservationists, wayfinding design strategies can double as a narrative tool to convey information about a place, event, or person and enhance the experience of visiting a historic site. The City of Boston has used its historic sites downtown, and the addition of branding a pedestrian wayfinding network – the Freedom Trail – to contribute to placemaking. Meanwhile, the MBTA has used public art since the 1970s, and architectural design before and since then, to enhance the visual identities of its stations. In Hong Kong, historic plaques and urban design elements communicate a neighborhood identity. For instance, the Wan Chai neighborhood is dotted with descriptive placards that convey different stories and historic events that took place in the area, while an abstracted depiction of the shifting shoreline is referenced through signage and a parklet that uses different terraces to reveal the history of Wan Chai's growth northwards via infill into the Victoria Harbor. These placemaking references are particularly apparent in Wan Chai, one of the city's oldest urban neighborhoods and the site of both controversial and lauded preservation efforts. The Wan Chai MTR station, and indeed many others, include large maps of the subway station's interior that labels its exits. These maps are accompanied by photographs of

nearby landmarks, historic or otherwise, to guide subway passengers towards specific exits. The maps serve a dual benefit of supporting access to these landmarks while also managing crowd control through directing pedestrian flow.

This duality of function and placemaking that transit station design can accomplish is well-aligned with the purpose of historic preservation, which is to recognize and uplift the "public worth" of existing places. Historic preservationist Paul Byard explains that the public worth of architecture, which can be expanded to any structure or landscape, "resides partly in what [they] do, in the functional support they provide for our lives, and partly in what [they] say, the understandings they display publicly and for long periods of time about ourselves, our capacities, and our purposes as human beings." (Byard, 1998). What historic sites "say" about themselves reveals the "the worth of its meaning" and "[anything] built inevitably says something about what it is doing, about those involved in it, and about their view of the world" (Byard, 1998). Historic preservation efforts are thus dedicated to recognizing and protecting the public worth of existing structures, for both functional and meaningful purposes.

2.3 Fostering Sustainable Development

Slowing the rate of, and adapting to, climate change is an immediate and urgent priority for planners. Sustainable development is a critical tool in realizing this priority. Both transit planning and historic preservation support the three pillars of sustainable development: economic, social, and environmental, but with varying degrees of impact. Striving towards memorable, legible, and accessible cities becomes more challenging (and more important) amidst the changing climate, and providing opportunities for transit planners and preservationists to collaborate will yield more effective and holistic sustainable development strategies.

Sustainable development was first brought mainstream when defined by the United Nations (UN) World Commission on Environment and Development (WCED) in 1987 as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Our Common Future, Brundtland Report). Sustainable development is composed of three "pillars": Economic, Social, and Environmental, which interdependently foster sustainability. This framework continues to guide global agendas today, and has been further subdivided into seventeen Sustainable Development Goals for the 2030 Sustainable Development Agenda, adopted by the UN in 2015. Sustainable transport, including public transit, was first recognized at the 1992 UN Earth Summit, and reinforced in its resulting document–Agenda 21, the Rio Declaration on Environment and Development–as part of "[promoting] sustainable human settlement development" (UN, 1992). It continues to factor into the 2030 Agenda, particularly in relation to:

- Goal #3: Ensure healthy lives and promote well-being for all at all ages,
- Goal #9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation, and
- Goal #11: Make cities and human settlements inclusive, safe, resilient and sustainable

Heritage conservation, including "-movable or immovable architecture of great cultural heritage value [that] has gained wider recognition in the world" (Kee and Chau, 2019) has also been officially recognized as part of Goal 11, supporting Target 11.4 that aims to "strengthen efforts to protect and safeguard the world's cultural and natural heritage" (UN, 2015).

Imagine Boston 2030, the citywide plan published in June 2017, is focused on "encouraging economic growth, becoming more affordable and equitable, and preparing for climate change," which touches directly upon the three pillars of sustainable development. Meanwhile, Hong Kong's *Public Transport Strategy Study*, also published in June 2017, explicitly states that one of the city's priorities is to "[encourage] people to use public transport services and to walk more" to "reduce the use of private cars" that would, in turn "further ease road congestion and improve air quality so that Hong Kong can pursue sustainable development." In 2021, Hong Kong released its own citywide plan, *Towards a Planning Vision and Strategy Transcending 2030*, which intends to "-champion sustainable development with a view to meeting our present and future social, environmental and economic needs and aspirations" (Hong Kong 2030+, 2021).

The following subsections describe the three pillars of sustainable development, and how each relates to transit planning and historic preservation. These relationships reveal the positive impacts and limitations of each field's ability to meet sustainable development goals due to an overarching barrier: governance structures and misaligned public and private interests regarding urbanization.

2.3.1 Economic

The economic pillar of sustainable development focuses on setting-up and maintaining a healthy economy, which often manifests as cities with diverse job offerings, primary to tertiary-level education programs, basic needs offerings such as food (i.e., grocery stores) and healthcare services, and medium to high property values that collectively support long-term economic growth. Economic impacts therefore manifest physically (through the spaces and places that offer these services) and financially (through land and property values, which impact financial security for communities). Transit planning and historic preservation influences these two manifestations of economic sustainability.

Transit planning supports the economic sustainability pillar by providing a more affordable means to access jobs, schools, daily needs, etc. in comparison to the costs of owning and maintaining a personal vehicle. Subways move far more people in far less space than personal cars do, and often at a faster pace over longer distances because subway cars do not contend with road traffic. A recent exception to the speed argument is playing out in Boston today. On March 9th, 2023, the MBTA implemented a systemwide slowdown for all subway services that reduced the maximum train speed from 40 mph to 25 mph. This slowdown decision occurred due to "concerns with the quality of the tracks" (Lisinski, 2023) that had been previously identified but an "insufficient documentation of inspections" (Drysdale, 2023) led an oversight committee to question if all track defects had been addressed. This has caused significant inconvenience to those who rely on the transit system for daily commuting, with recent data indicating that an end-to-end round trip on the Red Line (which traverses the municipalities of Somerville, Cambridge, and Boston) featured 68 minutes of total delay, more than any other line in the system (Lisinski, 2023). These slowdowns are safety measures that will remain in-place until infrastructure defects are "validated and corrected," such as replacing aging rail ties and tie plates, replacing track, and improving power delivery systems (MBTA, 2023). The significant effects on people's daily lives caused by the subway's speed restrictions in Boston highlight the importance of transit planning to economic sustainability.

Historic preservation supports the economic pillar through adaptive reuse of individual buildings and maintaining historic urban fabric that often better supports accessibility to and between the jobs, schools, and daily needs that communities desire. In *The Past and Future City*, authors Stephanie Meeks and Kevin Murphy make a strong argument for "recycling" buildings and older neighborhoods through historic preservation practices to "spur economic growth, nurture start-up businesses, and create jobs" (Meeks and Murphy, 2016). Professors Tristance Kee and K.W. Chau concur, explaining that "-an ensemble of heritage sites in an area creates a cluster effect as such groupings can generate more beneficial externalities and positive impulses for local and regional development" (2019). In an article about the impact of heritage buildings on adjacent property prices, they describe how "heritage sites in clusters" can achieve "more sustainable positive externalities and generate greater economic impact" than areas with dispersed heritage sites. They explain that the clustering effect tends to "foster the emergence of diverse complementary businesses and activities" that "strive for uniqueness and high quality as well as cooperation in the promotion of a culturally valuable and sustainable urban landscape (Marshall, 1890; Kee and Chau, 2019). In addition to job creation and economic growth, preservation practices also support the retention of legacy businesses that might be forced to move if property values (and therefore, rents) were to rise with the real estate market.

Land Use Impacts: Physical

Spatially, transportation infrastructure and historically protected sites significantly impact the look and feel of a place. Transportation infrastructure is often large-scale and can divide or connect neighborhoods, cities, and regions depending upon zoning and land use practices surrounding this infrastructure. Although historically protected sites range in scale, historic preservation "has been one of the broadest and longest-lasting land-use reform efforts" (Mason and Page, 2020) in the United States. These land use and zoning requirements can clash, particularly in areas where previously marginalized histories are uncovered or where public transportation expansion projects are planned, with each encountering obstacles due to the other's regulations. In these instances, it is not always clear which agenda – that of the preservationist or that of the transportation planner – is (or should be) given priority.

During 19th and 20th century urbanization patterns in the United States, and similarly during mid-20th century urbanization patterns in Hong Kong, transportation planning was guided by mobility as opposed to accessibility. Mobility, as a planning objective, was promoted under the "guiding idea…that physical and social mobility were strongly linked in settler societies… typically tied to suburban housing access" (Dodson, Burke, Sipe and Perl, 2016). This gave rise to the automobile and related infrastructure, highways, roads, and parking facilities, which has generated problems across urban economic, environmental, and social measures.

21st century transportation planning approaches have shifted towards delivering accessibility, rather than mobility, which promotes "multimodal ideas, with significant planning and investment in transit, pedestrian provision, and bicycle networks." alongside "improved transport and land use planning at the local level" (Dodson, Burke, Sipe and Perl, 2016). These new approaches to measuring accessibility places a greater emphasis on "understandings of broader urban access concepts, often for low socioeconomic groupings or targeted populations" in contrast to the "conventional strategic network modeling" that focuses exclusively on "vehicular travel times and congestion" (Dodson, Burke, Sipe, and Perl, 2016).

Land Use Impacts: Financial

Connected communities and places tend to be more economically well-off than areas that are not, due to the positive effects of tourism and the agglomeration effects of access to more jobs, housing, leisure activities, etc. These outcomes can often result in greater capital flow to support future projects, but have also triggered conditions for displacement because of rising land and property values. Preventing and addressing these conditions is a shared concern that both preservationists and transit planners can find common ground to work through and resolve.

Transit Oriented Development (TOD) has been lauded as "one of the most effective strategic initiatives to address the negative effects of motorization" (Suzuki et al., 2015). TOD encourages compact, mixed-use, and pedestrian-friendly development organized around transit stations, which "embraces the idea that locating amenities, employment, retail shops, and housing around transit hubs promotes transit usage and non-motorized travel" (Suzuki et al., 2015). This approach supports development-based land value capture (LVC), which allows cities to "not only generate funds for transit investment and operation and maintenance but also to promote sustainable urban development" (Suzuki et al., 2015). Development-based LVC is considered advantageous over taxes and fees for financing transit because it has "greater potential" to raise funds without public opposition, and can generate both "direct revenues" from incremental land value increases as well as "indirect revenues" from higher transit ridership and businesses in the precinct of the station areas. Hong Kong is considered a successful case of large-scale development based LVC, where its Rail Plus Property (R+P) program administered by the transit agency, the MTR Corporation, generates enough profit to recoup the capital, operating, and maintenance costs of railway projects.

Shifting towards an "urban regime" (Dodson et al., 2016) of systemic accessibility has been justified on an economic basis. William Vickrey argues that an "agglomeration of firms can achieve economies of scale and lead to metropolitan level competitive advantage that is then reflected in land values" (1997) Public transit infrastructure tends to encourage a concentrated agglomeration of businesses, leading to greater economic productivity that can "[become] capitalized in rents" (Dodson et al., 2016). In other words, businesses and services that are close to one another foster the economic health of a city. Vickrey acknowledges that increased rents are often captured by private landholders and suggests instead that a proportion be "returned to fund the collective systems that support access to agglomeration, namely transport" (Dodson et al., 2016). TOD is an example of the government and transit agency recouping these increased values.

Both public transport investment and preservation successes have been discussed in relation to increasing land values and gentrification. If true, this would be worrisome because communities that would most benefit from improvements to public transit networks would be most at risk of being displaced due to high housing and cost of living prices, while increasing unaffordability in neighborhoods with historic sites would mean that only an exclusive population would be able to easily access the stories and sites preserved in that neighborhood–and define what would be remembered.

Meeks and Murphy explain that there is no strong correlation between declining affordability and historic preservation efforts in cities, and that "the simple supply-and-demand thesis used against historic preservation does not reflect what's actually happening in cities today" (Meeks and Murphy, 2016). Instead, "rapid revitalization" through chain stores and luxury lofts has resulted in "[young], white, and comparatively wealthy new arrivals…moving in, and communities of color, who have lived and worked there for decades…suddenly being pushed out" (Murphy and Meeks, 2016: 202). However, given the "positive economic effect" that heritage sites have on an area, as measured by rising property values, an argument could be made that historic preservation–particularly the impact of "heritage grading" in Hong Kong–creates an inviting environment to these chain stores and luxury development. Professor Max Page critiques the tendency to associate the value of preservation with economic growth only. He explains that the creation of tax credits in the USA in 1976 and 1981 for preservation projects is what led to "substantial federal income tax incentives" for "income-producing properties,"

thereby replacing or overshadowing the "aesthetic or historic reasons" of preservation projects. Page attributes this trend of rewarding profitability through federal subsidy as inevitably leading to gentrification trends.

Meeks and Murphy discuss this relationship between preservation and gentrification through the High Line's impacts on surrounding properties in Chelsea, New York City. The authors explain that, following the decision to renovate the former railway tracks into a linear park, and by rezoning the West Chelsea neighborhood for luxury development in 2005, property values "more than doubled" in the area between 2003 and 2011 (Meeks and Murphy, 2016). This rapidly changed the character of the mix of "working-class residents and light-industrial businesses" that used to call the neighborhood home, since "businesses that served the community for decades began to close up shop, and local residents were forced to relocate" in response to increased rents (Meeks and Murphy, 2016). Although the High Line itself did not push-out these communities, the use of preservation to create new open space encouraged development and triggered zoning changes that subsequently led to gentrification.

Meeks and Murphy use this example to warn that "[preservation] shouldn't be something that happens **to** communities" but rather happens **with** them: "Affordability, displacement, the rising cost of living, and loss of neighborhood identity are all issues that preservation and revitalization efforts must contend with and, if possible, work to mitigate" (Murphy and Meeks, 2016). Affordability is therefore a key component of economic sustainability. One way that preservation can support affordability is through adaptive reuse projects that convert "historic schools, warehouses, hotels, and other buildings to lofts, apartments, and homes" (Meeks and Murphy, 2016), this both limits excess demolition while responding to demand for affordable housing to prevent communities from being priced-out of walkable, transit-oriented downtowns.

Despite these opportunities, historic preservation and economic development are routinely pit against each other. This is very pronounced in Hong Kong where, because land is "sacred and expensive," the government needs to make a financial argument for giving-up development potential to protect heritage[4]. Between 2006 - 2007 in Hong Kong, a period of protests multiple urban renewal projects, particularly the Star Ferry Pier in Central, exposed the "public sentiment" on heritage issues. In response to these protests, the then-Chief Executive (i.e., the head of the Hong Kong government), declared that "We [Hong Kong] cannot afford heritage preservation if we do not preserve our economic sustainability" (South China Morning Post). His sentiment promoted the development tendencies of the 19 70s through the 1990s, which prioritized new construction over heritage protections, despite shifting public sentiment during the early 21st century. The 2006-2007 protests did, however, represent a turning point in cultural and built heritage protections in the city–corresponding with a renewed interest in creating a Hong Kong identity.

2.3.2 Social

The social pillar of sustainability focuses on the people-aspect of development, acknowledging that different communities will be impacted differently from the same potential contributions in a city. The importance of considering the social component of sustainable development is the capacity to redress systemic social harms and to make the invisible visible. Social justice is a critical component to sustainability, and sustainable communities are those that are safe, happy, and offer a sense of belonging. Cities are enriched through their diverse communities, residential and visitors alike.

The *Imagine Boston 2030* plan identifies inequalities across education attainment, homeownership, commute times, and access to healthy food and healthcare, which have corresponding impacts on health outcomes and wealth gaps along race and neighborhood lines. As a result, the citywide plan intends to "enhance neighborhoods, encourage a mixed-use core, support employment and housing growth, create a waterfront that sustains future generations, and concentrate investments to reduce disparities and expand opportunity" (Imagine Boston 2030). The equity focus in planning at large is well-aligned with theories of transport justice, which transit planning can deliver, and cultural cohesion, which historic preservation can deliver.

Karel Martens explains that a justice perspective on transportation planning "directs the attention to persons, as justice requires the fair treatment of persons, not of places" (2017). He explains that the justice lens is a natural extension of the accessibility, rather than mobility, goals of transit planning. This is because accessibility "stresses the ability of a person to act, which is in line with the basic emphasis on a person's agency as a basic component of virtually all philosophies of justice" (Martens, 2017). Transit, which is already more affordable than personal, private, transportation modes, enables more people to access more resources at one time.

[4] Lo, Christina. Virtual Interview, March 2023.

Historic preservation supports the social pillar of sustainable development by preserving neighborhoods, unearthing and unveiling multiple histories in shared spaces, and supporting cultural attachments. For the architects and engineers, renovating or retrofitting an existing building requires familiarizing oneself with the construction and design strategies used in the past, and in some cases learning about the history associated with the building, neighborhood, or region. Learning to renovate within parameters serves to preserve knowledge about historic structures, and requires a stronger connection to the local community. In fact, "[compared] with new construction, a larger proportion of a retrofit's budget often goes to local labor, creating more jobs with each dollar spent" (Myers, 2020). Meanwhile, "-investment in historic areas has been shown to be more lasting, creating local construction jobs and spurring the establishment of small businesses in traditional storefronts, which typically remain in business longer than stores in malls or other new commercial areas" (Page, 2016). Renovating over demolishing and building new supports a long-term sense of community that can be sustained from generation to generation, and signifies that architects and developers "aren't here to push anyone out" (Myers, 2020).

Both transit planning and historic preservation have the capacity to uplift marginalized communities, those disadvantaged due to systemic prejudices along cultural and ethnic/racial lines, age and ableist lines, and gender and sexuality lines, among others. The rise of diversity, equity, and inclusion (DEI) approaches to planning represent an overarching commitment to redressing historic harms.

One of the most obvious challenges (and opportunities) to making the invisible visible, due to legal and regulatory requirements, is disability inclusion. Public transport systems and historically protected sites in the United States are grappling with how to become more disability inclusive following the passage of the Americans for Disabilities Act (ADA) in 1990. ADA retrofits are often considered the bare minimum when it comes to inclusive design but can still be challenging to implement due to funding and space constraints for both transit agencies and preservation groups. Despite the availability of public grants to cover the cost of ADA upgrades, these projects typically move most quickly when required as part of discrimination lawsuit settlements. It is in the best interest of planners and preservationists to strategize how to finance these needed design changes to not just meet federal law but to ultimately maximize access to destinations (via public transport) and memories (via historic preservation) for both disabled and non-disabled communities.

2.3.3 Environmental

The environmental pillar of sustainable development typically refers to the policy and regulatory aspects of environmental protection, which focuses on addressing air and water pollution, solid waste management, ecosystem management, maintenance of biodiversity, and the protection of natural resources, wildlife and endangered species (UNEP). Public transit planning has a more direct impact on reducing air pollution, through providing an alternative to emissions-forward driving, while both transit planning and historic preservation have an indirect impact on the other environmental aspects through a shared dedication to reducing carbon emissions and slowing climate change effects. Historic preservation is further tied to environmental protections through its connection to nature conservation efforts since conservationists often use the same policy tools as historic preservationists. Both transit planning and historic preservation are also broadly associated with public health benefits, through encouraging walking and outdoor engagement.

Reducing Carbon Emissions

The amount of carbon dioxide in the atmosphere before the Industrial Revolution was 275 parts per million (ppm), by 1986 this reached 350 ppm. In May 2023, we reached 420 ppm. More carbon in the atmosphere means more heat is trapped on Earth, which warms the planet. The transportation and construction sectors are two of the largest contributors to global carbon emissions. Carbon dioxide needs to be reduced to at most 350 ppm to be considered a "safe concentration" in the atmosphere, and multiple solutions are required to decarbonize the global economy.

Public transport and historic preservation movements are connected to low carbon living. The transportation sector is the largest contributor to carbon pollution in the USA, largely due to privately-owned vehicles (often single occupancy vehicles) and trucking. In Massachusetts, which has a total population of about 7M people, the car ownership rate is 747 vehicles per 1000 residents, compared to the 62 vehicles per 1000 residents in Hong Kong, a city of 7.4M people. The comparatively low rate of car ownership in Hong Kong is due in part to high costs of car ownership while the mountainous geography also makes it "challenging to supply additional road capacity in built-up areas" (Suzuki et al., 2015). Reducing vehicle miles traveled (VMT) is critical for reducing carbon emissions and greenhouse gasses (GHG), which public transit systems enable. Public transport systems support significantly lower carbon emissions per capita compared to private transport, and in far less space. Metro Boston's transit system, the "T", is the largest American transit agency to use electricity that is 100% produced from renewable sources, primarily wind and solar (MBTA, 2021). This makes public

transit systems more efficient from a carbon and spatial perspective. The latter has positive impacts on land use, which results in denser development and greater accessibility to destinations and within communities–reinforcing the economic and social pillars of sustainable development.

Preservationists prioritize maintaining and renovating existing buildings. Doing so is a more sustainable strategy than building new because it is an inherently less carbon-intensive process, it decreases the rate at which developers or architects would seek to build on undeveloped parcels, and it reduces reliance on supply chains. Buildings contribute to nearly forty percent of the world's carbon emissions, and at the current rate of development, the "world is on schedule to double its building stock by 2060" (Myers, 2020). Slowing this pace will be critical to slowing the damaging effects of climate change, and this can be achieved by prioritizing net zero renovation projects of existing buildings. Renovating and reusing "the biggest parts of existing buildings—typically the structure and foundation— [can lead to saving] 50 percent of... carbon on a project right off the bat" says architect Larry Strain (Myers, 2020). This is because all the carbon that would ordinarily be emitted through sourcing, fabricating, transporting, and constructing the "biggest parts" of a building would not occur. For landmark buildings and other historically significant sites, it is important to work with historic commissions, occupants, and architects/planners to support renovation projects that help meet net zero goals. In addition, "it is about how the buildings are sited and oriented to take advantage of sun and shade" (Meeks and Murphy, 2016). Older buildings, particularly those built before the mid-20th century, were designed to support passive heating and cooling through massing, orientation, and materials. These considerations are not considered as critically for contemporary structures given the relatively low cost of meeting building energy demands.

Choosing to preserve and to renovate enables architects and owners to reduce their reliance on global supply chains for construction materials. As the COVID-19 pandemic has demonstrated, public health disasters make supply chains unreliable. Opting to renovate means that designers can "buy locally while improving sustainability and creating equity through community investment" (Myers, 2020). Older buildings, which are likely to have been constructed from materials sourced from shorter distances than more contemporary buildings, are ideal candidates for preservation through local materials, knowledge, and labor.

Encouraging renovation over building new also serves to reduce the rate at which developers build on new or undeveloped land parcels. This is important for slowing sprawl-like development patterns that encourage high carbon mobility. James Fitch acknowledges that "it may often be more expensive to modernize an individual building than to construct the same cubage on raw land," but critiques the conventional economic argument used to "justify the decision to abandon the central city" by pointing out that such cost estimates do not consider the cost of "life-support systems, the infrastructure of institutions, services, and utilities" (1982). These other "hidden costs" may not translate to dollars spent by the developer but heavily impacts municipal or regional expenditures and produces significant carbon emissions. These carbon emissions would be associated with constructing "new highways, streets, sidewalks, street lighting, sewer and water systems" as well as with public service buildings like hospitals and schools (Fitch, 1982) that may only be reachable via carbon-emitting cars and buses. LEED, BREEAM or other 'sustainability checklists' do not account for these factors holistically. Nearly thirty-five years later, Meeks and Murphy concur that the "inherent sustainability of the older fabric" is "also about how older neighborhoods tend to be more walkable and transit-oriented, and more likely to facilitate mixed-use functions. When people talk about smart growth today, what they often mean is a return to the dense, multiuse, mass transit-oriented urban layout of the city before automobiles" (Meeks and Murphy, 2016).

It is important to reconcile preservation with Transit Oriented Development (TOD) approaches, which tends to introduce new development to accompany transit improvements and expansion.

Climate Change Resiliency

Historic sites in coastal cities are at particular risk to climate change effects on sea level and flooding. A 2014 report by the Union of Concerned Scientists (UCS) identifies several national landmarks at serious risk of destruction due to rising seas, floods, and wildfires. They specifically describe how "cherished landmarks and historic districts" located within the 100-year tidal flood zone are vulnerable to "rising seas and worsening storm surges" (Holz et al., 2014). These landmarks include Faneuil Hall, the Ebeneezer Hancock House, and the Union Oyster House, the latter two of which are located in the historic Blackstone Block. The authors note that extreme high tides–more than three and a half feet over the average high tide–have occurred 20 times in the last one hundred years, with half taking place in the past ten years alone (Holz et al., 2014). These "exceptionally" high tides flood the historic Long and Central wharves, as well as the Historic Fort Point Channel District, and the Organization for Economic Cooperation and Development (OECD) has estimated $237

million in economic losses per year between 2014 and 2050 due to coastal flooding. Hong Kong is also no stranger to rising seas, with the mean sea level at Victoria Harbor rising at an estimated rate of 32mm per decade between 1954 and 2022 (Wong et al., 2003).

Nature Conservation

In Hong Kong, nature conservation efforts are considered the forebearer to cultural conservation, with multiple instances of "accidental" preservation of ancient villages in the New Territories occurring due to their being surrounded by significant conservation land, and because challenging terrain prevents development and infrastructure expansion[5]. One of these places is Lai Chi Wo Village, which is located near the Shenzhen border towards the north of Hong Kong. Lai Chi Wo is an indigenous Hakka Village with a history of at least 200 years, with about 50 households historically. Residents were mostly farmers who eventually abandoned the village as Hong Kong shifted from a primary industry to a secondary industry (light industrial) territory. The remaining structures were unintentionally "preserved" because of the lack of "economic viability of redevelopment" and because it is hard to reach. The village can only be accessed via a 1.5-hour ferry ride from another city, or via a 2.5-hour hike from the closest land border. Fifteen years ago, community advocates proposed that the village be renovated and intentionally preserved "in line with sustainable planning initiatives," receiving support from the Hong Kong sustainability office. These efforts have since been recognized by UNESCO[6]. Associating nature conservation with defacto historic preservation due to a lack of development interest has been well-documented, but this may change as "road to rail connections have…recently been improved to permit easy commuting from the New Territories into the commercial areas" (Gallagher, 2021). These infrastructure advances mean that previously undisturbed (or minimally disturbed) natural areas and indigenous villages are now candidates for redevelopment and likely heritage loss.

In the United States, which was "the first country in the world to set aside lands for conservation," the environmental and historic preservation movements have "evolved along separate paths." As such, "conservationists have often focused on landscapes, natural systems, and biological units, and preservationists on human impacts, culture, and history" (Meeks and Murphy, 2016) despite sharing a general dedication to protecting cultural heritage–natural and built–and environmental sustainability.

2.3.4 Governing Sustainability: Public vs. Private Interests

Issues of gentrification, inequitable transit access, and a lack of care for collective memory–that have resulted in-part from TOD and historic preservation tax credit initiatives–indicate a misalignment between public and private interests, and an essential inadequacy of public sector collaboration. Enabling collaboration between transit planning and historic preservation would bolster the public mission of fostering legible, memorable, and accessible cities, and encourage private interests to align with this mission. Emphasizing the role of historic preservation within transportation planning creates the opportunity to advance the "urban regime" (Dodson, 2016) of systemic accessibility, shifting the expectation that transport infrastructure should deliver public rather than private gains –particularly in the United States. This inevitably means greater investment in public transit infrastructure and services, with historic preservation efforts offering an alternative to the dominant "settler nature" (Dodson et al., 2016) of transport policy today.

To encourage this shift, governance structures must prioritize public interests while balancing against private interests through regulation and policy. Both transit planning and historic preservation are highly regulated due to their overlapping interests with private developers and landlords, and because both are typically recipients of public funding.

In this chapter, I have demonstrated how transit planning and historic preservation share overlapping goals to create legible, memorable, and accessible cities which serve the public interest. I argue that by intentionally aligning the processes of transit planning and historic preservation, cities can better achieve sustainable development. The following chapter focuses on the dynamics of transit planning and historic preservation in Boston and Hong Kong, using examples to illustrate varied successes and limitations in advancing sustainable development.

[5] Chan, Roger. Interview, January 2023.
[6] Chan, Roger. Interview, January 2023.

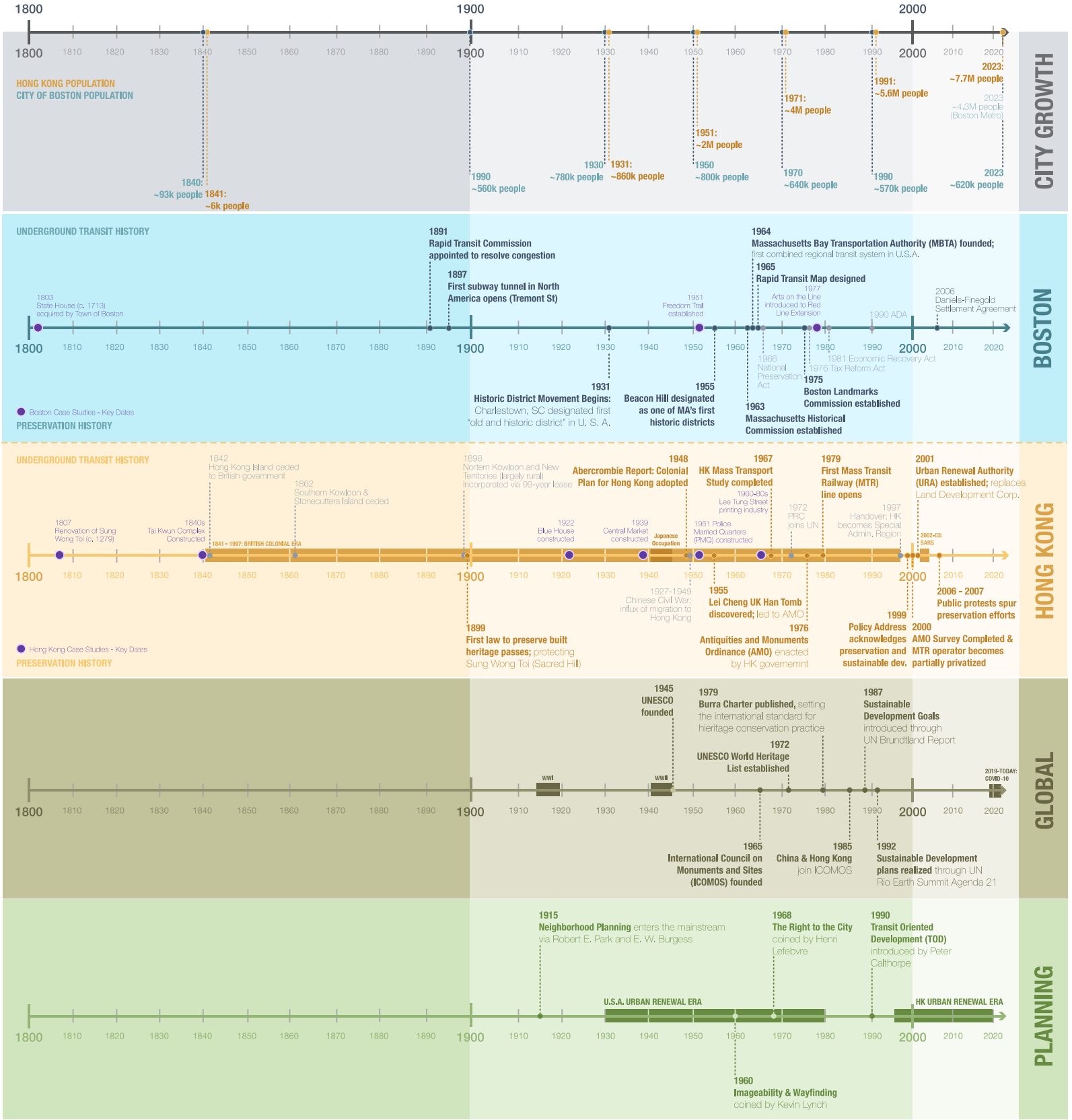

Figure 5: Key dates from public transit planning and historic preservation moments across the two case study cities, Hong Kong and Boston, contextualized against local, regional, and global influencing factors in the 19th and 20th centuries. Purple dots indicate project examples referenced throughout Ch apter 3.

Chapter 3: Case Study Findings

In this chapter I illustrate the current dynamic between historic preservation and transit planning in Boston and Hong Kong to reveal how varied collaborative arrangements result in varied impacts on each city's memorability, legibility, and accessibility. Using three examples from each city, I demonstrate how limited collaboration between transit planners and preservationists results in limited (or negative) contributions to a city's memorability, legibility, and accessibility. Moreover, limited collaboration tends to result in overemphasizing one of the three pillars of sustainable development due to the intentions and capacities of separated bureaucracies. Meanwhile, explicit collaboration can result in bolstering memorability, legibility, and accessibility but these collaborative endeavors are generally tenuous because they are not institutionalized. I begin each set of case study findings by describing the primary actors and agendas of subway planners and historic preservationists at-large, before shifting into the three examples. The three examples for Boston include: The Freedom Trail, the Arts on the Line program, and the Old State House/State Station. The three examples for Hong Kong include: Three cultural sites near Central Station, the impacts of community advocacy on two projects near Wan Chai Station, and Sung Wong Toi Station and neighborhood.

3.1 City of Boston

3.1.1 Subway Planning in Boston

The primary public agencies that contend with transportation planning in Boston are the MBTA and the Boston Public Works Department (PWD). The MBTA was established in 1964, replacing the Metropolitan Transit Authority (MTA) that was created in 1947 to consolidate a number of independently owned and operated public transport agencies. The MBTA became a division of the Massachusetts Department of Transportation (MassDOT) in 2009 and primarily funds capital projects through federal grants and revenue bonds. The MBTA oversees the subway system, also known as rapid transit, a bus network, commuter rail network, and ferry network across 177 municipalities.

The subway system is comprised of four lines: Green, Orange, Red, and Blue. These colors were assigned during a rebranding process led by the MBTA in 1965, shortly after becoming the state's public transportation agency. Subway expansion in the Boston metro area is very rare. When the Green Line Extension (GLX) opened in 2022 and 2023, expanding service into Somerville and Medford, this project marked the first-time subway or "rapid transit" had been extended since 1987 – when the Orange Line opened in Boston. Today, the MBTA Wayfinding and Design group is responsible for implementing signage and wayfinding standards throughout the system, while third party architects and consultants take-on architectural design for individual stations and occasionally redesign the systems' wayfinding strategy, as was done in 2015. A recent change to the wayfinding system was the elimination of the terms "inbound" and "outbound" with reference to train direction. Current signage principles include: "Correct," "Clear," and "Consistent."

The Public Works Department "provides core basic services essential to neighborhood quality of life" (City of Boston), which includes maintenance of all roadways, sidewalks, and bridges. Sidewalk maintenance not only references the sidewalk material itself, but also streetlights and waste removal services. The MBTA and Public Works Department work together to identify "accessible paths of travel"[7] when station entrances are added or renovated, since pedestrian traffic must seamlessly move between the street and the station. Both groups must also comply with and progress disability access requirements, with the MBTA's efforts led by the Department of System-Wide Accessibility (SWA). The SWA emerged out of the Daniels-Finegold v. MBTA Settlement Agreement, which is dedicated to making the MBTA a "model transit system accessible to all… [granting] the right to and ability to use public transportation in an equal, effective, and dignified manner" (MBTA, 2007).

3.1.2 Historic Preservation in Boston

Boston has over 8,000 properties located within the city's ten historic districts or designated as individual Boston landmarks (buildings, structures, sites). Fifty-seven of these districts and properties are also listed as national historic landmarks, with Boston home to more National Historic Landmarks per square mile than any other major city in the US. Properties within Local Historic Districts and National Register Districts are automatically included in the State Register of Historic Places.

[7] MBTA Wayfinding and Design, Virtual Interview, April 2023.

The primary actors in the historic preservation space include the city's Office of Historic Preservation (OHP), which includes the Boston Landmarks Commission, the City Archeology Program, and Commemoration Commission, the state-level Massachusetts Historical Commission (MHC), and a series of non-profit organizations such as the Boston Preservation Alliance and Dorchester Historic Society. The Office of Historic Preservation specifically references the three pillars of sustainable development on their website, claiming that their "teams raise awareness about environmental, social, and economic benefits of Boston's historic resources" in addition to raising awareness about "the stories that can be told through cultural resources." Moreover, the OHP promotes "the benefits of adaptive reuse of historic buildings and materials...[fostering] economic development and cultural diversity by protecting and advocating for Boston's unique sense of place" (City of Boston). The sustainable development agenda progresses alongside other departments within the Environment, Energy, and Open Space Cabinet, which is the umbrella organization for the OHP. Other initiatives include reducing energy use in municipal buildings, prompting waste reduction, and expanding the street tree network as part of the Renew Boston and Greenovate Boston plans. Unlike in Hong Kong, the OHP is not housed within the same municipal organization as the city's planning and development office, the Boston Planning and Development Authority (BPDA). Despite this, the OHP routinely collaborates with the BPDA's urban designers given a shared mission around good urban design. As Senior Preservation Planner Nicholas Armata explains, "preservation is, at the end of the day, an urban design issue".[8]

Boston's cultural resources are designated Landmark status across four categories: individual landmark, landmark district, architectural conservation district, and protection area (City of Boston). Once designated, Landmark status protects a historic resource from physical changes that might "compromise its integrity". Any proposed changes, interior or exterior, to properties within Local Historic Districts are reviewed and approved (or rejected) through the design review process (City of Boston). The MHC is the state's regulatory authority on historic preservation, including administering the historic preservation component of environmental impact reviews (EIR), but has no legal purview over landmarked properties. The Landmarks Commission typically collaborates with the MHC to confirm analysis or participate in the EIR process. Ultimately, "the strongest form of protection [in Massachusetts] is a local historic district created through a local bylaw or ordinance" (MHC, 2021) and not any other agency. This differs from Hong Kong, which neither accounts for historic structures at the district scale nor offers any legal protections of historic places (even if designated historically significant).

Since the founding of the Boston Landmarks Commission, there has been no update to the Commission's enabling legislation to allow for the preservation of a more diverse set of buildings, despite recognition by the historic preservation community of the need for a more inclusive process with more robust public input and greater regard for local community history[9]. Despite this, the Landmarks Commission has started to incorporate "multiple storylines of a place," in order to place "equal emphasis" on the histories of underrepresented communities in Boston.[10] Currently, the Landmarks Commission is in the process of designating the Mattapan Rhyolite Quarry an Individual Landmark. The quarry, which formed more than 600 million years ago, is an important site for the Massachuset tribe for its role as the "source of an ancient volcanic stone prized for its banded maroon color and ideal qualities for making stone tools" (WBUR, 2021) since as early as 7,500 years ago. The petition to landmark the quarry was brought by the descendants of the Sachem Chickataubut band of the Massachusetts at Neponset in partnership with city archeologists and the city's Department of Neighborhood Development (DND). If approved as a landmark and designated as an urban wild, the city and the tribe would execute a memorandum of understanding whereby the tribe would maintain the site, hold private tribal activities, and lead any public programming. Armata described the quarry as a "new kind of landmark" for the City, a landmark that is "naturally in flux, dynamic, [and] changing" while also obviously acknowledging indigenous history and continued stewardship of a cultural asset[11].

3.1.3 Downtown Boston: The MBTA Network and the Freedom Trail

Boston, particularly downtown Boston, has crafted an historic identity around a colonial legacy that is still visible through its street grid, architecture, and later-built monuments of figures from the Revolutionary War. Meanwhile, the city is home to the oldest public underground rail network (i.e., subway; the "T") in the United States still in use, with the first station opening on Tremont Street – steps away from these historic sites. The Tremont Street subway tunnel, on the Green Line, has been designated a National Historic Landmark as the oldest subway in North America. Many of these historic sites, despite their close proximity to one another, can be challenging to access due to the confusing street grid downtown. To address the need "for a clearer and more concise wayfinding tool,"

[8] Armata, Nicholas (Senior Planner, Boston Landmarks Commission, City of Boston) in discussion with the author, Boston, April 2023.

[9] Armata, Nicholas. Virtual Interview, April 2023.

[10] Armata, Nicholas. Virtual Interview, April 2023.

[11] Armata, Nicholas. Virtual Interview, April 2023.

two Boston residents, Bill Schofield and Bob Winn, proposed a route connecting these sites that locals and visitors could follow. Then Boston Mayor Hynes agreed, and dedicated the Freedom Trail in 1951. The Trail started as a series of signs before being permanently depicted as a red line of brick in 1958. Local philanthropist Dick Berenson suggested the line and created the coalition of private and public sector groups that guide the Freedom Trail today. The Trail was extended through Charlestown in 1972 and is now 2.5mi long. The Freedom Trail has since inspired the Black Heritage Trail, a 1 1.6mi path through Beacon Hill connecting sites that are significant to Boston's Black History. The Black Heritage Trail represents a shift towards expanding whose histories get to be remembered and commemorated; an initiative by the National Parks Service and City to diversify and share Boston stories. So far, metal placards on buildings indicate historic status while an online map depicts the "trail" between these sites.

The Freedom Trail is an example of how an historic preservation agenda can propose changes to public infrastructure to explicitly enhance the city's memorability, legibility, and accessibility. The accessibility link is clear, the Freedom Trail provides an obvious visual and tactile path to lead visitors between historic sites and through an historic district on foot and via mobility aid. The Trail runs along sidewalks that lead to station entrances for multiple subway lines (particularly Park Street, State Street, and Haymarket), indicating an expectation that individuals would begin or end their journeys by getting on the train. Neighborhood maps within these stations, however, do not depict the Freedom Trail even if several nearby historic sites are included. The Freedom Trail is, by now, synonymous with the downtown Boston experience, contributing to the city's reputation and therefore memorability. The use of brick and granite edging to indicate the Trail, instead of painted concrete or other materials, is a reference to historic building materials that the downtown district is known for. Bolstering city legibility is somewhat successful, since the Freedom Trail imbues a sense of trust in navigating the downtown, but is also somewhat limited by a lack of design intention around the "start" and "end" of the route, while stops along the route do not convey their position or place along the Trail that would suggest how much further there is to go–such as through indicating distances from other historic destinations or subway stations. As such, the Freedom Trail does not support a broader neighborhood-scale understanding of city legibility.

The Freedom Trail supports the three pillars of sustainable development by making it easier for locals and visitors to explore downtown, supporting local businesses (economic), connecting with historic narratives (social), and navigating sites on-foot (environmental). Although many of the historic properties have landmark status, meaning they are legally protected from physical changes that would compromise integrity, the downtown neighborhood itself is not designated a Landmark District. This gives the city flexibility to develop in a high-value part of the city as needed, and enable constant activity –an approach that suggests city pressures to prioritize the economic pillar of sustainable development over the others.

3.1.4 Arts on the Line

The MBTA was the first in the United States to introduce a public art program to its subway system. Arts on the Line was created in 1978 with support from the Cambridge Arts Council and federal funding. The Arts on the Line program was composed of twenty artists chosen through a series of competitions and proposals to design artworks for four new subway stations along the red line: Harvard, Porter, Davis and Alewife. These stations, each designed by a separate architecture firm, had to embody a distinct identity while still connecting back to the existing Red Line and to Cambridge itself. The program asked that selected artists consider the aesthetics of the subway station itself as well as the aesthetic experience of travel when creating artworks for the red line, ultimately hoping to foster a sense of attachment between the traveler, the subway, and the origin or destination neighborhoods.

The Cambridge Arts Council applied for and received grant funding from the Urban Mass Transportation Administration for Arts on the Line, justifying that the presence of installed artworks would reduce the likelihood of vandalism. This, as artist Joyce Kozloff confirmed with her piece at Harvard square station, turned out to be true. Ultimately, one percent of all construction costs were allocated to the twenty public artworks installed across the four stations, and Boston set the model for subsequent public art programs in transit systems across the United States including in New York City, Philadelphia, and Miami.

Arts on the Line was implemented to facilitate a more positive attitude towards public transit, a task that the MBTA is committed to by stating that "art and design" will "strengthen the places of transit in the community" (MBTA). Arts on the Line and the MBTA's subsequent public art projects serve to enhance the user-experience of their environment, from involving the community in the artist selection process, to the regional content incorporated into final designs, to the overall goal of aestheticizing a public space for community engagement. As members of the MBTA Wayfinding team claim, "humanizing the environment" through designing pleasant

spaces and clear signage is key to "[creating] transportation advocates," which is their ultimate goal.[12] This can only be achieved by shifting away from an exclusive focus on the subway's role as infrastructure and instead considering the passenger experience–which public art has been demonstrated to improve.

Forty plus years after Arts on the Line, the Green Line Extension's (GLX) Integrated Art Program was canceled citing the agency's drastically over-budget plans for the entire project. This occurred despite internal support from the MBTA and a local community desire for public art. The cancellation has been linked to the ideals of Charlie Baker's administration, as the former governor vetoed the Massachusetts Percent for Art program, first proposed by Governor Deval Patrick, which would have allocated 0.5 percent of construction costs from state-owned property for public art (Malcolm, 2015). The Boston Globe reported that according to an MBTA spokesman, the Baker administration had "inherited cost overruns," that make eliminating art an "unpleasant" if "physically prudent" move (Dungca, 2015). This is supported by an email sent to the artists from Lackner herself, who cited the "governor's priorities," (Dungca, 2015) as a reason for the cancelation, while artist Randal Thurston suspected that the governor considers art a private sector good[13]. The lack of political support is in stark contrast to what Arts on the Line received last century, when Joan "Joan of Art" Mondale, wife of the then-vice president, enthusiastically advocated for the project, even attending the opening of Arts on the Line in 1985. Ironically, the Boston Globe publicly endorsed Baker for governor in 2014, specifically referencing "new funds for transportation," and "consolidating advances made during the administration of Deval Patrick," neither of which have been upheld in light of the GLX integrated art program cancellation.

For the MBTA, public art programs are considered separate from historic interpretive panels even if both contribute to placemaking. When asked about the historic interpretive panels along the existing Green Line, Lackner describes them as "not art," and "absolutely separate" from the public arts programs implemented throughout the MBTA's subway system, with some even required by law. The MBTA website separates the two forms of installation by categorizing the panels under "Historic Preservation," a branch of Sustainability, with the public art programs listed under Art. This aligns with the current organizational structure of the mayor's office, with the Office of Historic Preservation housed within the Environment, Energy, and Open Space Cabinet while Public Art is housed under the Arts and Culture Cabinet. The MBTA's interpretive historic panels are often required by law as part of environmental impact mitigation.

The Arts on the Line program, and subsequent public art initiatives by the MBTA, supports city legibility, memorability, and accessibility through referencing neighborhood histories and cultural elements within specific station artworks. These artworks are unique to each station, contributing to their identities, and also unique to the communities referenced, contributing to a collective memory that varies across neighborhoods. Public artwork has a lesser role in facilitating physical accessibility, but does facilitate historical and cultural accessibility. Public art programs improve passenger experience within transit stations, which is conducive with sustainable development goals (particularly social and environmental) because better experiences mean greater likelihood of using the system.

3.1.5 Old State House / State Street MBTA Station

According to architectural historian Max Page, Boston is one of the few cities in the United States where "preservation regulations have the power to stop buildings from being altered or destroyed" unlike in most other parts of the country, where "preservation is little more than a work of valorization, not regulation" (2016). This was not always the case. Preservation regulations in the mid-20th century only emerged following both the advent of urban renewal as well as the first underground public transport infrastructure in the city. Urban renewal policies in Boston saw the eradication of narrow streets and smaller to mid-scale buildings to realize large, tall blocks and multi-lane highways that displaced longtime and immigrant communities downtown. Private vehicle infrastructure in downtown Boston creates obvious barriers to visiting historic sites safely, with several multi-lane streets and an interstate highway, I-93, dividing downtown neighborhoods. Public transport and historic preservation come together in the Old State House, which is listed on the National Register of Historic Places (NRHP) but also functions daily as a headhouse for the MBTA State Street Station. The Old State House gained its identity as a subway head house between the years 1904 and 1908, when it became the terminus station of two subterranean streetcar lines that would later become part of the Blue and Orange subway lines.

[12] Lackner, Marggie, Alice Molari, and Birgit Wurster (Wayfinding and Design, MBTA) in discussion with the author, April 2023

[13] Thurston, Randal. Telephone interview, December 2015

The Old State House has national and local historic importance, perhaps most famously as a site captured in colonial engravings by Paul Revere and the location of the Boston massacre in 1770. It stood at the top of King Street (now State Street), a major colonial era thoroughfare leading to the Long Wharf, an important point of entry and departure for commercial and other activities vital to the economic survival of the city. The building has evolved over the years, with multiple structures burning down at the current site to later be rebuilt or renovated in a different style. The current version represents the "pre-Revolutionary condition" of the Old State House, which resembles the 1712-13 version of the building. This version is based upon a set of plans discovered by preservation group the Bostonian Society in 1881-82, who directed its renovation after pushing-back on the city council's request to demolish the then-dilapidated building. At this point, the Old State House had been rented-out to multiple commercial tenants for seventy years, from 1803 until 1880, with a ten-year stint as Boston's City Hall (1830 – 1840). This legacy as a commercial building likely set a precedent for use of the historic site as a subway station entrance in 1904, at a time when the transit system was privately operated.

Old photos and prints of the building reveal how the Old State House used to be a focal point within the downtown, its tower emerging higher than the rooflines of any surrounding building. This element of grandeur has been lost with the redevelopment of surrounding sites, some of which were realized during the urban renewal era and shortly thereafter, resulting in tall office buildings of mixed materials that dwarf the Old State House today.

The Old State House does not obviously present itself as a transit station. The subway entrances are generally subtle portals into the building that are less ornate than the actual Old State House entrances and window frames. The latter are highlighted in cream-colored outlines that contrast with the dark red brick. The swinging doors that are typical of a transit station are recessed into the brick façade, making them less visible than the historic front, back, and side doors into the Old State House. The portals, technically located at the building's basement level but considered ground-level given the slope of the street, are also often not visible when viewed from further distances because they are concealed by flowing vehicular traffic along adjacent streets. Moreover, the subway entrances are not branded with the MBTA's signature "T" logo, nor are they adorned with signage to identify the station name and line colors – which are visible at other subway entrances to the same station located in other areas. The most recent renovation to the Old State House appears to have opted to protect the visual integrity of the Old State House as an historic Georgian building rather than maximize legibility of the subway station. This aligns with the description of the Old State House in a bid to have the building listed as part of the NRHP, which describes how "the subway station located beneath the eastern portion of the Old State House... does not contribute to the national significance of the landmark" (1975).

Once inside the State Street subway entry area, there is little visual recognition that the space is the lower level of an historic building. The only key elements would be the use of brick in the walls and on the floor, which are in the same tone as the bricks of the Old State House façade, but all other details – from the ceiling panels to the turnstiles to the map – are typical of the MBTA's other stations. The map, which depicts the location of the subway lines, nearby stations, and labels some key sites, does not include the Freedom Trail. This is a missed opportunity for blending the wayfinding goals of transportation planners and preservationists, since the Old State House is one of the markers along that trail. The Freedom Trail, characterized as a double line of red bricks inlaid on the sidewalk, is visible just beyond the subway entrances.

Despite sharing space, the Old State House's historic mission and renovation strategies do not appear to consider the presence of the State Street Station and vice versa. There are limited design choices that indicate accommodation of large and small groups navigating through this station, or to and from the historic section of the building, and no documentation of strategies that would seemingly benefit both interests in sustainable development. In particular: wayfinding and placemaking, disability accommodations, and low carbon goals. This is likely due to the challenges of cross-agency and public-private collaboration. The MBTA, the City of Boston PWD, and the preservation group that cares for the Old State House among other sites, operate at completely different scales, finance their projects through different means, and are not accountable to the public in the same way. There is a significant opportunity in creating new structures and policies that would enable these groups to collaborate, which would then better contribute to city legibility, memorability, and accessibility.

3.2 Hong Kong

3.2.1 Subway Planning in Hong Kong

Hong Kong, a Special Administrative Region of the People's Republic of China, has a more recent history of municipal planning than the City of Boston. Governed as a British colony between 1841 and 1997, the first town planning board and ordinance was established in 1939 to "promote the health, safety, convenience and general welfare of the community." It wasn't until 1948 that the territory released its first strategic plan, which was created to support and guide development after World War II, with a 50-year time horizon, and called for significant land use and infrastructure investments to support population growth. These investments included a cross-harbor tunnel, land reclamations via harbor infill, railway relocations, removal of military establishments, creation of industrial and residential zones and development of new towns in the rural New Territories (Lai, 1999) that were all largely underway by 1957. The Abercrombie Report, as it is commonly known, set the stage for the dense urban development, an extensive subway network, reclaimed land, and protected natural areas that the city is known for today.

The MTR was established in 1975 as a government-owned enterprise to build, operate, and maintain mass transit for HK along "prudent commercial principles" (Suzuki et al., 2015). The first subway line opened in 1979. In 2000, approximately 23% of shares were offered to private investors on the HK Stock Exchange that has led to a "strong market discipline." Today, the vast majority of transport systems are privately operated, including the ferries, buses, taxis, trams, and subway system, excepting select rail lines. The government oversees coordination efforts between the operators, and is a majority stakeholder in the MTR. Given Hong Kong's urban density and 7.4M population, the transport network needs to be highly efficient and compact. As a result, the rail network more or less must serve as the backbone of the transportation network, with additional systems (listed above) supplementing this system to meet last-mile distances and to serve less densely populated areas.[14]

The Hong Kong MTR is the only subway system that not only covers its operating costs through transit service alone (i.e., through fare collection), but also makes a profit through its transit-oriented development patterns and value capture. The latter is led by the Rail Plus Property (R+P) program, which "applies the value capture mechanism to recoup the cost of transit investment, operation, and maintenance, using development rights of publicly owned land and leasing some sights…granted by the government, working with private developers" (Suzuki et al., 2015). The MTR administers R+P as the "master planner and designer" to align the interests of multiple stakeholders in different project phases (Suzuki et al., 2015). This makes the Hong Kong MTR uniquely poised to direct and leverage urban growth patterns. As retail design and planning manager Steven Chan makes clear, the MTR's capacity to draw and support future patronage is the basis for its success. Transit systems are designed to meet the travel demands of local residents, not of visiting tourists. Considering or incorporating historic preservation agendas is not a strong motivating factor for the MTR. If the city invests in neighborhoods (which may be historic) through commercial and residential development, then the MTR will respond by delivering transit service. The agency prides itself on its responsible business model of simultaneously serving customers and making a profit, through strong partnerships with the government and commercial entities.[15]

3.2.2 Historic Preservation in Hong Kong

Historic preservation is generally guided by the Antiquities and Monuments Ordinance, which was established in 1976–one year after the MTR was created but three years before the first subway line opened. Although created under the British colonial government, which held authority in the region until 1997, Steven Gallagher writes that protecting built heritage was "not a major concern" for the colonial government and that they "intended the legislation to permit development and [remove] heritage" (Gallagher, 2021). This is because the government was "particularly concerned about affecting property rights and potential development profits" and generally "refused to exercise its power under the Ordinance to declare monuments for a number of high profile buildings" (Gallagher, 2021). However, even if they did so, the Antiquities and Monuments Office (AMO) does not hold legal authority over any declared monuments or designated heritage structures. Gallagher notes that historic preservation was not a major concern for the post-handover administration either, who were attempting to distance Hong Kong from its colonial past through urban development (2021).

Today, Hong Kong is home to both publicly and privately-owned historic buildings, which are graded on a scale of heritage value across four categories. The strictest level of protections is assigned to the first category, Declared Monuments, which are theoretically protected

[14] Chan, Steven (Design Manager, Retail Design and Planning, MTR) in discussion with the author, Hong Kong, Hong Kong SAR, January 2023.

[15] Chan, Steven. Interview, January 2023.

under the Antiquities and Monuments Ordinance (AMO). The declaration of a proposed monument is also used as an emergency measure to protect a site while deliberations are made about its future, giving the government time to negotiate with the owner of the built heritage. The following three categories of heritage value are advisory-only, and are assigned on a scale of sensitivity to alteration and recommended effort to preserve. Grade 1 buildings are those of "outstanding merit," Grade 2 of "special merit," and Grade 3 of "some merit." Grading criteria includes: "rarity, authenticity, social value, local interest, and group value" (AAB, 2014). Historic structures are graded because of their "important place in the life of Hong Kong, [not only] because of their function and design, but also because of their historical and/or social value, including celebration in local film or literature" (Gallagher, 2021). As of 2021, there are 126 Declared Monuments in Hong Kong, and 1013 historic buildings assigned grade status (Gallagher, 2021): 173 buildings with Grade 1 status; (b) 338 buildings with Grade 2 status; and (c) 502 buildings with Grade 3 status. The primary criticism of the grading system is that it is purely advisory; nothing is legally protected. Historic districts are also not included as part of the historic grading system, and very few exterior or landscape elements are included.

The most common pressures against historic sites in Hong Kong include environmental vulnerability, demand for developable land, removal on the basis of a colonial past, and uneven approaches to public versus privately-owned historic buildings. The following examples focus on three MTR stations: Central, Wan Chai, and Sung Wong Toi, and how their corresponding neighborhood development patterns have engaged historic preservation issues.

3.2.3 Central: TOD and Commercialization of Historic Sites

The Central Neighborhood of Hong Kong Island is a densely populated, highly-frequented area of the city–rife with commercial activity, residential enclaves, and layers of historic landscapes and structures. A series of elevated footbridges and exterior escalators help pedestrians navigate topographical change and connect from buildings to the network of MTR subway lines, light rail lines, tram lines, bus lines, and ferry terminals that directly connect to the Central MTR station. Amidst this dynamism are a trio of historic sites that the Urban Redevelopment Authority (URA) has led renovation efforts over the past two decades. These include: the Tai Kwun Complex (constructed 1840s), the Central Market (constructed 1939), and the Police Married Quarters (PMQ, constructed 1951). These three sites, from different architectural eras, with different building programs, and different levels of public access (historically), are now public-facing commercial spaces with incorporated elements of art and culture. Although each project had originally been identified for renovation individually, resulting in disconnected heritage sites despite being physically proximate,[16] current thinking is focused on enhancing the "three-dimensional interconnectivity" of the Central neighborhood.[17] All three sites are destinations on the AMO's Central and Western Heritage Trail.

Tai Kwun Central Police Station Complex

The Tai Kwun Complex comprises three groups of neoclassical buildings that make-up a former police station, the former Central Magistracy, and Victoria Prison. The different buildings were constructed in 1840 and reconstructed in the 1860s. The prison operated from 1860 until 2006. The Complex is considered significant for "being the site of notable historic events" including the six-month jail term of Vietnamese revolutionary Ho Chi Minh in 1931, the Japanese military torture practices during World War II, and as a control room during the 1967 anti-government riots (Gallagher, 2021). In 2007, renovation efforts were announced, leveraging a public-private partnership between the URA and the Jockey Club with Antiquities Advisory Board oversight. The HK$1.8 billion revitalization project began in 2011 and partially opened in 2018 as an arts and heritage center. At that point, the project was critiqued for insufficient consideration for crowded roads and walkways in an already densely developed and overcrowded area of the city. In 2019, however, the project received a UNESCO Award of Excellence. The revitalization effort focused largely on introducing revenue-generating elements, such as multiple restaurants and bars, with the prison functioning as an Alcatraz-like museum, and a new art museum constructed within the complex. This effort was considered a successful partnership and positive example of heritage protection.

Central Market Building

The Central Market Building, constructed in 1939 in a Bauhaus style, opened and functioned as a wet market until 2003 before closing to the public due to disrepair. The current building had been the site of a public market since the 1850s, with at least two prior rebuilds before the current building was constructed. In 2003, the URA announced plans to redevelop and in 2017, revitalized the project under the guise of historic preservation for $470M HKD. A local advocacy group, the Central Market Concern Group, critiqued the URA for

[16] Lo, Christina. Virtual Interview, March 2023.

[17] Chan, Roger. Interview, January 2023.

a lack of transparency when redeveloping the building. Today, the Central Market is still a "market" of stalls and higher-end products, with a food court on the lower level, while events are programmed for the central courtyard. Central Market is connected to the network of elevated pedestrian walkways, and is the 'easiest' historic site to reach of the three discussed because of its lower elevation. The MTR Corporation played a significant role in identifying private developer partners to help revitalize the building.

Police Married Quarters (PMQ)

PMQ opened in 1951 on the site of a former college, the first public school for upper primary and secondary students, which was destroyed during World War II. The building operated as a policy dormitory until 2000, before closing for renovation. The site was renovated between 2000 and 2014, before reopening to the public as "lifestyle and dining complex" (Chan, 2016). Between 2005 and 2007, which coincided with the protests against demolishing the Star Ferry and Queens Piers, the AMO conducted several investigations into PMQ's heritage value, discovering the remnants of the former school. These remnants are now available in the basement of the site, as part of an "Underground Interpretation Area." This project was also realized through a public-private partnership, with the Musketeers Education and Culture Charitable Foundation Ltd. (Musketeers Foundation) working alongside the Hong Kong Design Centre, the Hong Kong Polytechnic University, and Hong Kong Design Institute of the Vocational Training Council.

3.2.4 Wan Chai: Community Backlash and Advocacy Effects

The Wan Chai neighborhood is the site of both protests against preservation efforts and praise for community-led preservation efforts. The redevelopment of Lee Tung Street and the renovation of the Blue House, a 5-minute walk apart, represent this dichotomy of preservation dynamics in the neighborhood. Both redevelopment efforts can be partly attributed to the presence of the Wan Chai MTR station, which fostered accessibility to the neighborhood. Wan Chai is relatively low-lying, given that a significant portion is on reclaimed land from the Victoria Harbor.

Lee Tung Street

Lee Tung Street, historically referred to as "Wedding Card Street" for the preponderance of card printing businesses during the 1980s up until redevelopment in 2007, was a beloved streetscape of historic buildings, long-time communities, and legacy businesses. In 1998, the Land Development Corporation (later URA) announced a development scheme that would completely redevelop the site, this was more or less agreed-upon and over 85% of residents accepted compensation to relocate by 2006 so that the city could proceed with a land sale. In the same year, however, the "H15 Concern Group" submitted an alternate plan that would preserve the six-story tong lau in the middle of the street. Tong lau architecture is quintessential Hong Kong, combining Chinese and British design elements in a tenement-style building. This alternate proposal was rejected, and redevelopment proceeded as planned. The URA spent $3.58B HKD to demolish existing buildings and replace them with four high-rise buildings, an underground car park, and new shops that "made up the image of a wedding city" (Gallagher, 2021). This approach was widely critiqued for "putting business considerations before community" (Gallagher, 2021). An attempt to rename the street was derided by the public, and the developers opted to retain the original name. A new station exit for Wan Chai Station opened on site of the development.

The Blue House

In response to the backlash against the Lee Tung Street redevelopment, the Blue House restoration effort was much more successful in leading through community engagement efforts and designing a plan with grassroots organizations. The Blue House project symbolizes an acceptance of "social capital" as equally important to the Hong Kong community as "economic capital"[18]. The Blue House is actually a cluster of three 20th century tong lau or shop house blocks in Wan Chai, which had once been threatened with demolition. The Blue House, built in 1922, was acquired by the government in 1970 and painted blue in 1990. The Housing Authority and URA developed an HK$100M plan to preserve the buildings, but a subsequent alternate plan developed with the community was ultimately implemented. This plan allowed current residents to stay, and renovations were overseen by St James' Settlement, a local charity and private partner in the HK$76M effort. This "truly inclusive approach to urban conservation" saw the historic buildings converted to a multifunctional complex including 20 residential flats, a community service center, two restaurants run by social enterprises, and a space dedicated to record and exhibit Hong Kong stories. The Blue House project represented the first time that the URA (architects, planners, social workers) had to work with the public/community to come-up with an alternate proposal, and later informed the approach to preserving PMQ and surrounding streets in Central.

[18] Chan, Roger. Interview, January 2023.

3.2.5 Sung Wong Toi: Placemaking Through Archeology

Sung Wong Toi station is located along the recent Tuen Ma MTR Line, and is notable for housing 400 of 700 Song Dynasty artifacts that were discovered during excavation efforts for the transit expansion project. These artifacts, now displayed in the station as part of a public gallery, also include an original well that was preserved in-situ. The archeology discovery delayed the Tuen Ma Line project by 11 months, and cost an additional HK$3M, but the resulting station design and name help reinforce the placemaking efforts of the MTR. This is especially important because of the station's adjacency and connection to the Kai Tak Development (KTD), which is a 320 hectare "mega development project" intended to "[transform] the ex-airport site for the future development of Hong Kong and at the same time [give] an impetus to stimulate the regeneration of the adjoining older districts." KTD anticipates significantly more people living in this area.

The station is named after Sung Wong Toi, a unique historic relic located in Kowloon, that is immediately adjacent to the station. The relic is currently a rectangular slab with carvings, but originally part of a 45m tall boulder on the top of Sacred Hill, which overlooked Kowloon Bay. The relic is believed to be a memorial to the last two emperors of the Southern Song Dynasty, who lived in Hong Kong between 1277-1279 when fleeing the Yuan Dynasty. In 1807, additional characters were added to the stone to record renovation during the Qing Dynasty, and the British colonial government recognized the importance of this boulder in 1899, implementing the first-documented version of a preservation law for this site. Sacred Hill was ultimately demolished during Japanese Occupation to make room for the Kai Tak Airport during World War II, and the block was relocated to Sung Wong Toi Garden in 1945, where it remains today.

The Sung Wong Toi example reveals how collaboration between historic preservation and transit planners can both uplift histories and forgotten cultural flashpoints while meeting demands for transit and housing, and that doing-so better fosters city legibility, memorability, and accessibility. However, since new construction processes are inherently extremely carbon intensive, this example does not meet the environmental pillar of sustainability as much as it does the economic and social pillars.

Chapter 4: Opportunities for Co-Stewarding Public Transport and Preservation Agendas

In this chapter I suggest opportunities to re-envision transit planning and transit-oriented development approaches to explicitly include historic preservation, and re-envision historic preservation approaches to explicitly consider transit planning needs, to support legible, memorable, and accessible cities. I do this by first summarizing the key learnings from the case studies in Boston and Hong Kong, which reveal opportunities for improvement.

Current governance structures set-up an "us versus them" mentality that encourages multidisciplinary tensions rather than multidisciplinary cooperation and collaboration. However, the shared values between transit planning and historic preservation demonstrate obvious potential for collaboration. As such, the primary opportunity for co-stewardship is to improve governance structures to foster interagency collaboration, better align public and private interests in service of the public, and encourage more thoughtful design strategies. Implementing or amending a governance structure would provide the framework for holistically achieving sustainable development goals, which is critical to mitigating and adapting to climate change. The communities most vulnerable to climate change–which impacts cities on economic, social, and environmental scales–are also those most likely to rely upon public transit, and whose stories or cultures are least documented through historic preservation. Fostering collaboration and co-stewardship between public transit planners and historic preservationists will serve resilient city futures.

4.1 Learnings from Boston and Hong Kong

4.1.1 Key Takeaways from Boston

Advantages

1. Preservation: The Landmarks Commission's designations are the most powerful tool in advancing historic preservation missions because of the legal protections afforded to landmarked districts and buildings
2. Preservation: Landmark Districts contribute significantly to the memorability, legibility, and accessibility of downtown Boston, and individual landmarked properties less-so
3. Preservation: Adaptive reuse policies and energy efficiency adaptations are well-supported due to the Office of Historic Preservation's location within the Cabinet for the Environment
4. Preservation: The city has, in the past decade, made moves to protect and uplift histories of marginalized communities
5. Transit: Public art programs have improved the subway experience by enhancing placemaking within stations
6. Transit: The MBTA is a public agency, suggesting opportunity for better aligning public interests (i.e., sustainability)

Disadvantages

1. Preservation: The separation between the Office of Historic Preservation, the Planning and Development Agency (BPDA), and the Public Works Department (PWD) limits how preservationists can contribute to broader urban and transit planning goals for the city
2. Preservation/Transit: The jurisdictional differences between the Office of Historic Preservation (public; municipal level), the MBTA (public; state level), and individual historic societies that own some of the landmarked properties (private) limits opportunities for collaborating on shared interests (e.g., ADA and energy efficiency upgrades in the same building)
3. Transit: The MBTA is riddled with funding challenges and has recently attempted to cut costs by eliminating funding streams for public art and by subsuming the architectural access department within engineering and construction – both elements that support placemaking within the transit system

4.1.2 Key Takeaways from Hong Kong

Advantages

1. Preservation: Both the planning department and the Antiquities and Monuments Office (AMO) are housed within the Development Bureau, which serves to encourage integrated missions and reduce conflicts
2. Transit: The MTR is financially self-sufficient and manages strong public-private partnerships to support expansive transit service; value capture mechanisms generate funding for both the MTR and the government. This suggests that extending transit project timelines to incorporate cultural heritage analysis (such as archeological processes) would not significantly impact financial prospects.

3. Preservation: Recent public momentum behind valuing Hong Kong's heritage, and determining a Hong Kong identity–as demonstrated by the 2006-2007 protests over demolishing historic structures–, has encouraged the AMO to lead public engagement efforts when renovating or revitalizing historic structures
4. Preservation: Public-private partnership arrangements have resulted in successful adaptive reuse projects; private partners are typically local non-profits or developers that also hold a personal connection to the neighborhood site
5. Preservation: Publicly owned heritage sites have contributed to economic growth more than privately owned heritage sites
6. Transit: The MTR's largest stakeholder is the government, and expansion plans are generally well aligned with the city's broader goals around sustainable development

Disadvantages

1. Preservation/Transit: Due to land scarcity amid a rapidly growing population, development pressure (especially housing demand) tends to outweigh the importance of historic preservation considerations
2. Preservation: The AMO does not hold legal authority. As such, declared monuments and heritage graded sites are not protected from demolition pressures.
3. Preservation: The lack of designated historic districts suggests limited consideration of protecting cultural narratives/heritage of communities at the neighborhood scale
4. Preservation: There is no clear heritage mission for Hong Kong; part of the challenge is tied to the region being considered "a 'borrowed place'" (Gallagher, 2021) of multiple histories
5. Transit: The MTR has no scope over the provision of affordable housing, even as the corporation develops thousands of units as part of its Rail Plus Property (TOD approach) program

4.2 Governance Considerations

The key learnings from Boston and Hong Kong reveal that the most effective approach to encouraging collaboration between transit planners and historic preservationists is to reshape governance structures. This would eliminate artificial barriers and promote better outcomes for sustainable development and city legibility, memorability, and accessibility. Improving governance structures would build capacity to support interagency and cross-jurisdictional collaboration, which tends to struggle across differences in scale and accountability. Moreover, this would support a process that includes more touchpoints for preservationists to engage the transit planning process, and for planners to engage the historic preservation process, in a collaborative way. Restructuring would enable transit planners and preservationists to focus on shared values and overcome tensions that currently arise.

4.2.1 Building Capacity for Collaboration

Shifting from mitigating tension to promoting synergies requires a new collaborative structure to coordinate between historical narrative stewards and access stewards. This new collaborative structure would ideally be led by a liaison (i.e., dedicated staff) along with physical co-location, for example, by shifting the historic preservation department within the planning and development agency in Boston. The liaison would be responsible for ensuring regular and timely intra agency communication and collaboration between the transit and preservation actors, as well as communicating to key stakeholders and the broader public. The former role would encourage a better alignment between the goals and strategies of agencies mandated to progress sustainable development, such as the public works department, transit agency, preservation group, planning and development group, public art program, and disability commission. There is also a potential financial and time savings benefit to co-location and collaboration, particularly when implementing ADA or energy efficiency upgrades at a district scale. As Dodson et al explains, closing decision-making gaps would not only help resolve existing challenges in funding and financing transport systems, but also better manage the whole system to provide access to all citizens (2016). The "governance arrangements we put in place to plan and manage our transport systems.... influences the kinds of debates taking place around urban transport futures" (Dodson et al., 2016). The same can be said for how we govern historic preservation approaches.

The latter role would be focused on public engagement: encouraging expanded involvement of stakeholder groups outside of the government to participate in sustainable development. These interest groups include historic societies, climate change experts, civic designers, and transit advocates among others. This public engagement opportunity would allow the government to understand how to maximize access to invisibilized stories, and for marginalized communities in particular to share their perspectives and needs.

4.2.2 Creating Opportunities for Collaboration

Currently, the unsupportive governance structure means limited opportunities for preservationists and transit planners to engage on one another's projects. In Boston, the MBTA will typically engage with the MHC–the state preservation agency–if required to by an environmental review process; the state agency may loop-in municipal preservation agencies–such as the Boston Landmarks Commission–at their discretion, and this is not enforced. Environmental impact reviews (EIRs) are conducted to assess the anticipated physical impact of a proposed capital project, such as the impact of rail expansion or a station update effort on circulation patterns or the natural environment, to determine if mitigation efforts are needed. In Hong Kong, the MTR will typically engage with the AMO if impending land sales include heritage graded structures, or if archeological items are found during the construction process. The processes in-place position preservationists in both cities as barriers or slowdowns to the progression of a transit project. Meanwhile, there is no clear, statutory process by which preservationists have to engage transit agencies, suggesting that they are not asked to consider the importance of broader city accessibility when determining a property's, or a district's, historic status.

There are several key moments along each project timeline, either a new transit project or a new restoration or landmark/grading process, that could accommodate preservationist and transit planner communication:

- Pre Project: **Approvals** for project start, funding confirmed
    - Opportunity: Liaison to confirm project start and anticipated timeline with preservationists and transit planners
- Phase 1: 0 - 30% of project completion: **Data Collection, Analysis, and Initial Design**
    - Current Process: Environmental impact reviews and land sales require transit and preservation agency interaction
    - Opportunity: Project team to contribute analysis findings and initial legibility/memorability/accessibility designs and plans to a shared resource that either department can pull from. Schedule key meetings if challenges are anticipated.
- Phase 2: 30 - 50% of project completion: **Coalition Building, Design Development**
    - Opportunity: Preservation project team to confirm that any anticipated transit demand from capital projects can be accommodated. Schedule joint public engagement meetings.
- Phase 3: 50 - 75% of project completion: **Cost Estimations, Phasing, and Implementation Plan**
    - Opportunity: Transit project team to confirm that any critical access-to-heritage elements are retained in proposed design and planning strategies. Schedule joint public engagement meetings.
- Phase 4: 75 - 100% of project completion: **Implementation**
    - Current Process: For transit projects, archeology teams on-call if needed
    - Opportunity: Invite agencies to visit/engage with new projects at completion, providing final recommendations for adjustment if needed.
- Post Project: **Routine Maintenance and Public Programming**
    - Opportunity: Regular touchpoints to facilitate long-term commitment to wayfinding/placemaking strategy; Assessment and memorialization of lessons-learned to guide future projects.

These process opportunities would be realized after the collaborative structure, including a liaison team and possible co-location of groups, are in-place.

4.2.3 Strengthening Regulatory Forces

In addition to collaboration and communication, a new governance structure should bolster the legal authority of historic preservation agencies. This is particularly important in Hong Kong, where a statutory grading system would better protect buildings and districts while also preventing conflict within the development bureau. Incorporating protections of historic districts and neighborhoods, alongside the existing building protections, would also better convey historical narratives and therefore city legibility and memorability. Moreover, this would encourage or mandate transit planners to engage more directly with preservationists, since any expanded service or renovation to stations naturally impacts a whole neighborhood community and not just an individual structure. Doing so would ensure access to and through these districts.

Chapter 5: Conclusion

Bringing public transit planning and historic preservation together makes sense because they both serve the public interest in generating memorable, legible, and accessible cities. It is important to think of them now, in 2023, because there is tremendous potential in co-stewarding both agendas to meet sustainable development goals. Addressing sustainable development is crucial to generating cities that are resilient to climate change, which disproportionately affects the same communities that are reliant on transit and whose cultures are not celebrated through mainstream preservation practices.

Examples from Boston and Hong Kong reveal that these two fields do interact, but not always well, due to a lack of governance that would support collaboration for their mutual benefit. As a result, an overemphasis on delivering private gains through economic development tends to supersede the promise of equitable transit access and heritage protections. Moving forward, a new governance structure that supports co-locating these departments and designating a liaison or liaison office would help navigate tensions and focus on shared values. This would lead to additional benefits such as financial savings, management clarity, and open communication with the public. Supporting this structure through new renewed legal authority for the disempowered interest, in this case historic preservation, would also be needed. Implementing these recommendations would explicitly acknowledge how "the city has always been not merely the vessel but the actual generator of civilization" that is captured within its historic sites and experienced through its transit services. To achieve memorable, legible, and accessible cities is to reveal "the city's most splendid gift: *range of choice,* an entire spectrum of possible lines of action" (Fitch, 1982) that will continue to be available generation after generation.

This thesis scratches the surface at the opportunities posed by intersecting transit planning and historic preservation. Future research and work might identify proposed and likely sites of transit-oriented development in growing cities, to determine if historic preservation can be integrated as part of that process–from analysis to design to placemaking–through better governance and policy structures. This could include framing a process in accordance with the recommendations laid out in Chapter 4.

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