

# Coworking as a Catalyst for the Post-Pandemic Creative City

A CASE FOR HALIFAX, CANADA



*Pictured above is the sidewalk sign for HiVE Coworking in Vancouver, BC.*

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## Introduction

Coworking—the concept of a shared workspace for the perusal of decentralized workers and freelancers—is a growing phenomenon in cities of all sizes. Coworking spaces are all unique, and the definition is constantly growing to accommodate changing needs in the urban economy.

From shared art studios to kitchens to music studios, coworking is seemingly limitless. A coworking space is an open and flexible space for its members to use—insofar as they are using it for work. While there can be unique types, coworking spaces (CWS') geared to serve *office work* are by far

Coworking spaces usually offer flexible, low-cost, “hotdesking” lounges for non-fixed laptop workers.



Temps Libre in Montreal (Photo: Raphael Thibodeau)

the most common (pictured right). The term “coworking” however is often generalized as merely office-type spaces when discussed academically—this study included.

This first of two sections in this study aims to provide a theoretical foundation for coworking as a catalyst for creative city growth. This can be understood as the *why* of the planning study. The second section synthesizes relevant academic literature on how coworking industries can be supported through planning and policy by using the Halifax Regional Municipality (HRM) as a prospective case study for such development.

## Part 1: The Creative City

### The Changing Economic Climate: 2008 and 2012

Since its inception in 2006 coworking as an industry has grown while progressively addressing cultural and economic shifts in the workplace. The first major workplace shift occurred after the 2008 recession. Labour markets changed drastically as the number of freelancers and gig workers increased significantly across North America and Europe (Orel et al., 2021). This caused irregular forms of work to become more popular. It also established the necessary grounds for the next major workplace shift. Occurring from 2012 onwards, this second shift saw an increase of independent, creative, and knowledge workers rather than Fordist-organized labourers in sectors like manufacturing (Stachura & Kuligowska, 2019; Waters-Lynch & Duff, 2021). In their

work *Managing Development of Creative City System: Coworking*, Stachura and Kuligowska (2019) linked these workplace shifts to an emerging transformation in cities. That is, how cities are transforming to become “creative cities”. They argued how cities are not only potential hosts of the creative class—which will be discussed further—but can also play a fundamental role in their development. *Coworking spaces*, Stachura and Kuligowska remarked, are catalysts for this type of co-development of creative workers and the creative city.

### ■ The Third Economic Shift: 2020

A third shift in the workplace landscape is ongoing. This shift was triggered during the COVID-19 Pandemic due to the unsafe nature of gathering in a centralized office or indoor workplace. The resulting climate is one of flexible workplaces—the concept of employers relaxing their workplace standards and allotting work from home, decentralized, and/or hybrid approaches to workplace management (de Klerk et al., 2021; Dominique Allen & Adriana Orifici, 2021). Companies such as Shopify, Apple and Pinterest have adopted permanent flexible workplace policies due to its benefits involving reduced costs and enabling an international talent pool (Labitoria, 2021). This shift is ongoing and is expected to grow (Bednar & Danko, 2020; Bonacini et al., 2020), reshaping the future of cities like Halifax. As flexible workplaces increase, the demand for coworking also increases (Waters-Lynch & Duff, 2021). Coworking answers to this call by providing suitable workplace conditions for remote office workers. It grants the post-pandemic at-home worker an opportunity to socialize, network and interact with others. These social opportunities are otherwise not available when working alone at home. Coworking spaces also provide amenities for these remote workers—such as conference/meeting spaces, printing services and deluxe espresso machines. The buzzing culture at coworking spaces, their affordability, their locality, the buzzing culture around them, and their amenity, all entice creative class workers to stay in or migrate to cities which host them.

### ■ Richard Florida and “The Creative Class”

This study is concerned with attracting creative class workers to Halifax with coworking. The Creative Class is a concept made famous by urban theorist Richard Florida. He recommends a way of economic growth for North American cities—which is to attract post-industrial creative workers such as lawyers, artists, engineers and tech workers via development and policy that cater towards their lifestyles (Eaton, 2010; R. Florida, 2005). This strategy eventualizes Florida’s three Ts of economic development:

technology, talent, and tolerance (for Florida, tolerance refers to a city's laissez-faire cultural behaviour. That is, a city should be accepting of diversity regarding ethnicity, gender, sexual orientation and so on). This framework, originally published in Florida's book "The Rise of the Creative Class" (2002), has since gained considerable attention.

Cities and planners across North America have implemented Richard Florida's ideas and strategies in order to attract this creative class (R. Florida, 2014). It has also undergone extensive criticism, namely concerning its favouritism for the privileged class thus disregard for crucial urban issues such as housing and inequality. Florida acknowledged such criticism and persisted with the framework in his 2014 follow-up paper (R. Florida, 2014). Florida admitted how creative class workers and their corresponding geographies are correlated with higher housing and amenity costs, therefore there are reasons to believe creative class development heightens urban inequalities. However, through quantitative analysis, Florida revealed how this inequality is also a hallmark of blue-collar and service worker growth—both of which he does not concern his work with. His argument then, is that such criticism of his work is merely an overall critique of economic development.

The second section of this study is concerned with growing the creative class in cities, including Halifax, using CWS'. This study assumes that attracting the creative class is an effective and equitable means of sustainable economic growth. The literature review revealed how CWS' are a proven, resilient and equitable means of post-pandemic growth when facilitated carefully (Dominique Allen & Adriana Orifici, 2021; Leducq, 2021; Waters-Lynch & Duff, 2021). This study acknowledges and persists through equity-related criticisms of the framework by using Halifax as a case study, wherein Halifax's Economic Growth Plan emphasizes the need for urban economic growth (Halifax Partnership, 2016).

## **Part 2: Supporting Coworking via Planning**

### **An Emerging Practice?**

Coworking is new to planning as a whole insofar as planners are looking to grow, facilitate or regulate their city's coworking industry (Avdikos & Merkel, 2020; Babb et al., 2018). Babb et. al. (2018) argue that coworking is both new and disruptive to planning practice. They argue how coworking disrupts the way planning can anticipate the culture of an area. An example of this is in how the selection of business tenants relies on CWS' rather than being regulated through master planning (Babb et al., 2018, p. 4). Other disruptions involve the economics of property taxation and the difficulty in predicting

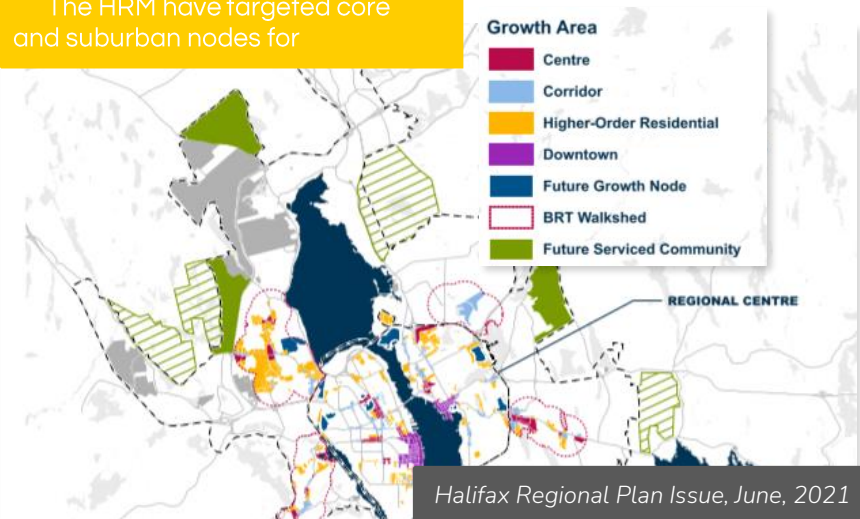
how much land is needed for a small business (2018). While there are attractive qualities of coworking industry growth like economic diversification (Waters-Lynch & Duff, 2021) that increase the need for appropriate coworking-related planning measures—the disruptive nature of the industry presents a *secondary* reason for adopting measures relating to shared workspaces in a community plan.

## Halifax

Halifax, Canada is one city that perfectly meets the candidature for growing the relationship between an emerging creative class and the post-pandemic city via coworking. In their study on preferred locations for coworking spaces, Mariotti et. al. (2021) uncovered suggestive criteria: Coworking spaces thrive best in cities with dense cores and growing surrounding commuter nodes. Suburban and peripheral (to the urban core) areas with suitable amenity and high quality of life are also favourable, as per Mariotti et. al.'s study (2021).

Halifax follows this pattern with a dense peninsula and growing surrounding nodes such as Bedford that have suitable amenities situated within. The Halifax Regional Plan Issue (Halifax, 2021) and the Halifax Regional Centre Plan: Package A (HRM, 2021) have targeted various nodes for developmental growth, both within and outside of the dense peninsula. These growth nodes align with favourability frameworks suggested by Mariotti et. al (2021). Coworking development is further supported in the Halifax Economic Growth Plan wherein knowledge workers are identified as one of three *core values* (Halifax Partnership, 2016, p. 8). The Economic Growth Plan then goes on to say

The HRM have targeted core and suburban nodes for



that one of the plan's four *central goals* is to "Attract and Retain Talent" (Halifax Partnership, 2016, p. 9).

Despite a pronounced desire for talent, economic growth, and node-based development throughout various HRM planning reports, there are zero

mentions in any HRM planning document of the sharing economy and/or flexible workspace development. Coworking, then, is an unexplored concept for HRM planners.

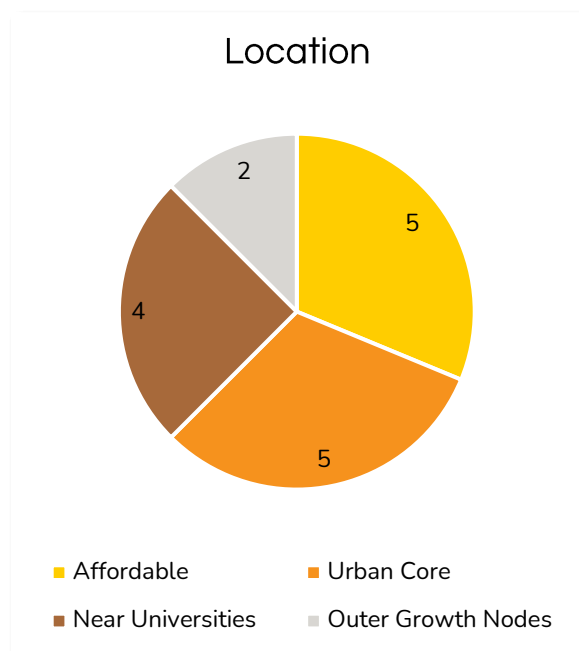
## Methodology

Coworking is new, disruptive, and useful for planners. This study bridges gaps between HRM's current planning canon—which contains no mentions of coworking—with the growing literature concerning coworking as a *plannable* phenomenon. To understand coworking as plannable, this study synthesizes spatial-contextual determinants of coworking space success. The methods employed in this study are as follows: using the NovaNet catalogue, relevant literature containing all keywords “coworking, urban planning, policy AND development” in their body and metadata were coded by mentions of locational favourability. Each favourability factor was given a single frequency point per article. Out of 25 relevant journal articles, 9 articles directly contributed to the favourability index. The conditions for literary inclusion were that the article discerned coworking favourability in an urban geography as a case study, and/or the article explicitly synthesized research for the topic of coworking locational favourability. The result of this process can be seen in [Appendix A](#). This informed a favourability index which can be discerned in three categories: Location, Amenity and Urban Form. The following pie charts visualize the frequency of each favourable condition as they appear in the literature.

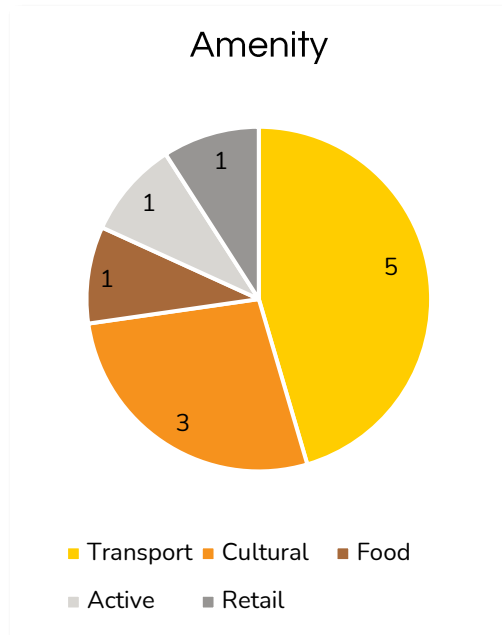
## Favourability Index

### Location

Coworking space development tends to favour affordable lots in the urban core, as seen in the chart (right). Affordability allows spaces to offer low-cost memberships, which is a key facet to sustainable coworking development (Avdikos & Merkel, 2020; Babb et al., 2018; Huliana & Ellisa, 2019; Stachura & Kuligowska, 2019). Being located in the urban core is a matter of culture, clustering, and density, for coworking spaces (Fang Zhao et al., 2020; Mariotti et al., 2021). That is not to say that coworking does not succeed in peripheral centres, which it does (Huliana & Ellisa, 2019). There is also considerable research



suggesting that proximity to university campuses is a favourable condition (Chen, 2021; Fang Zhao et al., 2020; Huliana & Ellisa, 2019; Mariotti et al., 2021).

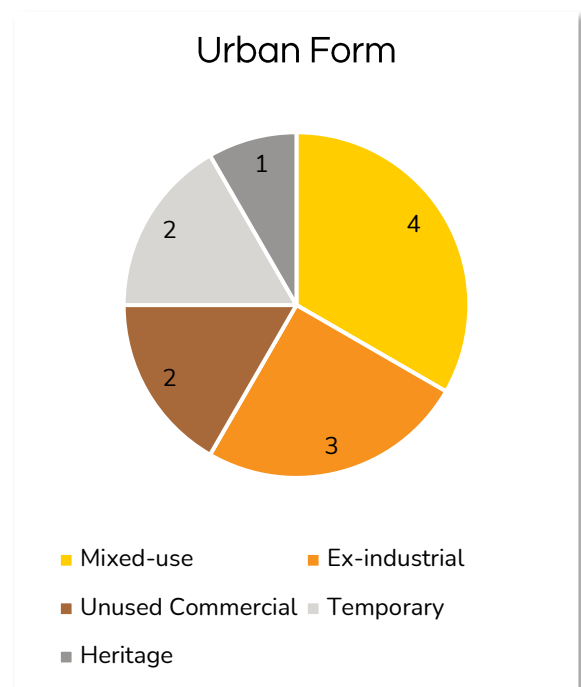


### Amenity

Nearby amenity is a key factor when facilitating coworking development in favourable locale. Amenities nearby constitute the types of cultural consumption and interaction in prospective locales (Avdikos & Merkel, 2020). This study revealed (see chart to left) how coworking space development favours areas that are well-served by public transportation (Fang Zhao et al., 2020; Huliana & Ellisa, 2019), have substantial cultural amenity (Avdikos & Merkel, 2020) such as recreation centres and museums, and are near food and retail establishments (Chen, 2021; Mariotti et al., 2021).

### Urban Form

Favourable urban form conditions for coworking space development (see chart to right) include lots within mixed-use urban areas, ex-industrial buildings, vacant commercial buildings and heritage buildings (Avdikos & Merkel, 2020; Chen, 2021; Mariotti et al., 2021). A recent trend in coworking space development has been temporary, pop-up spaces (Leducq, 2021). These temporary spaces, Leducq (2021) argues, can address urban inequalities derived from the pandemic by providing low-cost office space for new businesses looking to grow and network.



### Weighted Sum Analysis

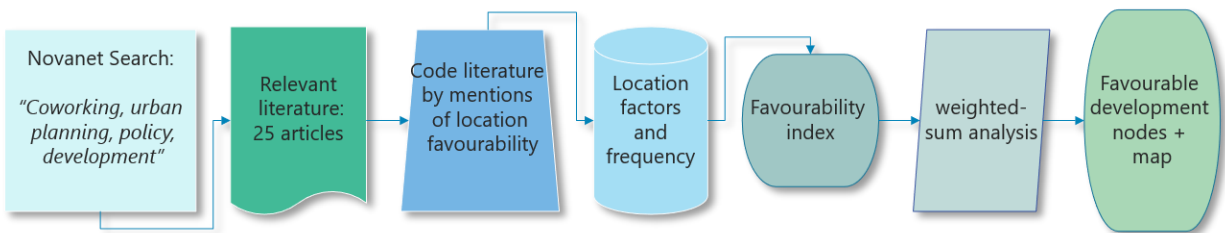
A weighted sum analysis geovisualizes favourability based on each input factor's index score. The favourability index developed directly informed this study's weighted



sum analysis. Due to limitations, this study was unable to include four metrics in this analysis: mixed-use, affordability, heritage, and temporary locations. Future research should look to include these indices.

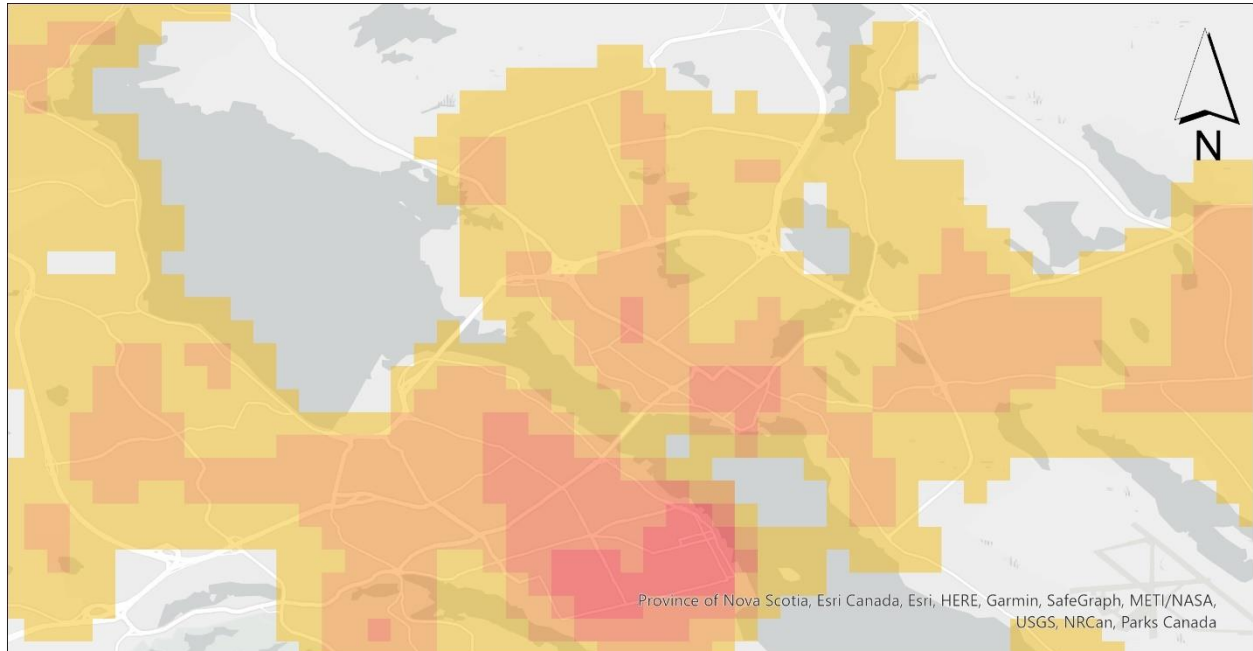
Assumptions were made to conduct this analysis. The first assumption was setting a search tolerance for proximity when identifying hot spots. The tolerance was set with the assumption that people are both able-bodied and can walk 400m to their amenity. This analysis assumes that all transit stations are equally valuable in HRM, whether or not this is true. This analysis also assumes that all businesses and amenities in HRM are open during all regular working hours.

#### Methodology Diagram Resulting in Weighted-Sum Analysis and maps



To feed this study's hot spot geovisualization, all point shapefiles of amenities were rasterized by density using 400m walkable cells. This raster grid is distance-based rather than displacement-based, therefore lost accuracy with the assumption that there are no disruptions between any point A and point B within any given raster cell. These density raster layers fed the weighted sum hot spot analysis weighed by indices produced in previous steps. The only exception to this equation was population density, which was already rasterized from Canadian Census Geography Series data with a 500m tolerance and given a weight based on the urban core index produced in previous steps. Thus an assumption that population density is consistent with the quality of being an urban core, was made in this analysis.

This study utilized Esri's Model Builder to conduct and visualize final steps compiling a weighted sum analysis, as seen in [Appendix B](#). The map produced (following page) visualizes coworking development hotspots. In order of favourability, those hotspots are Halifax Peninsula, Dartmouth, Bayers Lake & area, Lower Sackville and Armdale.



## Favourable Hot Spots For Coworking Development in Halifax Regional Municipality

The darker the colour the more favourable the locale is for coworking development based on a series of inputs.

### Data source

HRM Open Data, 2021  
 Statistics Canada Geography Series, 2016

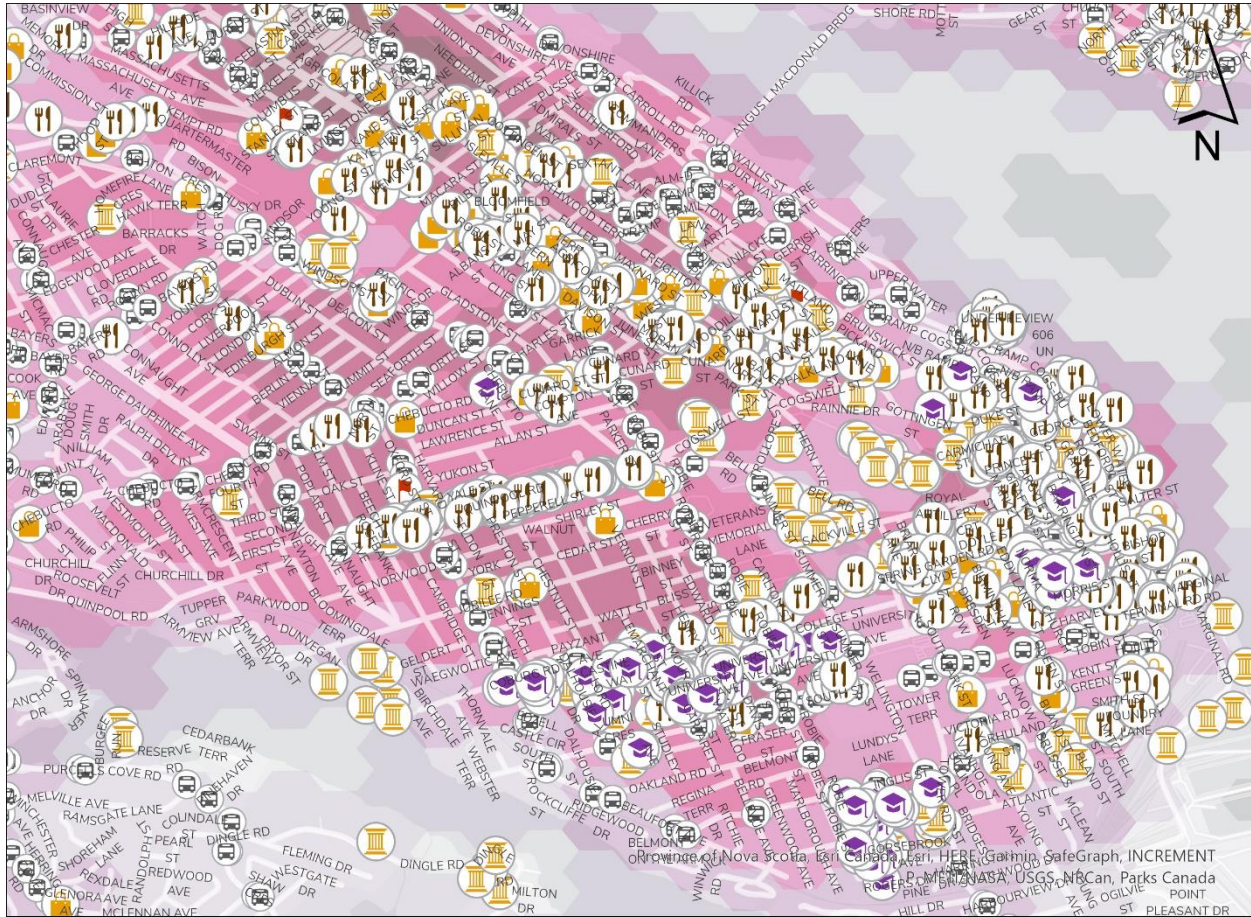
### Weighted Index Score Value

- 0.01 - 5,900
- 6,000 - 19,000
- 20,000 - 42,000
- 43,000 - 77,000
- 78,000 - 140,000

3 Kilometers

## Results

The resulting map (above) revealed favourable hot spots for coworking space development. Further analysis on each hot spot follows on the coming pages. Along with each site study are the corresponding land-use bylaw documents and the zones along each developmental corridor of which HRM planners should consider amending. Amendments will be discussed in policy recommendations thereafter.



## Halifax Peninsula

Coworking Development Zone

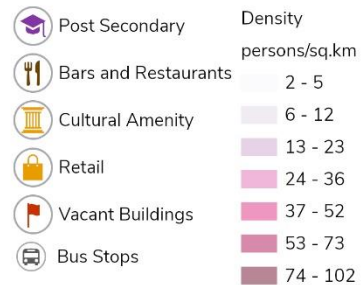
### Data source

HRM Open Data, 2021

Statistics Canada Geography Series, 2016

0.5

Kilometers



### CONCERNING BYLAWS

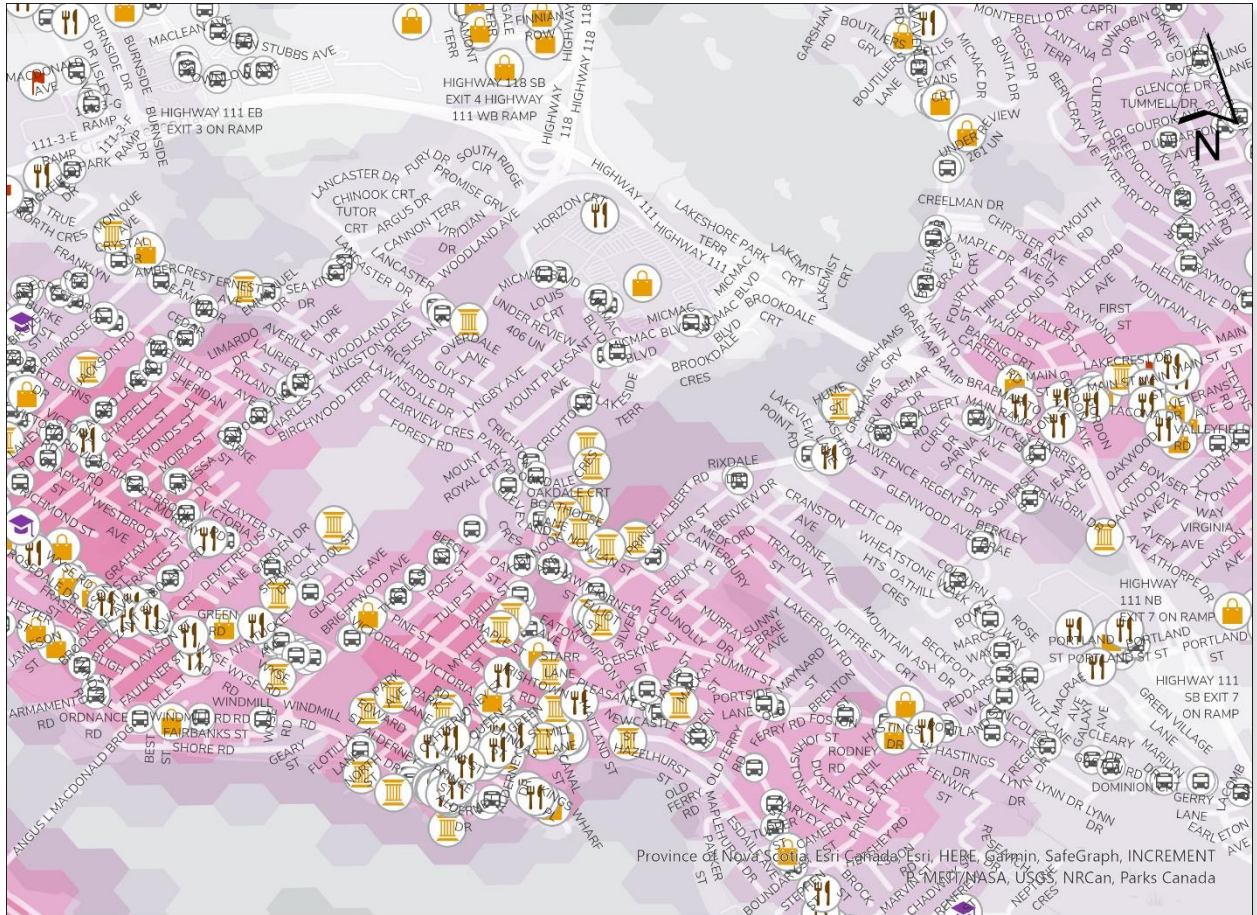
Downtown, Peninsula

### ZONE(S) TO CONSIDER

DH-\*; C-\*

Universities, food, retail, density, and cultural amenity all

concentrated in a small area make the Halifax Peninsula highly favourable for coworking development. The following town centres on the peninsula have concentrated favourability: South End, West End and North End. These centres are all perfectly suitable for coworking development and should be of primary consideration for HRM planners and developers concerned with supporting Halifax's coworking industry.



## Dartmouth

Coworking Development Zone

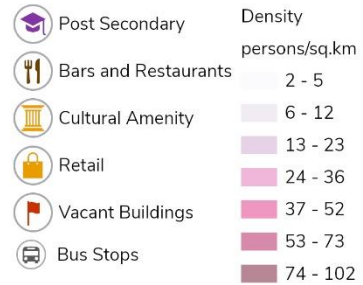
### Data source

HRM Open Data, 2021

Statistics Canada Geography Series, 2016

0.5

Kilometers



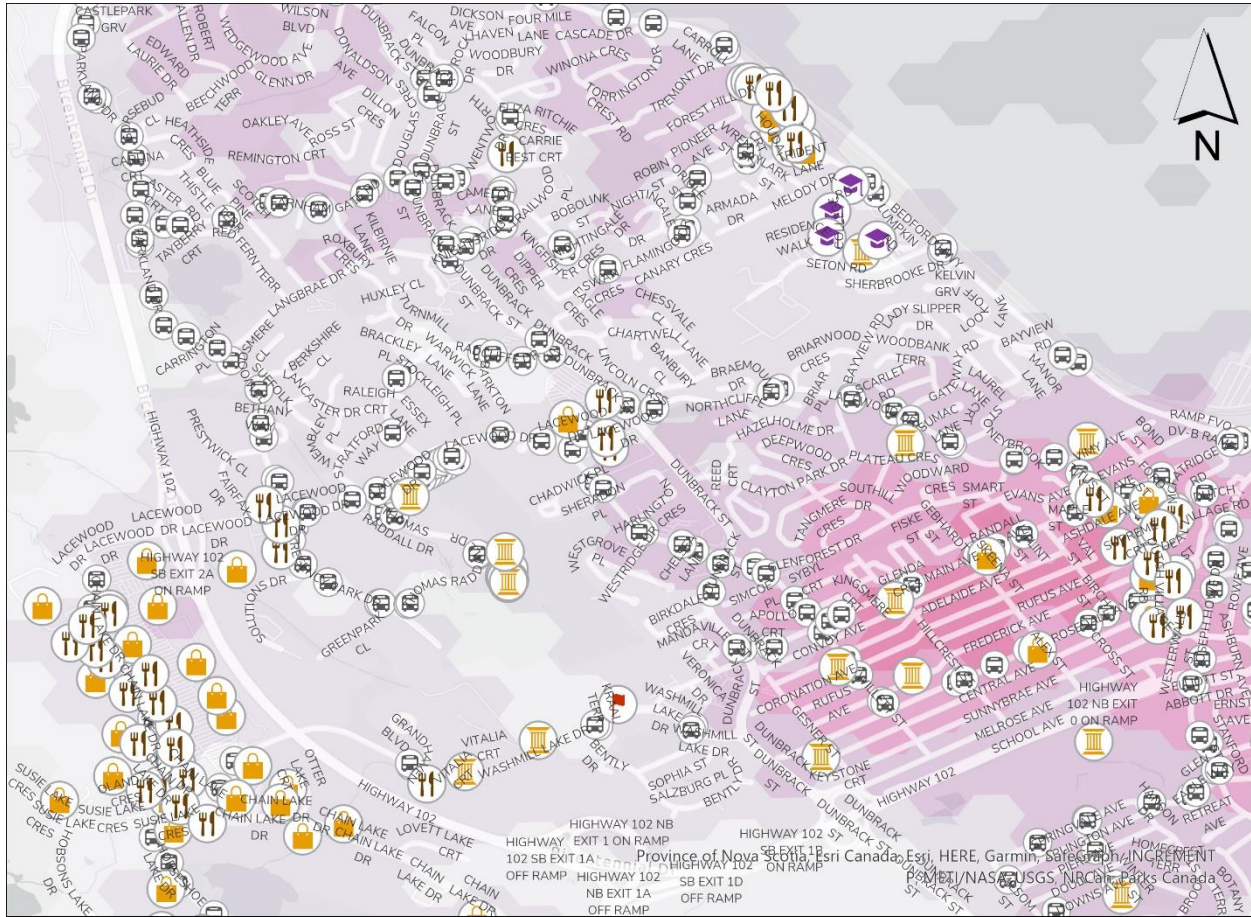
### CONCERNING BYLAW

Centre Plan

### ZONE(S) TO CONSIDER

D; C-2; HR-1; CDD

The hotspot map revealed how Dartmouth could have three sub-areas with potentiality for coworking development: Downtown, Main Street, and Wyse Rd. However, upon further analysis, the lack of walkability due to wide roads and traffic along Main Street and Wyse Rd negate most of their candidacy, as inputs rely on walking. Downtown Dartmouth, on the other hand, is an exciting locale and should be on the radar for those concerned with supporting the coworking industry in Halifax.



## Bayers Lake, Fairview, Clayton Park







Coworking Development Zone

### Data source

HRM Open Data, 2021

Statistics Canada Geography Series, 2016

0.5  
Kilometers

|   |                      |               |
|---|----------------------|---------------|
|  | Post Secondary       | Density       |
|  | Bars and Restaurants | persons/sq.km |
|  | Cultural Amenity     | 2 - 5         |
|  | Retail               | 6 - 12        |
|  | Vacant Buildings     | 13 - 23       |
|  | Bus Stops            | 24 - 36       |
|   |                      | 37 - 52       |
|   |                      | 53 - 73       |
|   |                      | 74 - 102      |

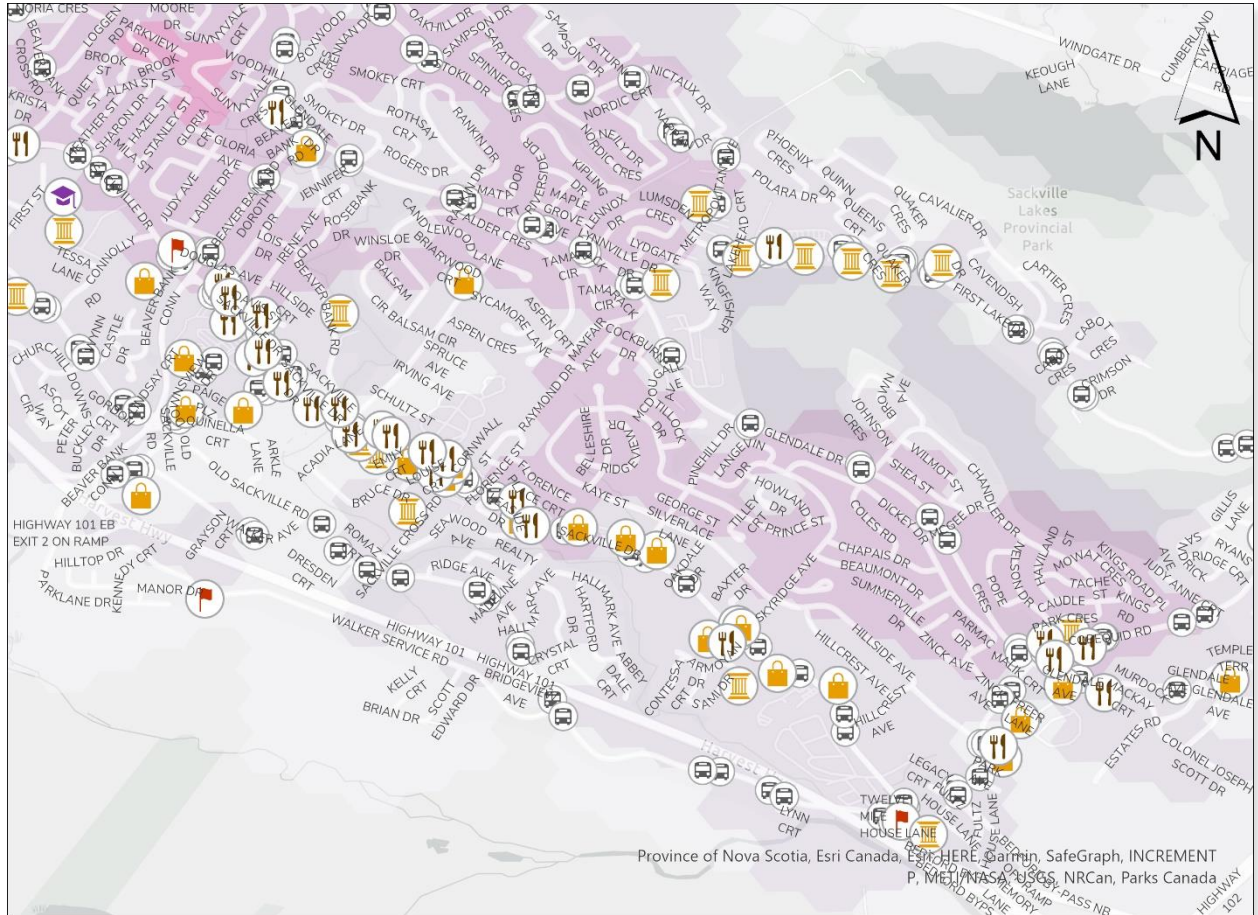
### CONCERNING BYLAW

Halifax Mainland

### ZONE(S) TO CONSIDER

I-3; C-2A; C-2C

An emerging growth node and BRT walkshed (Halifax, 2021) in the Bayers Lake business park area shows plenty of potential for future coworking development. With rich amenity nearby and an expectation for considerable increase, this hub—which hosts one coworking space already—can support further development. Fairview and Clayton Park also prove as suitable localities for coworking development in Halifax. In Fairview, Joseph Howe Dr; and in Clayton Park, Laceywood Dr, are fitting.



## Lower Sackville

Coworking Development Zone

### Data source

HRM Open Data, 2021

Statistics Canada Geography Series, 2016

0.5

Kilometers

| Icon | Category             | Density persons/sq.km |
|------|----------------------|-----------------------|
| 🎓    | Post Secondary       |                       |
| 🍴    | Bars and Restaurants | 2 - 5                 |
| 🏛️   | Cultural Amenity     | 6 - 12                |
| 🛍️   | Retail               | 13 - 23               |
| 🚪    | Vacant Buildings     | 24 - 36               |
| 🚏    | Bus Stops            | 37 - 52               |
|      |                      | 53 - 73               |
|      |                      | 74 - 102              |

### CONCERNING BYLAW

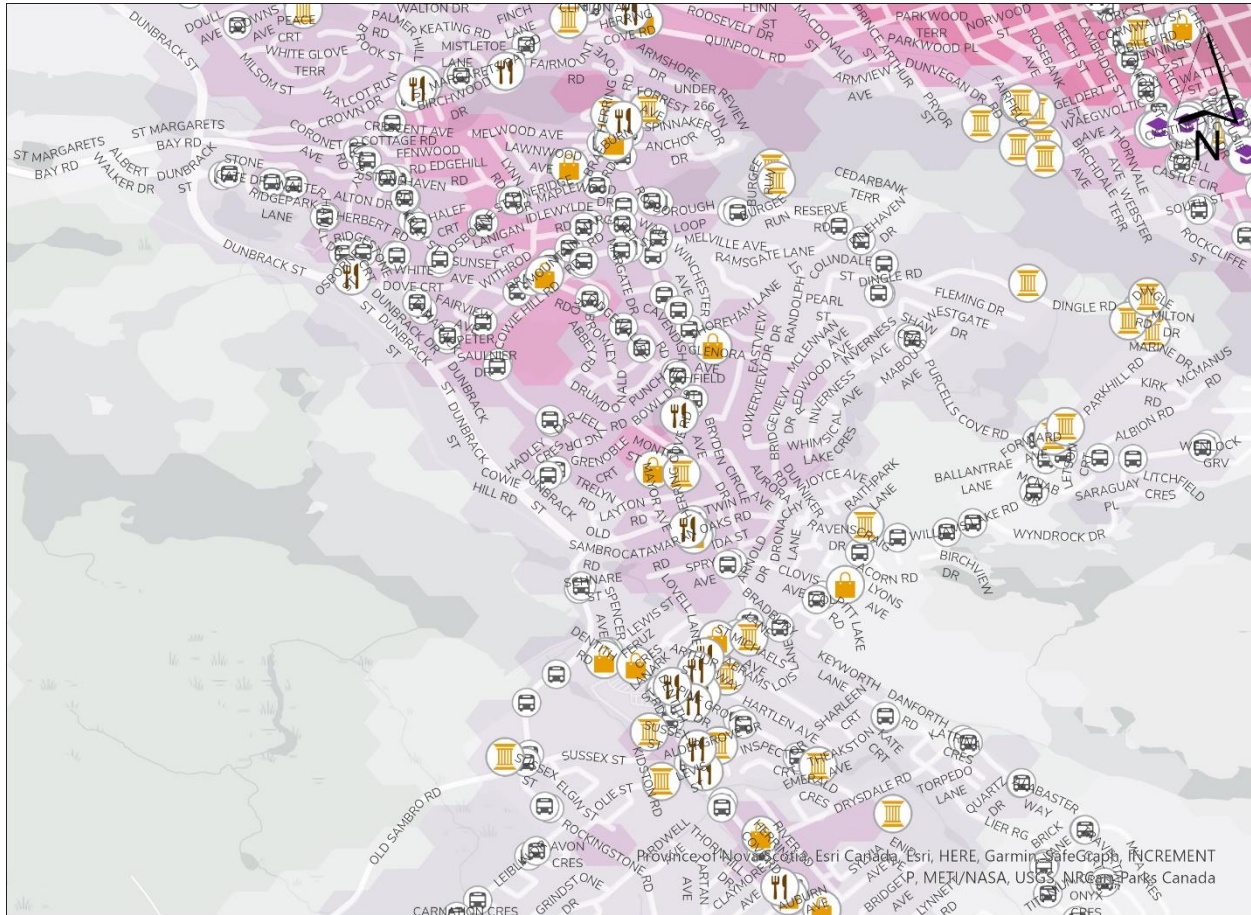
Sackville

### ZONE(S) TO CONSIDER

CDD, C-\*

Coworking development may succeed in outer node Lower

Sackville—which offers favourable cultural consumption, active amenity, food, and retail. The area is not very dense, however. The area also scored much lower in the transportation index, therefore a co-development of transportation and coworking would be essential should HRM planners target Sackville for coworking development.



## Armdale

Coworking Development Zone

### Data source

HRM Open Data, 2021  
 Statistics Canada Geography Series, 2016

0.5  
 Kilometers

|  |                      |               |
|--|----------------------|---------------|
|  | Post Secondary       | Density       |
|  | Bars and Restaurants | persons/sq.km |
|  | Cultural Amenity     | 2 - 5         |
|  | Retail               | 6 - 12        |
|  | Vacant Buildings     | 13 - 23       |
|  | Bus Stops            | 24 - 36       |
|  |                      | 37 - 52       |
|  |                      | 53 - 73       |
|  |                      | 74 - 102      |

### CONCERNING BYLAW

Halifax Mainland

### ZONE(S) TO CONSIDER

C-2A

With a heavy concentration of cultural amenity and food joints, Herring Cove Rd. in Armdale presents a possible hotspot for coworking development that could service nearby residential neighbourhoods. The Armdale neighbourhood is not very dense, however, which may prove challenging for new spaces. Herring Cove Rd. is well serviced by transit and has plenty of active amenity, with parks, trails, and gymnasiums nearby.

## Policy Recommendations and Considerations

As these hotpots develop into bustling coworking hubs in the HRM, the following considerations should be followed closely to maintain sustainable and equitable development:

- **Coworking** development should be organically intertwined with critical socioeconomic urban policy (Avdikos & Merkel, 2020, p. 354). That is to say, Planners should consider *coworking policy* when working on social plans, rather than just economic plans.
- **Cities** should look towards gauging the social impact of coworking space as they develop, so as to improve future spaces and popularize coworking as a social impact strategy if/when successful (Avdikos & Merkel, 2020, p. 355).
- **Planners** should review all existing workspace bylaws and policies so as to not override any previous implications with new CWS policy (Babb et al., 2018, p. 3).
- **Planners** have the power and must pay close attention to how they can mitigate odour and noise discrepancies with their zoning strategy (Babb et al., 2018, p. 4). Furthermore, when development applications are submitted by future owners, Planners should be aware of such annoyance discrepancies and communicate them effectively.
- **Planning** should not only mitigative negative externalities like odour, it should also facilitate positive externalities (Babb et al., 2018, p. 5). This is done by fostering the development of favourable amenities within a walkable distance of coworking spaces and within hotspots.
- **HRM** bylaws listed in each site study *above* should be amended to include the wording “coworking space” and/or “shared workspace” as per Babb et. al.’s recommendations based on their Perth study (2018). This clear and explicit communication is essential for ease of application and research when spaces are looking to open or expand.
- **Planners** should look towards policy measures that increase the ratio of flexible workers in cities (Stachura & Kuligowska, 2019). HRM can start with their own staff. Another option is to provide incentives for local businesses to allow for remote work.
- **Planners** should anticipate that the post-pandemic flex work boom will drive up coworking membership costs due to workplace allowances being granted in larger companies. Therefore, regulatory policies may be worth implementing such that coworking spaces cannot over-capitalize and discriminate against low-income workers.



## Limitations

Due to time and resource constraints, this study was unable to feature various determinants in coworking development favourability. The following factors were not included in this study however may be addressed in future studies:

- **Affordability** is difficult to quantify and spatialize—it requires more time and manpower.
- **Heritage** properties require site visits and in-depth research to discern their feasibility. Future studies should include heritage properties in their analysis.
- **Mixed-use zoning** should be included in the matrix of future studies. Halifax’s use of the term “mixed-use” is quite limited. They have varying synonymous terminology from bylaw to bylaw making it quite difficult to quantify in a short amount of time.
- **Temporary** development sites can be quantified in future studies by discerning long-term vacant lots with flexible zoning. Site visits may be necessary to understand the sites’ feasibilities.

The research background for this study can be more robust by utilizing GIS to discern all existing coworking spaces in Canada and conduct a reverse-favourability study by understanding which amenities constitute their 400m walkable service areas. This can be even more robust by indexing the data by quantifying the perceived success of each space through a survey.

## References

- Avdikos, V., & Merkel, J. (2020). Supporting open, shared and collaborative workspaces and hubs: Recent transformations and policy implications. *Urban Research & Practice*, 13(3), 348–357. <https://doi.org/10.1080/17535069.2019.1674501>
- Babb, C., Curtis, C., & McLeod, S. (2018). The Rise of Shared Work Spaces: A Disruption to Urban Planning Policy? *Urban Policy and Research*, 36(4), 496–512. <https://doi.org/10.1080/08111146.2018.1476230>
- Bednar, P., & Danko, L. (2020). Coworking Spaces as a Driver of the Post-Fordist City: A Tool for Building a Creative Ecosystem. *European Spatial Research and Policy*, 27, 105–125. <https://doi.org/10.18778/1231-1952.27.1.05>
- Bonacini, L., Gallo, G., & Scicchitano, S. (2020). Working from home and income inequality: Risks of a 'new normal' with COVID-19. *Journal of Population Economics*, 34(1), 303–360. <https://doi.org/10.1007/s00148-020-00800-7>
- Chen, W. (2021). COWORKING SPACES IN CHINA: DEVELOPING A NEW STRATEGY OF REUSING INDUSTRIAL HERITAGE PROPERTIES UNDER SHARING ECONOMY. *International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences.*, XLVI-M-1-2021, 117–123. <https://doi.org/10.5194/isprs-archives-XLVI-M-1-2021-117-2021>
- de Klerk, J. J., Joubert, M., & Mosca, H. F. (2021). Is working from home the new workplace panacea? Lessons from the COVID-19 pandemic for the future world of work. *SA Journal of Industrial Psychology*, 47(2), e1–e14. <https://doi.org/10.4102/sajip.v47i0.1883>
- Dominique Allen & Adriana Orifici. (2021). Home Truths: What did COVID-19 reveal about workplace flexibility? *Australian Journal of Labour Law*, 34(1/2), 77–94.
- Eaton, E. (2010, July 1). *What is the creative class?* <https://briarpatchmagazine.com/articles/view/what-is-the-creative-class>
- Fang Zhao, Catherine Prentice, Joseph Wallis, Arvind Patel, & Marie-France Waxin. (2020). An integrative study of the implications of the rise of coworking spaces in smart cities. *Entrepreneurship and Sustainability Issues*, 8(2), 467-. [https://doi.org/10.9770/jesi.2020.8.2\(28\)](https://doi.org/10.9770/jesi.2020.8.2(28))

Florida, R. (2005). *Cities and the Creative Class*. Routledge.  
<https://doi.org/10.4324/9780203997673>

Florida, R. (2014). The Creative Class and Economic Development. *Economic Development Quarterly*, 28(3), 196–205. <https://doi.org/10.1177/0891242414541693>

Florida, R. L. (2002). *The rise of the creative class: And how it's transforming work, leisure, community and everyday life / Richard Florida*. Basic Books.

Halifax. (2021). *Population & Housing Issue Paper*.  
<https://www.shapeyourcityhalifax.ca/12651/widgets/93522/documents/58875>

Halifax Partnership. (2016). *Halifax Economic Growth Plan*.  
<https://halifaxpartnership.com/research-strategy/economic-growth-plan/>

HRM. (2021). *Regional Centre Secondary Municipal Planning Strategy (Package A)*.  
[https://www.halifax.ca/sites/default/files/documents/about-the-city/regional-community-planning/Centre\\_Plan\\_Package\\_A\\_Ministerial\\_Approved\\_Version\\_Nov\\_22\\_2019\\_ONLINE.pdf](https://www.halifax.ca/sites/default/files/documents/about-the-city/regional-community-planning/Centre_Plan_Package_A_Ministerial_Approved_Version_Nov_22_2019_ONLINE.pdf)

Huliana, W., & Ellisa, E. (2019). Coworking Space and Cluster Spatial Relations in the Context of Jakarta City Spatial Structure. *IOP Conference Series. Earth and Environmental Science*, 396(1), 12015-. <https://doi.org/10.1088/1755-1315/396/1/012015>

Labitoria, C. (2021, October 27). *These 10 well-known companies offer fully remote or hybrid work arrangements*. <https://www.hcamag.com/ca/news/general/these-10-well-known-companies-offer-fully-remote-or-hybrid-work-arrangements/314595>

Leducq, D. (2021). Les espaces de coworking: Des instruments de résilience territoriale pour l'après-Covid ? *Netcom. Réseaux, communication et territoires*, 35-1/2, Article 35- 1/2. <https://doi.org/10.4000/netcom.5677>

Mariotti, I., Akhavan, M., & Rossi, F. (2021). The preferred location of coworking spaces in Italy: An empirical investigation in urban and peripheral areas. *European Planning Studies*, 1–23. <https://doi.org/10.1080/09654313.2021.1895080>

Orel, M., Dvouletý, O., & Ratten, V. (2021). *The flexible workplace: Coworking and other modern workplace transformations*. Springer.  
<https://library.smu.ca/login?url=http://link.springer.com/10.1007/978-3-030-62167-4>

Stachura, P., & Kuligowska, K. (2019). Managing Development of Creative City System: Coworking. *Economic and Social Development: Book of Proceedings*, 346–351.

Waters-Lynch, J., & Duff, C. (2021). The affective commons of Coworking. *Human Relations (New York)*, 74(3), 383–404. <https://doi.org/10.1177/0018726719894633>

### Appendix A

This table informs spatial favourability indicis of coworking space development base on frequency of them being argued-for in all relevant academic literature. It also displays which studies discussed the role of coworking spaces in COVID-19 planning.

| Literature   | Meta                |           | Year | ? Covid | Urban Form |               |           |           |        |         | Amenity |           |          |        |        |            | Location   |             |              |       |
|--|---------------------|-----------|------|---------|------------|---------------|-----------|-----------|--------|---------|---------|-----------|----------|--------|--------|------------|------------|-------------|--------------|-------|
|  | Author              | Year      |      |         | Heritage   | Ex-industrial | Mixed-use | Temporary | Vacant | General | Food    | Transport | Cultural | Active | Retail | Affordable | Urban Core | Outer Nodes | Universities | Total |
| de résilience territoriale pour l'après-Covid?   | Leducq              | 2021 Y    | *    | *       |            |               |           |           |        |         |         |           |          |        |        |            |            |             |              |       |
| workspaces and hubs: recent transformations and policy implications                      | Avdikos & Merkel    | 2020 N    |      |         |            |               |           | *         | *      | *       | *       | *         | *        | *      | *      | *          | *          | *           | *            |       |
| The Rise of Shared Work Spaces: A Disruption to Urban Planning Policy?                   | Babb et. al.        | 2018 N    | *    | *       |            |               |           |           | *      | *       | *       | *         | *        | *      | *      | *          | *          | *           | *            |       |
| New Strategy of Reusing Industrial Heritage Properties Under Sharing                     | Chen                | 2021 Y    | *    | *       |            |               |           | *         | *      | *       | *       | *         | *        | *      | *      | *          | *          | *           | *            |       |
| Relations in the Context of Jakarta City Spatial Structure                               | Huliana & Ellisa    | 2019 N    | *    | *       |            |               |           |           | *      | *       | *       | *         | *        | *      | *      | *          | *          | *           | *            |       |
| city planning in Silicon Valley North, Canada  | Pajevic             | 2021 Y    | *    | *       |            |               |           | *         | *      | *       | *       | *         | *        | *      | *      | *          | *          | *           | *            |       |
| Managing Development of Creative City System: Coworking                                  | Stachura & Kuligows | 2019 N    |      |         |            |               |           |           |        | *       | *       | *         | *        | *      | *      | *          | *          | *           | *            |       |
| An integrative study of the implications of the rise of coworking spaces in smart cities | Zhao et. al.        | 2020 Y    |      |         |            |               |           |           | *      | *       | *       | *         | *        | *      | *      | *          | *          | *           | *            |       |
| in Italy: an empirical investigation in urban and peripheral areas                       | Mariotti et. al.    | 2021 Y    | *    | *       |            |               |           | *         | *      | *       | *       | *         | *        | *      | *      | *          | *          | *           | *            |       |
|  |                     | Frequency | 1    | 3       | 4          | 2             | 2         | 2         | 2      | 1       | 5       | 3         | 1        | 1      | 5      | 5          | 2          | 4           | 41           |       |

## Appendix B

These were the final steps of this study's GIS model which constructed the hot spot geovisualization.

