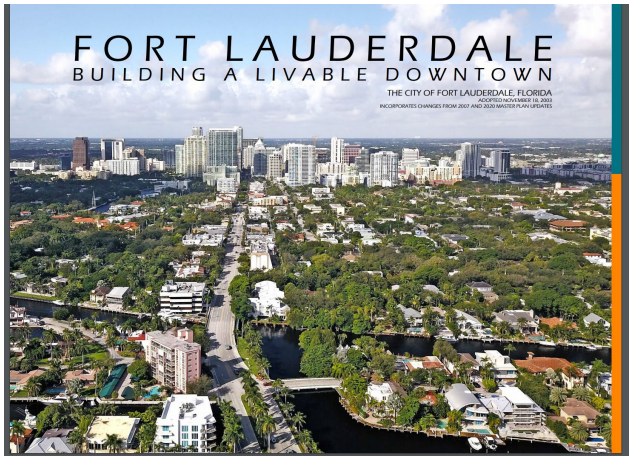
March 2021

DOWNTOWN MASTER PLAN
Follow-Up Analysis Report

Purpose and Intent

The Downtown Master Plan (DMP) serves as a guide for development projects and sets forth the City's vision for the future of Downtown Fort Lauderdale. It provides a blueprint for the Downtown Regional Activity Center (DRAC) with an emphasis on high quality building and streetscape design, paying specific attention to the relationship between buildings and the public realm. The intent of this report is to provide a follow-up analysis regarding transition measurement, building separation requirement, residential parking requirement and wind study effects, as requested by the City Commission.



Background

At a special City Commission workshop on December 18, 2018, the City Commission requested that staff initiate an effort to address codification of the DMP. Following the meeting, staff prepared amendments to the City's Unified Land Development Regulations (ULDR) to address key DMP design standards to incorporate into the City's ULDR to promote positive redevelopment.

The proposed amendments with revisions were presented to the Planning and Zoning Board (PZB) on September 16, 2020 with the Board recommending approval by a vote of 8-0, with recommendations. The City Commission approved the ordinance on first reading on October 20, 2020 and adopted the ordinance on second reading on November 5, 2020.

At the November 5, 2020 meeting, the City Commission discussed the PZB recommendations, including adopting a minimum residential parking requirement in the Regional Activity Center – City Center (RAC-CC) zoning district, adopting language regarding minimum building tower separation, adopting language that would require the transition zone to be measured from the property line within the DRAC, as well as a recommendation to study wind impacts between buildings. Staff advised that in order to consider these additional amendments, further analysis would be required to determine potential impacts.

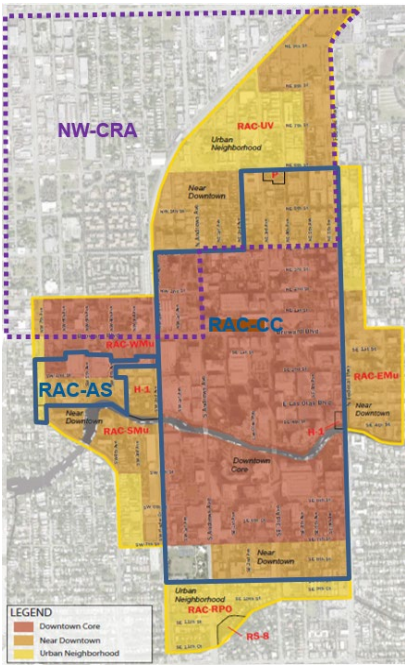
This report is a follow-up to the City Commission recommendations and offers an analysis and recommendations for the residential parking requirement, transition zone measurement, building separation measurement and wind impacts.

PARKING REQUIREMENT IN RAC-CC ZONING DISTICT

Analysis

The Planning and Zoning Board's recommendation to adopt a minimum residential parking requirement in the RAC-CC zoning district was based on the Downtown Civic Association's recommendation of introducing one parking space per residential unit, where the requirement is currently market-driven. This has historically been the case, since downtowns typically strive to promote less dependency on cars and more dependency on multi-modal mobility.

Existing parking requirements exempt parking standards for residential development in the RAC-CC and RAC-AS districts, as shown in Table 3, ULDR Section 47-20.



ULDR Section 47-20 Parking Requirements – Table 3.

ZONING DISTICT	RESIDENTIAL PARKING REQUIREMENT
RAC-CC "City Center"	*Exempt*
RAC-AS "Arts & Science"	*Exempt*
RAC-UV "Urban Village"	1.2 / unit
RAC-RPO "Residential & Professional Office"	1.2 / unit
RAC- WMU "Transitional West Mixed-Use"	1.2 / unit or 3 spaces for each four rooms with bathroom
RAC-SMU "Transitional South Mixed-Use" and RAC-EMU "Transitional East Mixed-Use"	*Multifamily Requirement:* Efficiency: 1.75 / unit One-Bedroom: 1.75 / unit Two-Bedroom: 2 / unit Three-Bedroom: 2.1 / unit Four-Bedroom (+): 2.2 / unit

In evaluating Downtown parking requirements, staff analysis of parking for approved development projects in the RAC-CC zoning district shows that the average parking ratio is approximately 1.3 parking spaces per unit, when outliers are removed. See Appendix, section A.

It is not recommended that the minimum parking requirement be increased beyond one space per unit. It is important to recognize that as Downtown Fort Lauderdale continues to grow and mature as the County's regional metropolitan area, access to various modes of transportation plays an important role to keep people moving throughout the City and for Downtown's continued economic health. Investments in multimodal transportation options and creating a safe and walkable city were identified as top-ranked priorities of the *Fast Forward Fort Lauderdale 2035* Vision Plan. In support of this vision, in 2014 the City adopted Transit Oriented Development (TOD) guidelines (Resolution 14-19). Reducing parking demand and enhancing connectivity was identified as part of the strategy to encourage a pedestrian-friendly, vibrant Downtown. The RAC-CC in particular is envisioned as the City's' densest urban core, supported by planned transit initiatives that will help to sustain growth, while ensuring safe and efficient mobility.

TOD offers opportunities to reduce the number of parking spaces below the conventional parking requirements for residential and non-residential uses. Reduced parking thereby results in

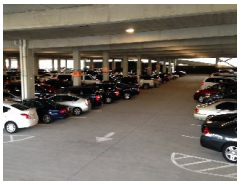
dependency on other mobility modes. In particular, TOD Guideline T6 encourages incorporation of Travel Demand Management (TDM) measures into developments and Guideline T7 aims to reduce parking to eliminate excess pavement and promote the highest and best use of land. TDM measures include a wide range of strategies that aim to reduce traffic impacts and parking demand and result in more efficient use of parking resources by improving mobility. TDM measures include, programs that encourage alternative modes of transportation, provision of bike facilities, vehicle and bike sharing programs, subsidized transit and vanpool programs, shared or reduced parking, etc.

It is recommended that the TOD guidelines be utilized in the analysis of qualifying Downtown RAC parking reduction applications. Staff recommends that applications for a parking reduction in the DRAC should be reviewed as a site plan level I (administrative) review process, consistent with how they are currently reviewed in parts of the Downtown that fall within the Northwest Community Redevelopment Area.

Recommendation

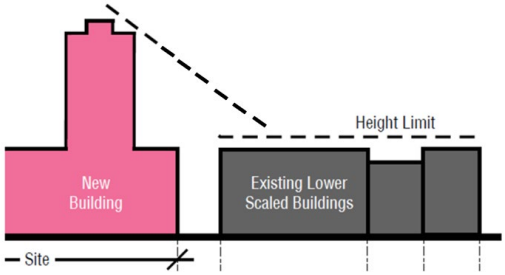
In response to the City Commission request, and based on staff analysis, a minimum of one space per unit is recommended for residential uses in RAC-CC and RAC-AS zoning districts. Qualifying projects in Downtown RAC may request a parking reduction through the Site Plan Level I review process.





TRANSITION ZONE MEASUREMENT



Analysis

Downtown Transition Zones were incorporated into the code to ensure a progressive transition in height from the more intensive Downtown zoning districts to those less intensive zoning districts outside of the Downtown Regional Activity Center. The adopted Residential Transition Zones Map is shown below. The transition zone is currently measured from the Downtown Regional Activity Center district boundary and generally falls within the center line of the right-of-way. The Tarpon River Neighborhood Association made a request to the PZB that it be measured from the property line, so that the right-of-way will not count as part of transition depth.

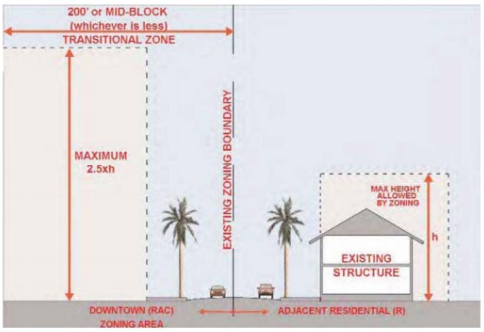
Map 1. Residential Transition Area Map

RESIDENTIAL TRANSITION AREA

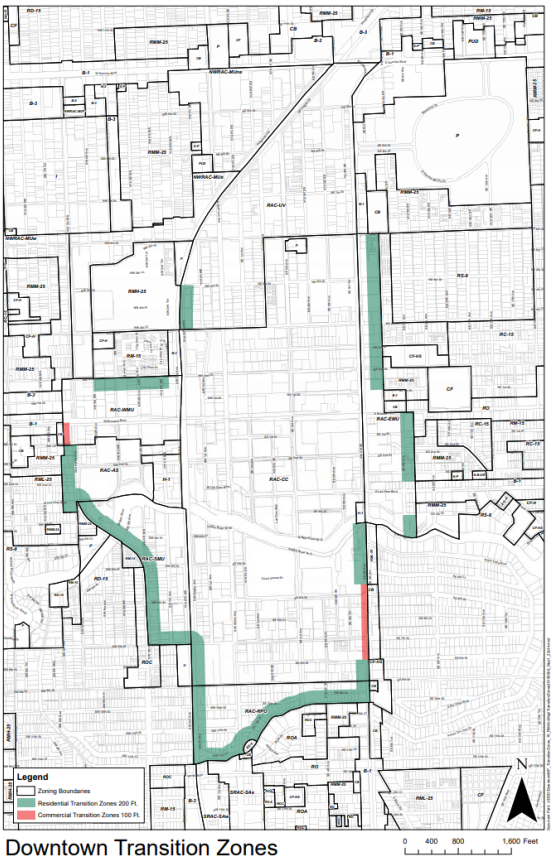
Where D-RAC zones abut any residential zoning districts a mid-block or 200-foot wide, whichever is less, "height transition zone" (green areas on Figure 4.221) applies, where the height of proposed building can be a maximum of 2.5 times the maximum height of adjacent residential zoning district.

No transition zones needed where RAC zones abut zoning districts with equal or greater height limits.

See Figure 4.220 for height limit:

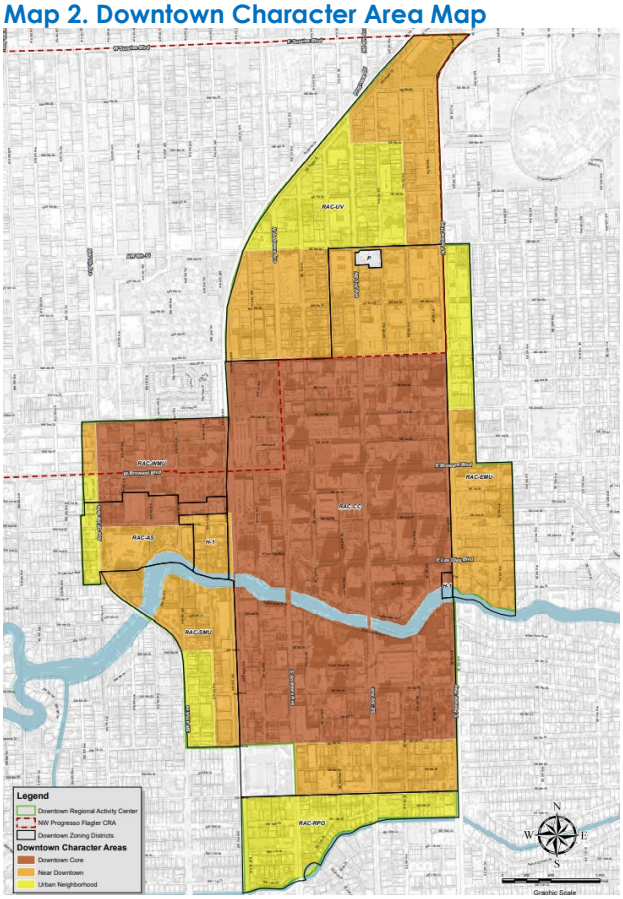


[Figure 4.220]



Downtown Transition Zones

Map 2. Downtown Character Area Map



Recommendation

The original request was made prior to subsequent amendments to the Downtown Character Area Map, which in effect reduced the impacts of the potential height of buildings on the boundary of the Downtown RAC from 30 stories to 6 stories (up to 12 stories through the conditional use process in the RAC-UV and RAC-RPO zoning districts). This significantly reduced the impact of adjacent buildings. In combination with adopted building step back requirements and existing compatibility criteria in RAC-TMU districts, the adopted transition zones and character areas adequately address the intent.

BUILDING SEPARATION MEASUREMENT

Analysis

The building tower separation measurement is intended to provide for a horizontal spacing distance between building towers to protect access to sunlight and sky views within the surrounding context of streets and private and public open space, resulting in more slender towers with separation between them, as opposed to more massive building forms. Large, massive floorplates cast long shadows and have inappropriate scale at the street level.

The adopted code states that the minimum distance separation between building towers is 60 feet, with each property owner being responsible for a minimum of 30 feet on their property when adjacent to an abutting lot under separate ownership.

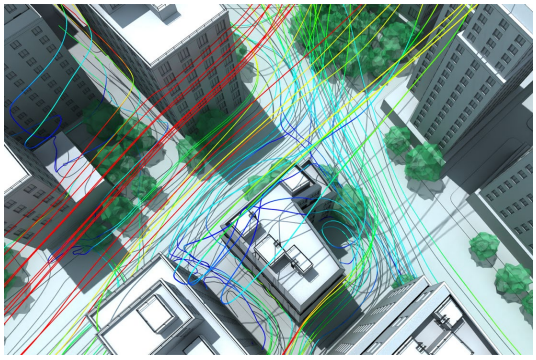
Recommendation

it is staff's recommendation that this requirement remain as adopted. Otherwise, for development sites where an adjacent tower is closer than 30 feet to the site under consideration and an applicant cannot maintain 60 feet of separation, the application would have to be approved by the City Commission.

WIND STUDY

Analysis

The City Commission requested that staff analyze concerns raised by stakeholders regarding the effects of wind from tall buildings on the built environment. A Building's height, shape, and location can have impacts on microclimates and can influence different effects of wind speeds and patterns.



Source: https://www.simscale.com/webinars-workshops/porous-media-and-wind-comfort/

An integral part of building codes in the United States includes utilizing American Society of Civil Engineers (ASCE) design loads and associated criteria for buildings including wind loads, as it relates to a building's structural design. Structural engineers typically address this through the calculation of wind loads for structures, utilizing tools such as velocity pressure equations and wind speed maps, especially in high velocity hurricane-prone regions like South Florida.

In Fort Lauderdale, many high-rise developments utilize wind load studies / wind tunnel tests to determine the wind pressure loads for the design of the exterior envelope of the structure, including building cladding, to ensure consistency with the Florida Building Code. These types of studies can also be used to determine areas where the velocity of the wind may cause an uncomfortable pedestrian environment. In some cases, engineering simulations may also be used to help designers, engineers and architects identify potential impacts of wind that can help to identify and mitigate areas of concern such as impacts on the pedestrian environment.

Staff engaged the Planning Advisory Services of the American Planning Association (APA) to assist with analyzing wind impacts of buildings. The resulting analysis (See Appendix, section B) indicates that cities studied generally use one of four approaches to mitigate the potential ground-level wind effects of tall buildings:

1. **Use zoning to require a specific performance.** This approach requires buildings to meet an objective wind speed standard, which typically requires completing a wind impact study;
2. **Use zoning to require a wind impact study.** This approach does not identify a specific performance requirement; rather, decision-makers review study results as one input to inform discretionary approval processes;
3. **Use design guidelines to mitigate wind impacts on pedestrians.** This approach may be combined with a wind study requirement or it can be used as a standalone approach. Guidelines provide policy support to decision-makers, particularly if a project application is denied due to lack of wind impact mitigation strategies;
4. **Use zoning to require building stepbacks above a certain height.** This approach is common; however, zoning regulations seldom explicitly identify wind impacts as the purpose for the stepback.

It is important to note that per the APA advisory services analysis, several cities referenced below have downtowns whose tallest buildings range between 400 and 600 feet (e.g., Hamilton, ON

Canada; Honolulu, HI; Mississagua, ON Canada; Oakland, CA; and Ottawa, ON Canada). Others are coastal or lakefront cities, where wind currents from large bodies of water can compound wind effects from tall buildings (e.g., Boston, MA; Chicago; Hamilton, ON Canada; Honolulu, HI; Portland, ME; San Francisco, CA; and Toronto, ON Canada). In addition to building height and proximity to a large body of water, other considerations include building orientation and added wind discomfort in colder climates.

Some city guidelines describe metrics to assess pedestrian comfort. Hamilton, Ontario, applies the Lawson Beaufort Criteria, which connects tolerable wind speed with different pedestrian activities, to apply flexible wind speed requirements depending on on-site activities and adjacent public space uses. Portland, Maine, categorizes pedestrian comfort using Melbourne's Criteria, a classification mechanism that describes acceptable and unacceptable wind speeds dependent on pedestrian wind speed. Others, like San Francisco, use a baseline wind speed depending on whether adjacent areas are used for walking or public seating. Some communities require applicants to look beyond the immediate project area. For example, Oakland, California, requests wind radius information to conduct a cumulative wind analysis. This approach provides a broader understanding of how buildings interact with one another in a downtown area.

Building massing strategies, such as setback requirement at specific heights, also referred to as stepbacks, are frequently noted as a way to reduce wind impacts at the ground level. Form-based building design standards recently adopted in Downtown Fort Lauderdale, include building step-backs above the building podium, building height limitations, building tower separation, and building tower floorplate size.

Recommendation

Based on this analysis, it is not clear that the City of Fort Lauderdale has specific issues with wind impacts in the Downtown. Should the City Commission wish to pursue additional wind study analysis, staff recommend that additional resources including procurement of consulting services and conducting additional public outreach to determine if residents, property owners and businesses support further zoning changes, which could impact property rights, should be considered.

APPENDIX

A. Parking Ratios in RAC-CC

	Project Name	Status	Address	Zoning District	Units	Parking Spaces	Ratio (spaces per unit)	Notes
2	New River Yacht Club	Completed	400 SW 1st Ave	RAC-CC	256	293	1.14	
3	The Whitney	Completed	120 NE 4 St	RAC-CC	386	543	1.41	
4	The Pearl	Completed	400 NE 3rd Ave	RAC-CC	350	525	1.50	
5	The Queue	Completed	817 SE 2nd Ave	RAC-CC	192	323	1.68	
6	The Rise	Completed	405 Ne 2nd St	RAC-CC	348	446	1.28	
7	Pinnacle at Tarpon River	Completed	805 SE 3 Ave	RAC-CC	112	149	1.33	
8	Icon Las Olas	Completed	500 E Las Olas Blvd	RAC-CC	272	404	1.49	
9	4 West Las Olas	Completed	305 S Andrews Ave	RAC-CC	260	385	1.48	
10	100 Las Olas	Completed	100 E. Las Olas Blvd	RAC-CC	120	507	4.23	Hotel / Residential
11	The Manor	Completed	501 NE 5th Ter	RAC-CC	382	766	2.01	Mixed Used
12	The Edge	Completed	495 N Federal Highway	RAC-CC	331	515	1.56	
13	Las Olas River House	Completed	333 Las Olas Way	RAC-CC	280	366	1.31	
14	Exchange Lofts	Completed	115 NE 3rd Ave	RAC-CC	87	4	0.05	Adaptive Reuse Exist Structure / Parking Agreement
15	NOLA Lofts/Selo Hotel	Completed	313 NE 2 St	RAC-CC	150	56	0.37	
16	RD Las Olas	Under Construction	201 S. Federal Highway	RAC-CC	259	365	1.41	
17	Novo Las Olas	Under Construction	212 SE 2nd Ave	RAC-CC	329	650	1.98	Office / Residential
18	Next Las Olas	Under Construction	419 SE 2nd St	RAC-CC	374	472	1.26	
19	New River Yacht Club III	Under Construction	400 SW 1st Ave	RAC-CC	230	324	1.41	
20	Society Las Olas (Formerly X Las Olas)	Under Construction	221 SW 1 Ave	RAC-CC	1,214	1,227	1.01	
21	Alluvion Las Olas	Under Construction	215 N New River Dr E	RAC-CC	419	663	1.58	
22	488 Residences	Approved	444 SW 1st Ave	RAC-CC	362	363	1.00	
23	629 Residences	Approved	629 SE 5th Ave	RAC-CC	251	341	1.36	
24	One Financial Plaza Phase III	Approved	100 SE 3rd Ave	RAC-CC	300	614	2.05	Office / Added Residential
25	1st Avenue Residences	Approved	477 SW 1st Ave	RAC-CC	380	576	1.52	
26	New River Central	Approved	100 SW 6th st	RAC-CC	407	463	1.14	
27	FAT City	Approved	300 N Andrews Ave	RAC-CC	612	1327	2.17	Mix of Uses
28	URBN Flagler	Approved	421 NE 3rd Ave	RAC-CC	512	600	1.17	
29	Riverparc Square	Approved	501 S Andrews Ave	RAC-CC	790	1630	2.06	Mix of Uses
30						Average for RAC-CC:	**1.5**	excluding highlighted outliers: **1.3**

B. Wind Analysis Case Studies

Examples of Standards and Guidelines that address Wind *(APA PAS Services)*

Jurisdiction	State | Province	Summary of Standards or Guidelines	Reference or Code Citation
Anchorage	AK	References two sources for wind speed criteria and requires a study for forecast wind conditions. It states that developments that apply criteria and a wind tunnel test are eligible for a floor area bonus.	§21.07.120.C; §21.11.060.D
Boston	MA	The Environmental Protection Component section of the Development Review and Approval section describe wind tunnel testing as a potential requirement for buildings taller than 150 feet or in cases where proposed developments heights meet or exceed twice the height of adjacent buildings.	§80B-3.2(a)
Brampton	ON	Brampton's microclimate guidelines present multiple characteristics to mitigate wind effects including: - Avoid large facades facing prevailing winds - Considerations for building placement, including height, spacing, and orientation - Design elements such as a colonnade and base building roof areas to control downward wind flow. - Ground-level strategies, such as landscaping, horizontal canopies, and parapet walls to reduce wind impacts. - Building designs that step back building mass from the base.	Main Street North Development Permit System Guidelines §6.4.12(c)
Burlington	ON	States that building massing and relationship to base shall not have adverse wind impacts at the ground level. It recommends podium buildings, while providing design flexibility by stating that a portion of a building tower may extend to the edge of the building base if a design does not cause adverse wind impacts.	Tall Building Guidelines §3.1
Chicago	IL	Chicago's Development Manual states that a qualitative wind impact analysis may be requested for proposed developments exceeding 600 feet, adjacent to open space or waterways, or when a proposed development is significantly taller than adjacent buildings. It specifies that impacts should be captured at 4.5 to 5 feet above ground level and requests a description of design elements to mitigate wind impacts.	§17-1-0700; Development Manual (Supplemental Materials: Wind Impact Analysis)
Denver	CO	Describes wind mitigation strategies and states that projects over 400 feet must submit a wind study.	Design Guidelines, §4

Jurisdiction	State | Province	Summary of Standards or Guidelines	Reference or Code Citation
Edmonton	AB	Zoning bylaws indicate that a wind study is required for buildings taller than 65 feet. Design guidelines provide wind mitigation strategies to preserve pedestrian comfort, including setback and stepback requirements.	Zoning Bylaw §§14.2, 230.5.f; Draft Tall Building Design Guidelines
Hamilton	ON	Describes wind targets for new building massing based on open space and pedestrian area impacts. References Lawson Comfort Criteria, which categorizes acceptable wind speeds based on different pedestrian activities: sitting, standing/entrances, leisure walking, business walking, and roadway. Encourages horizonal canopies and landscaped base buildings as wind mitigation strategies. Describes building massing principles to mitigate adverse wind effects.	Downtown Hamilton Tall Buildings Guidelines, §5.3
Honolulu	HI	Requires wind impacts for proposed developments over 350 feet. In cases with adverse impacts at ground level, proposals must describe mitigation strategies.	§21-3.120-1(a)(6)
Minneapolis	MN	Identifies setback requirements for buildings over ten stories or over 140 feet to minimize shadowing and wind impacts. Setbacks can start between the third story or 42 feet (whichever is less) and the tenth story or 140 feet (whichever is less). Open space at the ground level reduce setback requirements.	§591.920
Mississauga	ON	States that a sun/shadow/wind study may be required. Accompanying guidelines present triggers for a wind study, including building height, number of buildings, site location, and site area. The methodology section describes qualitative and quantitative techniques. The mitigation strategies section describes design guidelines to mitigate unsafe pedestrian conditions.	Official Plan §19.4.5; Pedestrian Wind Comfort and Safety Studies
Oakland	CA	Enables Environmental Review Officer to create criteria for assessing adverse environmental impacts, and references adopting guidelines to evaluate environmental impacts. The California Environmental Quality Act Thresholds of Significance Guidelines, which defines significant wind impacts as developments that " create winds that exceed 36 mph for more	Planning Code §17.158.320.C; CEQA Thresholds of Significance Guidelines

Jurisdiction	State | Province	Summary of Standards or Guidelines	Reference or Code Citation
		than one hour during daylight hours." These conditions trigger a wind analysis if a building is 100 feet or taller, and if it's located near a body of water or in Downtown. Applicants are required to share a project's wind radius with the city, which is used to create a cumulative wind analysis.	
Ottawa	ON	Illustrates how step backs can be used to reduce wind impacts. Encourages step backs for towers, while stating that a portion of a tower can extend straight down, as long this section of the building uses wind mitigation strategies at the pedestrian level. Encourages use of wind analysis for all high rise developments which describes how placement and form minimize potential impacts and describes mitigation measures.	Urban Design Guidelines for High-rise Buildings §2.29-2.31, §3.26
Portland	ME	Presents location, massing, height, and design recommendations to maintain acceptable wind conditions for pedestrians. It identifies two factors to evaluate adverse wind impacts: how wind speeds will impact pedestrian movement during and after development, and the impact of wind speed on pedestrian seating areas and on the surrounding area.	Downtown Urban Design Guidelines §V
Red Bank	NJ	Requires additional set backs for buildings adjacent to Navesink River. Additional five foot setback for each five feet of elevation on upper levels of buildings that exceed 50 feet in elevation.	Planning and Development regulations, §490-148, Subsection F.(3)
San Francisco	CA	Section 148 requires wind mitigation strategies to maintain ground-level wind speeds at or below 11 mph in pedestrian areas and 7 mph in seated areas. It states conditions for exemption and references guidelines for procedures and methodologies to implement this section.	Planning Code §148
Toronto	ON	Includes a principle guideline statement which balances air circulation and ventilation, while minimizing "adverse wind conditions on adjacent streets, parks and open space, at building entrances, and in public and private outdoor amenity areas." It provides rationale, issues, and solutions to mitigate down drafts and wind tunneling between large buildings.	Tall Building Design Guidelines §4.3
Ventnor City	NJ	Requires high-rise construction to include wind study as part of preliminary site-plan review submission.	Development Regulations §102-122, Subsection A(2)