+ Campbell Coyle Development
+ Remark Corporation
+ GDS Companies
+ Kettlekamp and Kettlekamp
+ KLOA Inc.
BUILDING & DESIGN OVERVIEW
• Eliminate incompatible uses—not contributing to the tax base
• Infill missing streetscape
• Need for Class-A office building
• Signature building—appropriate size and compatible use
• Strengthen the downtown economy
• Sustainable development
• Revenue generation
**CONTEXT | TRANSPORTATION**

```
51 cars
1,583 cars
600 cars
1,400 cars
```

**DAVIS STREET DEVELOPMENT COMPANY 2015, LLC**

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CITY OF EVANSTON | DEVELOPMENT SUMMARY | 605 DAVIS | EVANSTON | 5842.004 | 04–13–2020
ZONING | DISTRICTS

D-3 ZONING
CHASE BANK PARCEL
VACANT LOT
EXISTING CONDITION | SITE PHOTOS

DAVIS STREET FROM CHICAGO AVE. INTERSECTION
EXISTING CONDITION | SITE PHOTOS

VIEW FROM FOUNTAIN PLAZA
PODIUM | LOCAL MASONRY FACADE PRECEDENTS

LOCAL CONTEXT PRECEDENTS
1. Podium Brick 1
2. Store Front System
3. Metal Cladding Between Podium & Tower
4. Tower Cladding 2
5. Glass Curtain Wall
6. Low-E Insulating Glass
PODIUM | VIEW FROM CHICAGO AND DAVIS
PLAN | GROUND FLOOR / SITE

EXISTING PARKING STRUCTURE

LOADING

RECYCLE

TRASH

BIKE PARKING
45 STALLS

EMERGENCY GENERATOR

EXISTING ACCESS EASEMENT & LOADING AREA

EXISTING PARKING STRUCTURE

RETAIL: 2,280sf

LOBBY

RETAIL: 2,220sf

WATER METER 165sf

FOC

BIKE LANE

BIKE LANE

DAVIS STREET

CHICAGO AVENUE

20'-0"
LEVEL 2 : 39 PARKING SPACES including 4 ADA
ELEVATIONS | BIRD FRIENDLY GLASS

WEST ELEVATION

SOUTH ELEVATION

EAST ELEVATION

NORTH ELEVATION

FACADE ZONE PER LEED Pilot Credit 55

FACADE ZONE 1: 36' or 3 Stories above the ground level

12' or 1 Story above the green roof.

FACADE ZONE 2: All Facade Zone that is not Zone 1.
ECONOMIC OPPORTUNITIES
Job Creation

450 Construction Jobs

1 equals 30 jobs
Job Creation

30 FTE new Jobs

450 Construction Jobs

1 person equals 30 jobs
Job Creation¹

30 FTE new Jobs

450 Construction Jobs

950 Office workers in Downtown Evanston

¹ Each equals 30 jobs
ECONOMIC OPPORTUNITIES

Job Creation¹

30 FTE new Jobs

450 Construction Jobs

950 Office workers in Downtown Evanston

¹ Each equals 30 jobs

Annual Real Estate Taxes

Project (Proposed) $1,430,000

2733% gross property tax increase over baseline

Baseline (Vacant Lot and Drive Thru) $50,468
ECONOMIC OPPORTUNITIES

Job Creation¹

30 FTE new Jobs

450 Construction Jobs

1 1 person equals 30 jobs

950 Office workers in Downtown Evanston

Annual Real Estate Taxes

Project (Proposed) $1,430,000

2733% gross property tax increase over baseline

Baseline (Vacant Lot and Drive Thru) $50,468

Permit Fee Revenue²

$1,050,000

² Paid to the City of Evanston
ECONOMIC OPPORTUNITIES

Job Creation

- 450 Construction Jobs
  - 30 FTE new Jobs
  - 950 Office workers in Downtown Evanston

Permit Fee Revenue

- $1,050,000
  - Paid to the City of Evanston

Annual Real Estate Taxes

- Project (Proposed) $1,430,000
- Baseline
  - (Vacant Lot and Drive Thru) $50,468
- 2733% gross property tax increase over baseline

Annual Sales Taxes

- $175,000
  - Illinois, 6.25%; Cook County, 1.75%; Evanston, 1%; Special, 1%
Urban Planning

- Infill development of underutilized site

- Transit Oriented Development
  - 150 indoor bike parking spaces conveniently accessed from Davis Street
  - Showers and lockers in the building

- Drive-thru Reduction from seven lanes to one lane

- 4,500 SF of ground floor retail activating Davis Street

- Future-proof drive-thru (absorb into retail and remove curb cut if not banking)

- Future-proof parking level (flat floor to allow conversion to another use)
DOWNTOWN EVANSTON AND INFRASTRUCTURE SUPPORT

- **Fountain Square** - $50,000 in financial support to Downtown Evanston
- **Rail Viaduct Improvements** - $50,000 in financial support
- **Parking Lease** - long-term lease with the City of Evanston, provides up to $198,000 in annual revenue (2020 dollars) to the City
- **Public Art** - Green Wall prominently located on Davis Street
- **Local Hiring** - 5 residents during construction and 30% of permanent jobs
- **Metered Parking** - two additional metered parking spaces on Davis Street
- **Alley Reconstruction** - full replacement of western half of alley adjacent to the site
SUSTAINABILITY AND RESILIENCY

- **Bird-Friendly Features**
  - Bird-friendly glass
  - Fritted balcony rails at exterior terraces
  - Lighting control at night

- **Bike Lane Improvements** - Installation of additional bollards and other safety measures for bike lane on Davis Street

- **Electric Vehicle Charging Stations** - Provide eight (8) charging stations, (two (2) above the code) with infrastructure for future stalls

- **Composting** - Engage Collective Resource, the official composting partner of Evanston, for the building

- **Mayor’s Monarch Pledge** - Compliance with this Evanston sustainability goal
### Proposed Project
Mixed use office building with ground floor retail and parking. University Building to remain.

### Site
605 Davis Street

### Site Area
19,909 sf

<table>
<thead>
<tr>
<th>Zoning District</th>
<th>Existing</th>
<th>Proposed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FAR</strong></td>
<td>Enclosed Building Area</td>
<td>approx. 305,243 sf</td>
</tr>
<tr>
<td><strong>FAR</strong></td>
<td>FAR Building Area</td>
<td>approx. 259,230 sf</td>
</tr>
<tr>
<td><strong>FAR Building Area</strong></td>
<td><strong>4.5</strong></td>
<td><strong>13.02</strong></td>
</tr>
</tbody>
</table>

*Aggregate maximum FAR is 8.00 per Zoning Ordinance 6-16-13-11. – Incentive System*

### Building Height

<table>
<thead>
<tr>
<th>Building</th>
<th>Floors</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office Tower</td>
<td>18 Floors</td>
<td>232'-0&quot;</td>
</tr>
<tr>
<td>Floors</td>
<td>12'-0&quot; max.</td>
<td></td>
</tr>
</tbody>
</table>

### Building Setbacks
(See diagram to right.)

### Parking Spaces
- Parking Ratio: 0.14 / 1000 GSF
- 39 Parking Spaces

### Bicycle Parking
- 160 Interior Bike Parking Spaces

### Loading Berths
- Office Tower: 2 short berths (interior)

### Sustainability
- LEED Silver
### Summary of 601 Davis Office Tower

#### Floor Elevations and Floor Heights

<table>
<thead>
<tr>
<th># of Floors</th>
<th>Office Floors</th>
<th>Elevation</th>
<th>Floor Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>252'-0&quot;</td>
<td>20'-0&quot;</td>
<td>Mech</td>
</tr>
<tr>
<td>18</td>
<td>232'-0&quot;</td>
<td>13'-6&quot;</td>
<td>Office</td>
</tr>
<tr>
<td>17</td>
<td>218'-6&quot;</td>
<td>13'-6&quot;</td>
<td>Office</td>
</tr>
<tr>
<td>16</td>
<td>205'-0&quot;</td>
<td>13'-6&quot;</td>
<td>Office</td>
</tr>
<tr>
<td>15</td>
<td>191'-6&quot;</td>
<td>12'-6&quot;</td>
<td>Office</td>
</tr>
<tr>
<td>14</td>
<td>179'-0&quot;</td>
<td>12'-6&quot;</td>
<td>Office</td>
</tr>
<tr>
<td>13</td>
<td>166'-6&quot;</td>
<td>12'-6&quot;</td>
<td>Office</td>
</tr>
<tr>
<td>12</td>
<td>154'-0&quot;</td>
<td>12'-6&quot;</td>
<td>Office</td>
</tr>
<tr>
<td>11</td>
<td>141'-6&quot;</td>
<td>12'-6&quot;</td>
<td>Office</td>
</tr>
<tr>
<td>10</td>
<td>129'-0&quot;</td>
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<td>Office</td>
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<tr>
<td>9</td>
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<td>Office</td>
</tr>
<tr>
<td>8</td>
<td>104'-0&quot;</td>
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<td>Office</td>
</tr>
<tr>
<td>7</td>
<td>91'-6&quot;</td>
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<td>Office</td>
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<tr>
<td>6</td>
<td>79'-0&quot;</td>
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<td>Office</td>
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<tr>
<td>5</td>
<td>66'-6&quot;</td>
<td>12'-6&quot;</td>
<td>Office</td>
</tr>
<tr>
<td>4</td>
<td>54'-0&quot;</td>
<td>12'-6&quot;</td>
<td>Office</td>
</tr>
<tr>
<td>3</td>
<td>41'-6&quot;</td>
<td>12'-6&quot;</td>
<td>Office/Amenity</td>
</tr>
<tr>
<td>2</td>
<td>29'-0&quot;</td>
<td>12'-0&quot;</td>
<td>Parking</td>
</tr>
<tr>
<td>1</td>
<td>17'-0&quot;</td>
<td>17'-0&quot;</td>
<td>Lobby/Chase/Retail</td>
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</table>

#### FAR and Net Area

<table>
<thead>
<tr>
<th># of Floors</th>
<th>Office Floors</th>
<th>Elevation</th>
<th>Floor Height</th>
<th>Building Gross</th>
<th>Atttributable Gross Area</th>
<th>Office Gross</th>
<th>Leasable</th>
<th>Parking</th>
<th># of Parking Spaces</th>
<th>Retail</th>
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<tbody>
<tr>
<td>19</td>
<td>252'-0&quot;</td>
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<td>Mech</td>
<td>15,000</td>
<td>14,330</td>
<td>15,000</td>
<td>10,685</td>
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<td>15,408</td>
<td>11,085</td>
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<td>-</td>
<td>400sf Terrace</td>
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<tr>
<td>17</td>
<td>218'-6&quot;</td>
<td>13'-6&quot;</td>
<td>Office</td>
<td>16,745</td>
<td>15,665</td>
<td>16,745</td>
<td>13,396</td>
<td>-</td>
<td>-</td>
<td>1,115sf Terrace</td>
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<tr>
<td>16</td>
<td>205'-0&quot;</td>
<td>13'-6&quot;</td>
<td>Office</td>
<td>16,745</td>
<td>15,665</td>
<td>16,745</td>
<td>13,396</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>191'-6&quot;</td>
<td>12'-6&quot;</td>
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<td>15,665</td>
<td>16,745</td>
<td>13,396</td>
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<td>15,665</td>
<td>16,745</td>
<td>13,396</td>
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<td>-</td>
<td></td>
</tr>
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<td>15,665</td>
<td>16,745</td>
<td>13,396</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
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<td>Office</td>
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<td>13,396</td>
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<td>-</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>79'-0&quot;</td>
<td>12'-6&quot;</td>
<td>Office</td>
<td>16,745</td>
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<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>41'-6&quot;</td>
<td>12'-6&quot;</td>
<td>Office/Amenity</td>
<td>17,410</td>
<td>16,325</td>
<td>17,410</td>
<td>13,928</td>
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<td>1,592sf Terrace Including 2 ADA</td>
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<tr>
<td>2</td>
<td>29'-0&quot;</td>
<td>12'-0&quot;</td>
<td>Parking</td>
<td>19,140</td>
<td>500</td>
<td>19,140</td>
<td>17,690</td>
<td>39</td>
<td>4,500</td>
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</tr>
<tr>
<td>1</td>
<td>17'-0&quot;</td>
<td>17'-0&quot;</td>
<td>Lobby/Chase/Retail</td>
<td>18,600</td>
<td>10,100</td>
<td>12,180</td>
<td>1,920</td>
<td>39</td>
<td>4,500</td>
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</tr>
</tbody>
</table>

#### Total Above Grade Area

<table>
<thead>
<tr>
<th></th>
<th>Building Gross</th>
<th>Atttributable Gross Area</th>
<th>Office Gross</th>
<th>Leasable</th>
<th>Parking</th>
<th># of Parking Spaces</th>
<th>Retail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Above Grade Area</td>
<td>303,243</td>
<td>259,230</td>
<td>279,133</td>
<td>209,846</td>
<td>19,610</td>
<td>39</td>
<td>4,500</td>
</tr>
</tbody>
</table>

#### Total Building Area

| | | | | |
|----------------|-----------------|----------------|---------|---------|---------------------|--------|
| Mechnical | 2,500 | 2,500 | |

| | | | | |
|----------------|-----------------|----------------|---------|---------|---------------------|--------|
| Total Building Area | 305,743 | 259,230 | |

**Zoning Height:** 220'-0"

**Site Area:** 19,909

**FAR AREA:** 259,230 13.02

**Total Bldg Area:** 305,743

**Parking Spaces/1000 SF (leaseable):** 0.19

**Parking Spaces/1000 SF (gross):** 0.14
**FAR DIAGRAMS**

### CITY OF EVANSTON'S FAR RELEVANT DEFINITIONS FROM CHAPTER 18 OF TITLE 6-ZONING

<table>
<thead>
<tr>
<th>FLOOR AREA (GROSS FLOOR AREA)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLOOR AREA, GROUND:</td>
<td>The sum of the gross horizontal area of the ground floor of a building, measured from the exterior faces of the exterior walls or from the center line of walls separating two (2) buildings. The ground floor area of a building also shall include recessed, unenclosed, or partially enclosed areas under a floor above exterior stairways, porches, and similar areas but excluding open terraces.</td>
</tr>
</tbody>
</table>

**EXTERIOR COVERED TERRACE INCLUDED IN FAR**

**EXTERIOR OPEN TO SKY TERRACE EXCLUDED IN FAR**

17TH FLOOR PLAN  
FAR Attributable Gross Area: 14,330sf

18TH FLOOR PLAN  
FAR Attributable Gross Area: 14,330sf
LEVEL 2: 39 PARKING SPACES including 4 ADA
GROSS FLOOR AREA: 17,410 SF
GROSS FLOOR AREA: 16,745 SF
GROSS FLOOR AREA: 15,000 SF
NORTH OF DAVIS STREET

ZONING ORDINANCE ZIGGURAT SETBACK | CONTEXT ANALYSIS

WEST
SHERMAN PLAZA PARKING GARAGE
821 DAVIS
NO FRONT YARD SETBACK
NO ZIGGURAT SETBACK
BUILDING HEIGHT 124'

SHERMAN PLAZA
807 DAVIS
NO FRONT YARD SETBACK
ZIGGURAT SETBACK 20'
PODUM HEIGHT 118'
BUILDING HEIGHT 259'

FOUNTAIN SQUARE

EAST

ORRINGTON PLAZA
1603 ORRINGTON
FRONT YARD SETBACK 108'
NO ZIGGURAT SETBACK
BUILDING HEIGHT 270'

UNIVERSITY BUILDING
601 DAVIS
NO SETBACK
NO ZIGGURAT SETBACK
BUILDING HEIGHT 28'

THE MERION
1607 CHICAGO
NO SETBACK
NO ZIGGURAT SETBACK
BUILDING HEIGHT 80'

THE JOHN EVANS BUILDING
1600 HINMAN
NO SETBACK
NO ZIGGURAT SETBACK
BUILDING HEIGHT 54'

THE MATHER
425 DAVIS
FRONT YARD SETBACK 20'
NO ZIGGURAT SETBACK
BUILDING HEIGHT 108'
SOUTH OF DAVIS STREET

ZONING ORDINANCE ZIGGURAT SETBACK | CONTEXT ANALYSIS

THE MATHER PLACE AT THE GEORGIAN
422 DAVIS
FRONT YARD SETBACK 10'
NO ZIGGURAT SETBACK
BUILDING HEIGHT 100'

500 DAVIS CENTER
500 DAVIS
NO SETBACK PARTIALLY
PARTIAL ZIGGURAT SETBACK 18'
PODIUM HEIGHT 48'
BUILDING HEIGHT 118'

CHANDLER’S BUILDING
630 DAVIS
NO SETBACK
NO ZIGGURAT SETBACK
BUILDING HEIGHT 60'

OPTIMA TOWERS
1550 ORRINGTON
ZIGGURAT SETBACK 33'
PODIUM HEIGHT 41'
BUILDING HEIGHT 110'

520 DAVIS
NO SETBACK
NO ZIGGURAT SETBACK

624 DAVIS

820–830 DAVIS
NO SETBACK
NO ZIGGURAT SETBACK
BUILDING HEIGHT 43’–63’
PROPOSED TOWER TYPICAL FLOOR PLAN

TOWER TYPICAL FLOOR PLAN
PER ZONING ORDINANCE REQUIREMENTS

GROSS FLOOR AREA: 16,430 SF
NET LEASABLE AREA: 13,144 SF
TOTAL GROSS LEASABLE AREA: 206,570 SF
TOWER HEIGHT: 220 FT

GROSS FLOOR AREA: 9,274 SF
NET LEASABLE AREA: 5,988 SF
TOTAL GROSS LEASABLE AREA: 206,570 SF
TOWER HEIGHT: 458 FT
PEDESTRIAN WIND STUDY

605 DAVIS STREET

EVANSTON, IL

RWDI PROJECT #1904411
MARCH 9, 2020

SUBMITTED TO

Kerry Dickson
kerry.dickson@vermiliondevelopment.com

Davis Street Development
Company 2015, LLC
121 West Wacker Drive, Suite 400
Chicago, Illinois 60601
T: 312.525.8808

SUBMITTED BY

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EXECUTIVE SUMMARY

Wind conditions on and around the 605 Davis Street project proposed in Evanston, Illinois are discussed in this wind report. Our assessment is based on the review of the local wind climate, the current design of the proposed development and the existing surrounding buildings, combined with our experience with wind tunnel testing and screening-level assessments conducted for similar buildings.

The proposed development site and building design includes features that are considered positive for wind control, such as the tower setback from adjacent streets, low roofs of nearby buildings, densely built surroundings including several tall buildings near the site, large entrance canopy and trellis on the 3rd floor, trees in the courtyard nearby, etc.

Based on our analysis, the project is not expected to alter wind conditions significantly in the extended surrounding area beyond the immediate vicinity or to result in wind conditions that exceed the recommended wind safety criterion. While the project will result in an increase in wind speeds on Davis Street, Chicago Avenue and possibly Orrington Avenue, the resulting conditions are expected to remain comfortable for pedestrian use, similar to conditions that are observed currently.

The entry plaza and 3rd floor terrace will benefit significantly from the large canopy and trellis features. Conditions outside of the overhead cover on the terrace are expected to be breezy for passive users, and can be improved using landscaping and/or wind screens. The glass panel railings on all terraces are recommended to be taller than the average person depending on the primary activity on the terraces (4 ft tall for seated users and 6 ft tall for standing users).

The Chase courtyard will be protected by the existing large shade trees in the summer months when the area will be used. Comfortable wind conditions are expected in the seating area away from the gap between the project and Chase tower. In the winter, wind speeds will be higher than desired for passive use, but acceptable for active and transient pedestrians.
1. INTRODUCTION

RWDI was retained by Davis Street Development to conduct a Pedestrian Wind Assessment for the proposed development at 605 Davis Street in Evanston, Illinois (Image 1). The assessment is based on the following:

- a review of regional long-term meteorological data;
- design drawings from Solomon Cordwell Buenz, dated November 20, 2019;
- wind-tunnel studies undertaken by RWDI for similar projects in the Chicago area and other parts of the world;
- our engineering judgement and knowledge of wind flows around buildings;
- use of 3D software developed by RWDI (Winestimator) for estimating the potential wind conditions around generalized building forms.

This approach provides a screening-level estimation of potential wind conditions. Conceptual wind control measures are recommended to improve wind conditions, where advisable. Wind tunnel tests would be required to quantify the impact of the project and any wind control measures.

Note that other wind-related issues such as cladding, structural and snow loads, snow drifting, air quality, door operability, etc. are not part of the scope of this study.

Image 1: Rendering of the project; view from the southeast

2. SITE AND BUILDING INFORMATION

The project site is located at the northwest corner of Davis Street and Chicago Avenue in Evanston, Illinois (see Image 2a). The site is currently occupied by a secured drive-through and an empty lot.

Surroundings comprise tall-buildings, of the order of 20 stories, to the southwest through west to north and shorter buildings (about 8-stories tall) along Chicago Avenue to the east (Image 2b). Farther away, the building heights gradually reduce to be typical of suburban residential neighborhoods. Lake Michigan is less than half a mile to the east and O’Hare International Airport is about 11 mile to the southwest.

The proposed project is a 19-story office building with a 2 story podium housing retail and parking spaces. The podium will abut against the existing two-story University Building to the east and existing parking structure to the north. Key pedestrian areas on and around the project include main entrances, entry plaza and terraces on the proposed building, sidewalks and bus-stops on adjacent streets, and an outdoor restaurant seating area immediately west of the proposed site.
3. LOCAL WIND CLIMATE

Wind records from major airports are typically measured in open fields for a long term and with high quality. They are often used as a reference of wind climate for building projects in the surrounding area.

Long-term wind records measured at Chicago O’Hare International Airport were used as reference for the wind climate in the project area. The data is presented in the form of wind roses in Image 3. The radial axes represent the frequency of winds approaching from the directions marked along the circumference and colors represent speed ranges.

When all wind data are considered, winds are frequent from southwest, northwest and northeast quadrants throughout the year. Strong winds of a mean speed greater than 20 mph measured at the airport (at an anemometer height of 33 ft) occur more often in the winter than in the summer.
4. PEDESTRIAN WIND CRITERIA

The RWDI pedestrian wind criteria are used in the current study. These criteria have been developed by RWDI through research and consulting practice since 1974. They have also been widely accepted by city planners, the building design community and municipal authorities.

4.1 Pedestrian Safety

Pedestrian safety is associated with excessive gust wind speeds that can adversely affect a pedestrian’s balance and footing. If strong winds that can affect a person’s balance (56 mph) occur more than 0.1% of the time or 9 hours per year, the wind conditions are considered severe.

4.2 Pedestrian Comfort

Wind comfort levels are categorized by their suitability for certain common pedestrian activities:

- **Sitting** (≤ 6 mph): Calm or light breezes desired for outdoor seating areas where one can read a paper without having it blown away.
- **Standing** (≤ 8 mph): Gentle breezes suitable for main building entrances and bus stops.
- **Strolling** (≤ 10 mph): Moderate winds that would be appropriate for window shopping and strolling along a downtown street, plaza or park.
- **Walking** (≤ 12 mph): Relatively high speeds that can be tolerated if one’s objective is to walk, run or cycle without lingering.
- **Uncomfortable**: None of the comfort categories are met.

Wind conditions are considered suitable for sitting, standing, strolling or walking if the wind speeds are expected for at least four out of five days (80% of the time). Wind control measures are typically required at locations where wind speeds are higher than recommended for their intended use, uncomfortable, or exceed the wind safety criterion.

Note that these wind speeds are assessed at the pedestrian height (i.e., 5 ft above the walking surface), typically lower than those recorded in the airport (33 ft height in open terrain).

These criteria for wind forces represent average wind tolerance. They are sometimes subjective and regional differences in wind climate and thermal conditions as well as variations in age, health, clothing, etc. can affect people’s perception of the wind climate.

For the current development, wind speeds comfortable for walking are appropriate for sidewalks and parking lots where pedestrians would be active. Lower wind speeds comfortable for sitting or standing are desirable around building entrances where pedestrians may linger. Low wind speeds comfortable for sitting are desirable at outdoor amenity areas during the summer to be conducive to passive activities; higher wind speeds are considered appropriate in these areas in the winter as their usage for passive activities are not anticipated in the colder months.
5. PEDESTRIAN WIND CONDITIONS

5.1 Background

Predicting wind speeds and occurrence frequencies is complicated. It involves the assessment of geometry, orientation, position and height of the proposed building, surrounding buildings, upstream terrain and the local wind climate. Over the years, RWDI has conducted thousands of wind-tunnel model studies on pedestrian wind conditions around buildings, yielding a broad knowledge base. This knowledge has been incorporated into RWDI’s proprietary software that allows, in many situations, for a qualitative, screening-level numerical estimation of pedestrian wind conditions without wind tunnel testing.

In our discussion of anticipated wind conditions, reference will be made to the following generalized wind flow mechanisms. Tall buildings intercept strong winds at high elevations and redirect them to ground level, referred to as a Downwashing Effect (Image 4a). When winds approach a large façade at an oblique angle and are deflected down, a localized increase in the wind activity or Corner Acceleration can be expected around the exposed building corners at grade level. Wind accelerations are intensified in gaps between tall buildings and this is referred to as wind Channeling. Such redirected winds (Image 4a) are often the main cause for increased wind activity around the base of taller buildings. Large podium roofs acts as horizontal breaks and reduce potential wind impact at grade level (Image 4b). However, increased wind activity is expected on the podium roof where calm wind conditions are often desired for outdoor terrace use. Conopies, screens and larger trees are some common small-scale wind control features use in these events.

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5. PEDESTRIAN WIND CONDITIONS

5.2 Wind Flow Around the Project

The proposed building will be 19 stories tall, comparable in height to other tall buildings located to the northwest, west and southwest of the site. The tall and dense surroundings reduce the exposure of the site to prevailing winds approaching from those directions. However, the spacing between buildings, and the shorter buildings in the easterly directions allow the project to be partially exposed to prevailing winds. The project will be partially exposed to winds from the northeast approaching around the existing Park Evanston building, winds from the northwest approaching through the gap between the Park Evanston and Chase buildings and winds from the west and southwest approaching along Davis Street and around the tall buildings in those directions. At low elevations, the wind speeds will be preconditioned by the densely built surroundings to have minimal impact around the project. Winds approaching the project at higher elevations, albeit preconditioned to some extent, will be downwashed and redirected around the project towards ground-level pedestrian areas. The low roofs of the University Building and parking garage adjacent to the project and the tower setback on Davis Street will help moderate the wind impact at ground level areas. The expected wind flow patterns are illustrated in Image 5.

5.3 Wind Safety

The project is not expected to cause wind conditions that would exceed the recommended safety criterion due to the moderation afforded by the building design and surrounding massing.

Image 5: Wind flow around the Project

The following sections present discussions on the expected wind conditions at key pedestrian areas of interest as a result of the predicted wind flows.
5. PEDESTRIAN WIND CONDITIONS

5.4 Entry Plaza

The entry plaza is located on the south side of the project, on Davis Street. The plaza is enclosed on three sides by building massings and the main entrance is significantly offset from the street and located under a large canopy (Image 6).

The partial enclosure and recessed location of the plaza and entrance protects it from winds flowing at low elevations. As illustrated in Image 5, the area would be subjected to winds downwashed by the tall tower. However, the large canopy will afford sufficient protection to the main entrance. During the summer when passive pedestrian use is expected in the plaza (sitting, waiting, idling, etc.) proposed features like umbrella canopies, trees with large crowns and the entrance canopy will reduce the impact of the redirected winds.

During the summer, wind speeds in the entrance plaza and at the main entrance are expected to be comfortable for sitting or standing, appropriate for passive use. In the winter, while conditions at the entrance itself are expected to be appropriate as it is protected by the canopy, due to seasonally stronger winds, conditions in the rest of the plaza area are expected to be windier than desirable for passive use. Since this area is primarily used as a pick-up and drop-off zone, the predicted winter wind conditions are likely acceptable since people are unlikely to linger in the space for more than a few minutes.
5. PEDESTRIAN WIND CONDITIONS

5.5 Chase Courtyard

The courtyard fronting the Chase tower is adjacent and west of the proposed project. The courtyard is occupied by a one-story restaurant with outdoor seating on the west side. We understand that the courtyard is landscaped with large shade trees and the east end, between the project and Chase tower, is not used for patron activity (Image 7). As illustrated in Image 5, westerly winds redirected by the project will approach the courtyard area.

During the summer, when the trees are in full leaf, they afford wind protection to the courtyard and are expected to keep the courtyard usable in terms of wind comfort. The east half of the courtyard that is not a planned pedestrian area offers an additional buffer where winds could land and be dissipated by the trees.

In the winter, deciduous trees are typically ineffective against wind. Without any obstructions, winds downwashing on the west side of the project, and flows channeling between the project and Chase tower, can flow across the courtyard and increase speeds there. At the northeast corner of the courtyard, closest to gap between the project and Chase tower, wind conditions are expected to be higher than acceptable from time to time in the winter. This may not be a concern as, based on our understanding, the area is not accessed by pedestrians.

Wind conditions on the west half of the courtyard in the winter are expected to be comfortable for strolling or walking, appropriate for active pedestrian use. These conditions would be similar to those currently experienced around the west and south side of the Chase tower and other tall buildings in the area.

Image 7: Chase courtyard; view from the southeast corner
5. PEDESTRIAN WIND CONDITIONS

5.6 Sidewalks, Bus-Stops and Fountain Plaza

Wind flows in any area are generally modified as a result of the introduction of a large massing. As illustrated in Image 5, winds redirected around the proposed project are expected to flow on the adjacent Davis Street and Chicago Avenue. The potential wind impact would be lessened by the positive influence of the low roofs of the adjacent parking garage and University Buildings. While the change in flow patterns is predicted to create an overall increase in wind speeds on the sidewalks, the resulting wind speeds are not expected to be problematic.

The resulting wind conditions on the sidewalks adjacent to the project are expected to be comfortable for standing or strolling in the summer, and for strolling or walking in the winter. These conditions are appropriate for the active and transient nature of pedestrians on sidewalks.

Wind conditions in the seating areas along Chicago Avenue would not be significantly influenced by the project as a result of the ‘podium-like’ wind-break afforded by the low building roofs between the project and the street (Image 4b). The project is also not expected to impact nearby bus stops and the Fountain Plaza area, identified in Image 8, due to their distance and existing buildings separating those areas from the project. Wind conditions in these areas will be similar to those currently observed.
5. PEDESTRIAN WIND CONDITIONS

5.7 Terraces

Terraces are proposed on the south side on the 3rd and 17th floors and on the west side of the 18th floor (Image 9). The larger common amenity terrace on the 3rd floor is proposed to be designed with a large overhead trellis (Image 9). The trellis is a favorable feature for wind control as it will protect users from downwashing impacts. For effective wind control, it is recommended that the trellis be not more than 50% open. The glass panel railings around the trellis are also positive and it is recommended that they be at least 4 ft tall to provide adequate protection to seated patrons and 6 ft tall if users are expected to be standing most of the time. At the west end of the terrace, winds accelerating onto the area around the southwest corner of the tower could result in moderately strong breezes from time to time, particularly on cooler days. A taller railing (at least 7 ft tall) is recommended to protect users in the area. An extension of trellis feature over this corner or wind screens or tall landscaping interspersed across the length of the open terrace area may also be considered, in addition to the tall railing, to enhance user comfort. Examples of wind control features are provided in Image 10.

Terraces on the 17th and 18th floor, due to their elevation, would be exposed to stronger winds. These corner terraces also have the advantage of being enclosed on two or three sides. Winds in areas close to the building walls on the terraces will be calmer than in areas close to the outer edges. Similar to the 3rd floor terrace, it is recommended that glass panel railings be at least 4 ft tall if users are expected to be seated most of the time, and 6 ft tall if they will be standing. Without adequate protection, these terraces will be breezy most of the time, with conditions likely comfortable for strolling in the summer and walking in the winter. Higher wind speeds in the winter are not of concern as outdoor terraces are seldom used in the colder months.
5. PEDESTRIAN WIND CONDITIONS

Image 10: Examples of wind control features on terraces

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6. APPLICABILITY OF RESULTS

The assessment presented in this report is for the proposed 605 Davis Street project in Evanston, Illinois. The information listed below was received from Solomon Cordwell Buenz and was used for the assessment. Discussion and recommendations are specific to this design.

In the event of any significant changes to the design, construction or operation of the building or addition of surroundings in the future, RWDI could provide an assessment of their impact on the pedestrian wind conditions discussed in this report. It is the responsibility of others to contact RWDI to initiate this process.

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