

# ONE POST OFFICE SQUARE OFFICE TOWER AND GARAGE IMPROVEMENT PROJECT



## One Post Office Square | Boston, MA 02110

### Expanded Project Notification Form

#### Presented To:

Boston Planning &  
Development Agency

#### Prepared For:

Anchor Line Partners/Jones Lang LaSalle,  
on behalf of One Post Office Square L.L.C.



# **One Post Office Square Office Tower and Garage Improvement Project**

**One Post Office Square  
Boston, MA 02110**

## **Expanded Project Notification Form**

**January 2, 2018**

**PRESENTED TO**

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**Boston Planning &  
Development Agency**

**PREPARED FOR**

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**Anchor Line Partners/Jones  
Lang LaSalle, on behalf of One  
Post Office L.L.C.**



## EXECUTIVE SUMMARY

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The project developers, Anchor Line Partners and Jones Lang LaSalle Corporation, on behalf of One Post Office Square L.L.C. (“The Applicant”), submit this proposal to upgrade the existing Property at One Post Office Square, Boston. The existing Property contains a 41-story, 515 foot tall multi-tenant office tower, and a 6-story garage with 8 levels of parking and 371 spaces. The upgrades to the office tower will include the replacement of the existing façade with a glass curtainwall from the ground level to level 30, an overclad system between levels 31 and 38, along with the addition of mid-level and roof level attractions, and the addition of infill areas below existing cantilevered corners. The existing parking structure and associated spaces will be demolished and replaced by a new 18 story structure with ground floor retail and drop-off for an automated parking garage. The automated parking garage will include 3 stories above grade and 2 stories below, with a 13-story addition above the garage that extends the existing office floor plates from the One Post Office Square office tower, and two floors of mechanical space above.

The Project also includes the redesign of the street-level lobby, drive thru, retail, and drop-off areas, as well as upgrades to the elevator and the building’s mechanical and electrical systems. The Project will be constructed in a single phase with multiple stages of construction. The existing building was constructed in 1980; it is no longer at the top of the leasing market. For that reason, the Applicant plans to upgrade it to a modern, expanded building with more access to on-site amenities. This will ensure that the Property can continue to meet the needs of the Applicant and its tenants.

### ***Expanded Project Notification Form (“EPNF”) and Request for Waiver***

Because the proposed Project involves the construction of more than 50,000 gross square feet (gsf), it is subject to Article 80 Large Project Review by the Boston Planning and Development Agency (BPDA). The Applicant is requesting a waiver from further review and submission of Draft and Final Impact Reports. Complete studies and mitigation analyses covering transportation, environmental protection, LEED compliance and infrastructure impacts are presented in this document to provide support for the requested waiver.

The Applicant filed a Letter of Intent with the BPDA on October 4, 2017, and has reached out to City and State agencies, neighborhood representatives and groups, abutters, and other interested parties over the past several months with respect to the Project.

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## 1.0 APPLICANT INFORMATION

Pursuant to Article 80B of the Boston Zoning Code, the Applicant is filing this Expanded Project Notification Form, for the upgrade of the existing Office Tower, parking garage, located at One Post Office Square in Boston, MA, see Figure 1-1 Site Location Map, and Figures 1-2 through 1-5 for existing site photos.

### 1.1 DEVELOPMENT TEAM

#### **Applicant**

**Anchor Line Partners/Jones Lang LaSalle, on behalf of One Post Office Square L.L.C.**

Anchor Line Partners

One Post Office Square, 41st Floor

Boston, MA 02109

Jones Lang LaSalle

One Post Office Square

Boston, MA 02109

#### **Applicant's Representatives**

##### **Legal**

Goulston & Storrs  
400 Atlantic Avenue  
Boston, MA 02110

##### **Civil Engineer**

Tetra Tech  
100 Nickerson Road  
Marlborough, MA 01752

##### **Shadow/Daylight/Solar/Wind**

RWDI  
600 Southgate Drive  
Guelph, Canada, N1G 4P6

##### **Design Team**

##### **Architect**

Gensler  
One Beacon Street  
Third Floor  
Boston, MA 02108  
United States

##### **Air/Noise**

Tech Environmental  
303 Wyman Street, Suite 295  
Waltham, MA 02451  
781-890-2220

##### **Sustainability**

Paladino and Company  
1932 1st Avenue, #200  
Seattle, WA 98101

##### **MEP+FP (LV Backbone)**

RDK Engineers  
200 Brickstone Square  
Andover, MA 01810-1488

##### **ADA**

Code Red Consultants  
Code Consultant  
154 Turnpike Road, Suite 200  
Southborough, MA 01772

##### **Structural**

LeMessurier  
1380 Soldiers Field Road  
Boston, MA 02135

##### **Historic**

Epsilon Associates, Inc.  
3 Mill & Main Place, Suite 250  
Maynard, MA 01754

### 1.2 LEGAL INFORMATION

#### **Legal Judgments Adverse to the Proposed Project**

The Applicant is unaware of any legal judgments or actions pending that concern the Project.

#### **History of Tax Arrears on Property**

The Applicant is not in tax arrears in connection with any property owned within the City of Boston.



**Site Control/Public Easements**

By deed dated August 1, 2000, recorded at the Suffolk County Registry of Deeds in Book 25208, Page 170, One Post Office Square, L.L.C., a Delaware limited liability company, acquired fee title to the Property. Based on the completed survey of the Property, there are no public easements into, through, or surrounding the Property that would impair the advancement of the Project.

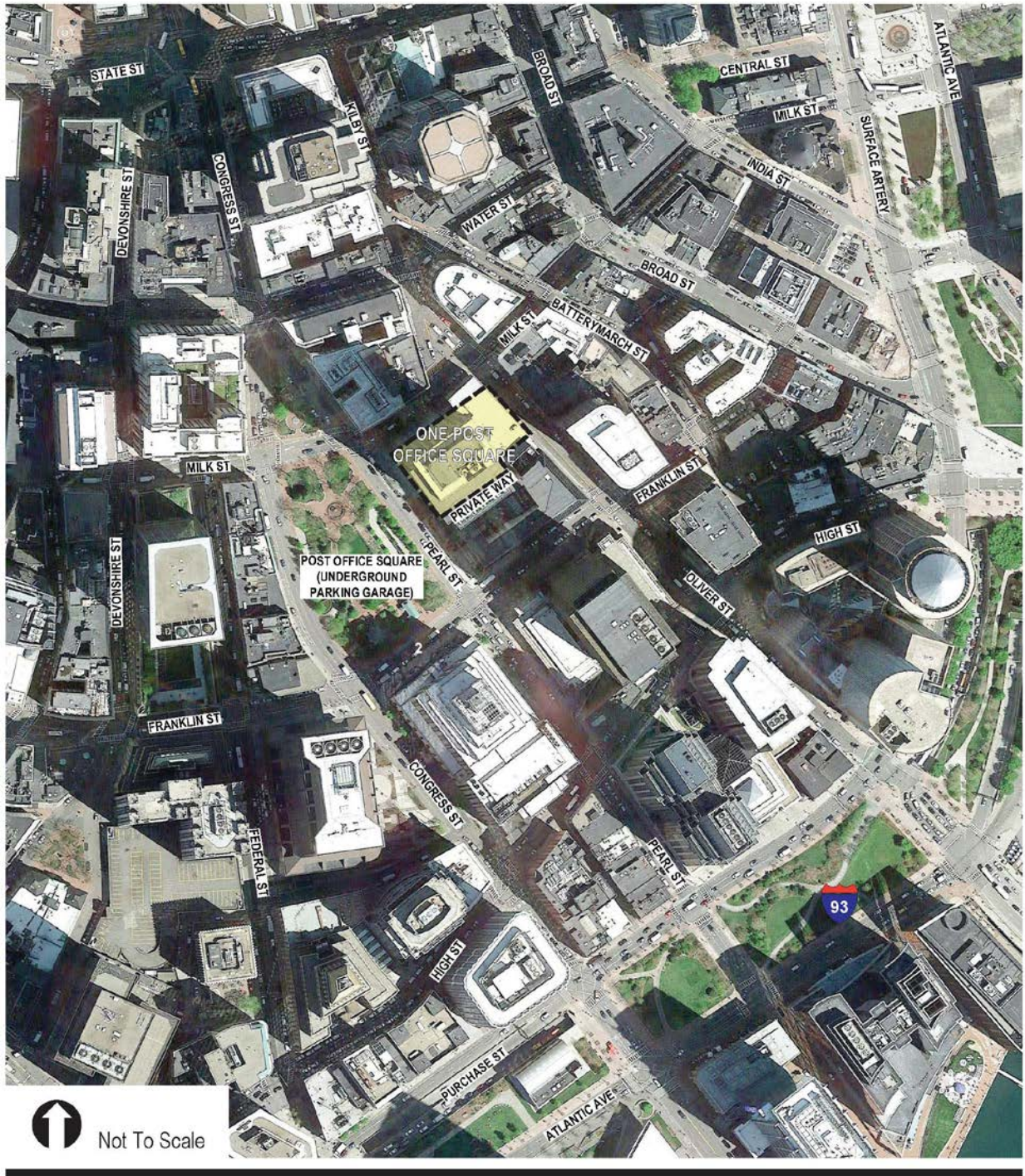


Figure 1-1-Site Location Map





Figure 1-2 Existing One Post Office Square Tower





Figure 1-3 View along Milk Street

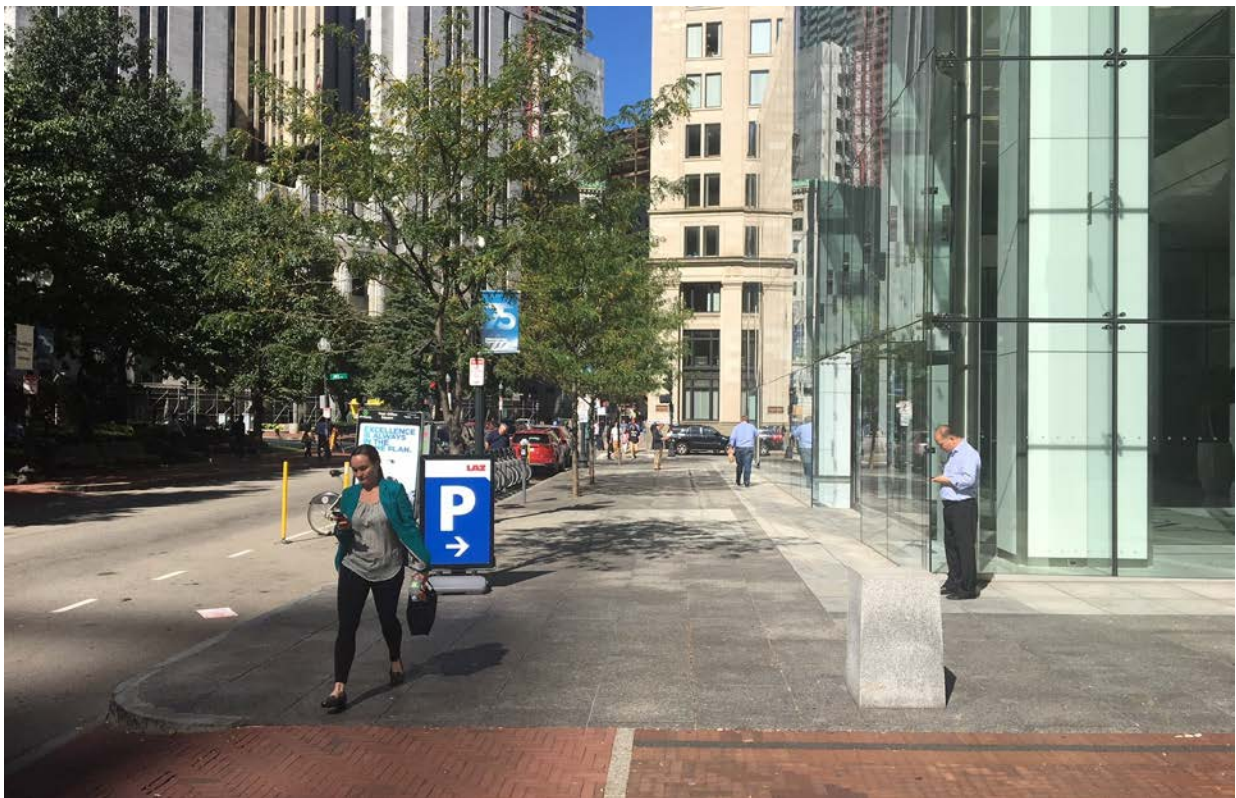


Figure 1-4 View along Pearl Street





Figure 1-5 View along Oliver Street

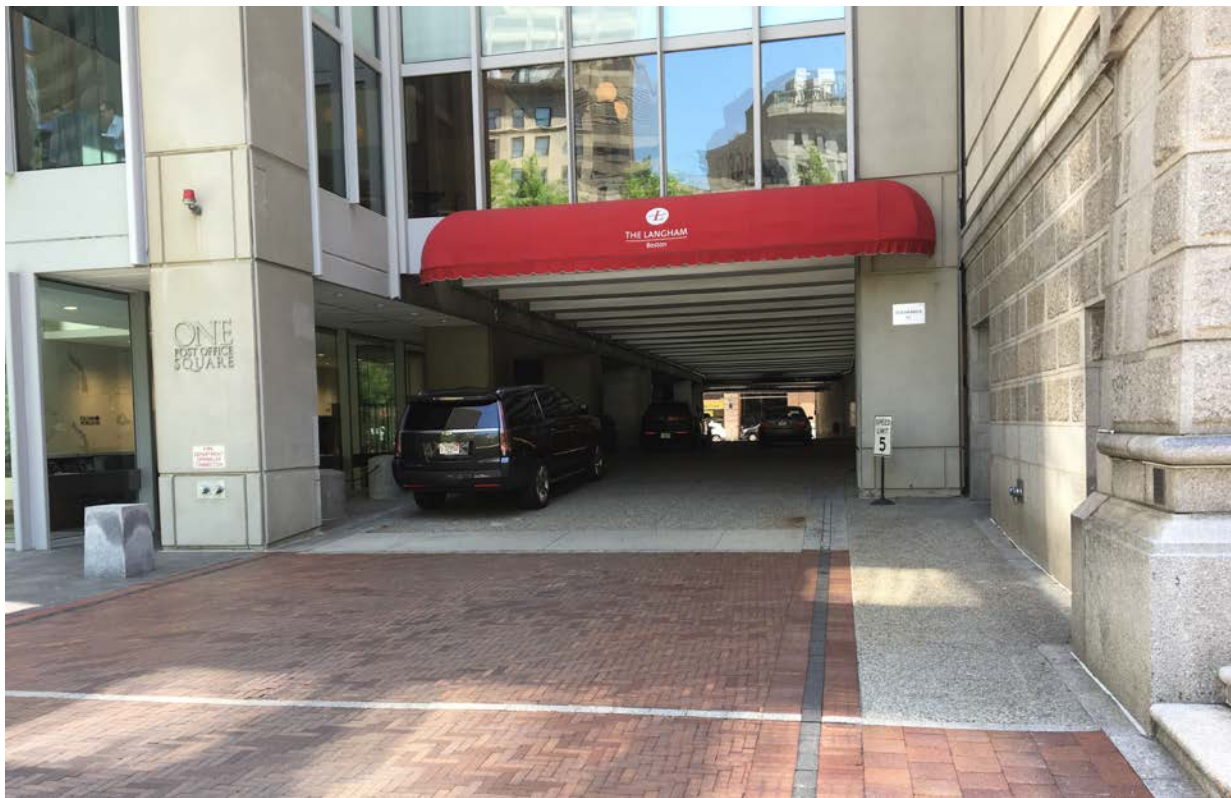


Figure 1-6 Existing Dropoff

## 2.0 PROJECT AREA

### 2.1 DIMENSIONAL REQUIREMENTS

#### **Building Dimensions**

The PDA Development Plan sets forth the following dimensional requirements:

**Table 1** PDA Plan Development Plan Dimensional Requirements

Requirement	Permitted per PDA Development Plan
Max. Floor Area Ratio	<ul style="list-style-type: none"> <li>• 21.97 for Property</li> <li>• 14.6 for combined Property and adjacent lot subject to PDA Development Plan</li> </ul>
Max. Building Height	<ul style="list-style-type: none"> <li>• Up to 115 feet for parking garage on Property exclusive of appurtenances</li> <li>• Up to 520 feet for office tower on Property exclusive of appurtenances</li> </ul>

Changes in the floor area ratio and building height (among any other dimensional alterations) resulting from the Project are anticipated to be approved in the PDA Amendment.

### 2.2 ZONING

#### **Consistency with Zoning Regulations**

##### *Large Project Review*

Because the Project involves new construction in excess of 50,000 square feet (sf) of Gross Floor Area, the Project is subject to Large Project Review. Under the Mayor’s Executive Order dated October 10, 2000, and amended on April 3, 2001, regarding mitigation for development projects, the Mayor has appointed an Impact Advisory Group to advise the BPDA on mitigation measures for projects undergoing Large Project Review. In connection with the Project’s Large Project Review, the Project will also be subject to: (i) Boston Civic Design Commission review; and (ii) the green building requirements of Article 37 of the Code.

##### *Zoning District*

The Property is located within the B-10 Business District and the Restricted Parking Overlay District (the “RPOD”) of Boston Proper (Map 1). The Property Site is developed pursuant to that certain Development Plan for Planned Development Area No. 11 approved by the BPDA on April 19, 1979, and the Boston Zoning Commission (“Zoning Commission”) on May 18, 1979, and effective May 18, 1979, as amended by: (i) that certain Amendment to Development Plan for Planned Development Area No. 11 approved by the BPDA on February 26, 1981, and the Zoning Commission on September 23, 1981, and effective September 23, 1981; (ii) that certain Second Amendment to Development Plan for Planned Development Area No. 11 approved by the BPDA on June 20, 1984, and August 9, 1984, and the Zoning Commission on July 25, 1984, and effective August 15, 1984; and (iii) that certain Third Amendment to Development Plan for Planned Development Area No. 11 approved by the BPDA on December 20, 2007, the Zoning Commission on January 9, 2008, and effective January 9, 2008 (as amended, the “PDA Development Plan”). Zoning relief will be required in connection with the Project and is anticipated to be obtained via approval of the Applicant’s proposed amendment to the PDA Development Plan (the “PDA Amendment”).

### Uses

The permitted uses set forth in the PDA Development Plan include office, underground and above ground parking, food and beverage facilities, a health club, commercial retail space and other uses permitted in general business districts. The establishment on the Property of any use not currently permitted under the PDA Development Plan is anticipated to be approved in the PDA Amendment. Although the Property is located within the RPOD, the Project will include no net new off-street parking spaces and, in any event, any applicable RPOD requirements are overridden by the PDA Development Plan, as amended by the PDA Amendment.

## 3.0 PROJECT DESIGN OVERVIEW

The Applicant's objectives for the Project are to modernize the 1980's era façade; improve the tenant experience by creating indoor and outdoor amenities; expand the leasable area; and activate the street level environment.

### 3.1 PROJECT ELEMENTS

One Post Office Square is an existing, occupied, mixed use building, built in 1980, and located on the Norman Leventhal Park (PO Square) in the heart of Boston's Financial District. The building is made up of three components: a multi-tenant, office tower that is 515 ft tall with 41 floors averaging 22,000 sf/floor or roughly 832,000 rentable square feet (RSF) total. Adjacent to the tower is an eight level, open air, 371 space parking garage. The tower and garage are directly connected to the 318 key, five story, Boston Landmark, Langham Hotel, listed as 250 Franklin Street. The hotel is under separate ownership from the tower and garage and is not included in the proposed reposition project.

The Applicant and Client team consisting of Anchor Line Partners (Developer) and Jones Lang LaSalle (JLL - OPM, Developer and Facilities Operator), on behalf of One Post Office Square L.L.C., contracted with Gensler (Architect and Lead Consultant) to develop a vision for the repositioning of the property.

### 3.2 BUILDING PROGRAM

The vision for the Project begins with the goal to transform and enhance the brand of the building. This involves several key factors:

- Modernize the façade
- Improve the tenant experience
- Expand gross leasable area
- Activate the street level environment
- Target LEED v4 Gold certification

The design of the Project is focused on the modern, urban worker who is looking for a connected, open and healthy work environment enhanced by access to on-site amenities. The scope of work includes:

- Remove the pre-cast façade from Level 30 down and replace it with a glass curtainwall system.
- The precast panels will remain from Level 31 to Level 38, to limit the impact on the existing tenants. Apply curtainwall over the panels as an overclad system.
- Create unique low, mid and high level, Tenant Feature Floors (TFF) to capitalize on the views of the park, city and harbor.
- Infill the inset corner areas below the existing, cantilevered corners.

- Replace the existing parking garage structure with a new automated parking garage, with a 13-story addition above the garage that extends the existing office floor plates from the One Post Office Square office tower.
- Activate the street level and create new retail opportunities thru a “rethink” of the program of the entry lobby, adjacent drive thru and various support and hotel areas.
- Complete the ongoing upgrade of the elevator and MEP systems.

A summary of the proposed building program is shown in **Table 2** below. The studies included in this report have been run conservatively, and have assumed more gross square feet than the actual proposed program to demonstrate the impact of worst case scenarios, since the building improvements are still being finalized.

**Table 2** Studied Building Program Summary Based on Conservative Estimates

Space Type/Use	Existing Building (per PDA Amend. 3)			Conservative Studied Impact By EPNF		
	Unit (GSF)	Other		Unit (GSF)	Other	
Office	735,468			1,004,000		
Retail	0			52,100		
Restaurant	0	# of Seats	0	8,800	# of Seats	300
Parking	158,000	# of Spaces	371	35,100	# of Spaces	300
<b>TOTAL*</b>	893,468			1,100,000		

\*Does not include exclusions allowed by Boston Planning and Development Agency (basements, major vertical penetrations, etc.)



### 3.2.1 Concept Renderings







### 3.3 REQUIRED PERMITS AND APPROVALS

*MEPA Review*

The Project exceeds no MEPA review thresholds and accordingly the Project will not be subject to MEPA jurisdiction.

*Anticipated Permits and Approvals*

Permits and approvals that are currently anticipated to be required for the Project are as follows:

**Table 3** List of Permit and Approvals

Issuing Authority	Permit	Status of Filing
<b>Federal</b>		
Federal Aviation Administration	Determination of No Hazard to Air Navigation (if required)	
<b>State</b>		
	none anticipated	
<b>Local</b>		
Boston Planning and Development Agency	Article 80 Large Project Review/Article 80C Planned Development Area Review	
Boston Civic Design Commission	Design Review	
Public Improvement Commission	Specific Repairs (if required)	
Boston Transportation Commission	Construction Management Plan Transportation Access Management Plan	During and After BPDA Approval
Boston Water and Sewer Commission	Water and Sewer Connection Permits Dewatering Permit Site Plan Review General Service Application	After BPDA approval
Boston Inspectional Services Department	Building Permit Flammable Storage Permit Certificate of Occupancy Permit	
Boston Committee on Licenses	Parking Garage License Flammable Storage License	
Boston Fire Department	Approval of Fire Safety Equipment	

This table presents a preliminary list of permits and approvals from governmental agencies that are expected to be required for the Project, based on currently available information. It is possible that only some of these permits or actions will be required, or that additional permits or actions will be required.



### 3.4 PROJECT SCHEDULE AND PHASING

Table 4 below provides the major activities and schedule associated with the Project:

**Table 4** Major Activities and Schedule

Activity	Schedule-Estimated Start/End
Schematic Design, BPDA Design Studies, and Initial City Meetings	January, 2017 – August, 2017
File LOI with BPDA	October 4, 2017
File PDA	December 2017
File EPNF	January 2, 2018
Design Development Complete	December 2017
Hearings, Community Meetings, and Local Approvals	November 2017 – April 2018
Construction Documents Complete (Multiple Stages)	May 2018 – August 2018
Complete Permitting Approval Process and Obtain Building Permit	May 2018 / June 2018
Mobilize Construction	June 2018
Construction (Multiple Stages)	July 2018 – Q4 2020

## 4.0 TRANSPORTATION IMPACTS/ACCESS PLAN

### 4.1 TRANSPORTATION SUMMARY

Tetra Tech has evaluated potential transportation impacts associated with the proposed redevelopment of the existing office tower and adjoining parking garage located at One Post Office Square in Boston, Massachusetts. The transportation access plan for the Project describes the existing transportation conditions in the vicinity of the site, evaluates potential project related transportation impacts, and recommends measures to minimize these impacts.

The Project site is bound by Pearl Street, Milk Street, Oliver Street, and the Langham Hotel, in Boston's Financial District. The site currently supports a 41-story office tower and a 6-story parking garage (with 371 spaces) for a total of **approximately 853,300** square feet of development. Access to the existing parking garage is provided via a private street connecting Oliver Street and Pearl Street, with an entrance-only access driveway on Pearl Street and full access driveway on Oliver Street. Primary pedestrian access to the existing office tower lobby is provided from Pearl Street, with secondary access from the existing private street, and from Milk Street and Oliver Street for the existing ground floor retail.

The proposed Project calls for the renovation and expansion of the existing office tower, reconstruction of the garage with expanded office space above connecting to the office tower, for a new total of approximately **1.1 million** square feet of development. Subject to the Applicant's obtaining any required third-party consents, the Project is also proposed to include closure of the existing enter-only driveway on Pearl Street. Such proposed

closure would reduce pedestrian/vehicle conflicts and provide additional retail opportunities as well as additional curb side amenities which could include additional on-street parking or possible extension of the existing Hubway Bike Share station. Access to the new automated parking garage will be provided by modification of the existing site driveway on Oliver Street. Service vehicles will continue to be accommodated by the existing underground on-site loading area (shared with the adjacent Langham Hotel) accessed from a separate service driveway on Oliver Street.

The office tower renovations will include a minor expansion, with extension of exterior walls, facade and window treatments, and revitalization of existing retail and office amenities including an expanded gym and juice bar, a new pedestrian entrance on Pearl Street (facing Post Office Square) and creation of a new midlevel "Porch" and penthouse level "Lantern" club. The existing 6-story (371 space) parking garage will be demolished and replaced with a new automated parking garage system that will accommodate a maximum of **300 parking spaces**, and 13 levels of office space above that will connect to the adjoining office space in the One Post Office Square office tower.

While the Project will result in additional office space and supporting amenities, the amount of on-site parking will actually be reduced by approximately 71 spaces. Consequently, traffic increases associated with the redevelopment project will be minimal.

The proposed Project will further minimize potential traffic impacts by taking full advantage of excellent nearby public transportation and the existing pedestrian and bicycle accommodations on the surrounding area roadways. The Applicant will also implement Travel Demand Management (TDM) measures to encourage employees and visitors to the development to utilize nearby public transit, and non-vehicular modes of travel.

One Post Office Square already provides comprehensive TDM measures to its tenants and will seek to enhance these programs as part of the currently proposed Project. Through current membership in the local transportation management association (TMA), A Better City (ABC), employees of the building's tenants are provided access to benefits including an emergency ride home program, and assistance with ridesharing. ABC TMA also hosts on-site promotional events several times a year providing information regarding the programs and services available to their members. The site currently provides a number of bicycle racks throughout the existing parking garage. As currently proposed, a new indoor bicycle storage room and adjoining showering facilities will be provided on the ground floor that will make biking to work a more viable option for business professionals. The site will continue to provide on-site amenities that will encourage employees and visitors to reduce the number of trips they make to and from the site.

Finally, a Construction Management Plan (CMP) will be submitted to the BTB in accordance with the City's requirements. This document will detail construction-time traffic needs to ensure the safety of all users (vehicles, pedestrians and bicyclists) including any necessary detours, lane and/or roadway closures and parking restrictions.

A more detailed discussion of the Project's transportation access plan is provided in Appendix E of this report.

## 5.0 ENVIRONMENTAL PROTECTION

The following sections discuss the existing environmental resources and the relationship to the Project.

### 5.1 WIND

Wind analysis takes into consideration impacts occurring when upper-level winds are intercepted or deflected by tall buildings, causing increases on pedestrians in the public way or public open spaces. The Boston Planning and Development Agency (BPDA) has adopted two standards for assessing the relative wind comfort of pedestrians. First, the BPDA wind design guidance criterion states that an effective gust velocity (hourly mean wind speed +1.5 times the root-mean-

square wind speed) of 31 mph should not be exceeded more than one percent of the time. The second set of criteria used by the BPDA to determine the acceptability of specific locations is to determine the relative level of pedestrian wind comfort for activities such as sitting, standing, or walking. The criteria are expressed in terms of benchmarks for the 1-hour mean wind speed exceeded 1% of the time (i.e., the 99-percentile mean wind speed). A Wind Study was prepared and all ground level wind speeds met acceptable levels per the BPDA standards at the 104 ground level sensors studied.

Please see Appendix H for a full Wind Study that has been prepared.

## 5.2 SHADOW

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A shadow impact analysis was conducted to assess potential shadow impacts from the Project. The study looked at the following four times of the year:

1. Spring Equinox (March 21) at 9:00 a.m., 12:00 noon, and 3:00 p.m.
2. Summer Solstice (June 21) at 9:00 a.m., 12:00 noon, 3:00 p.m. and 6:00 p.m.
3. Autumnal Equinox (September 21) at 9:00 a.m., 12:00 noon, 3:00 p.m. and 6:00 p.m.
4. Winter Solstice at 9:00 a.m., 12:00 noon, and 3:00 p.m.

The Project will fully comply with Chapter 362 of the Acts of 1990 Chapter (The Boston Common Shadow Act) and Chapter 384 of the Massachusetts Acts of 1992 (The Public Garden Shadow Act).

Please see Appendix G for the Detailed Shadow Impact Analysis

## 5.3 DAYLIGHT

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The Large Project Review guidelines define daylight quality as the amount of the "skydome" that will be obstructed by new building elements when viewed from an adjacent public way. One Post Office Square is situated in a dense urban environment of downtown Boston, so the view corridors from public ways are typically obstructed by adjacent buildings in the surrounding area. A daylight analysis has not been prepared for the One Post Office Square Project since it is an existing building, and the infill construction improvements on the One Post Office Square tower are unlikely to create significant changes to the daylight levels at grade compared to the existing building. For the garage re-construction and associated office space above, the effect on daylight is similarly expected to be minimal because of the surrounding office towers in the area, including the adjacent One Post Office Square office tower.

## 5.4 SOLAR GLARE

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Solar reflection analysis is evaluated to consider impacts occurring when the sun is reflected from a building façade. Solar reflection is evaluated for three primary impacts:

1. Thermal impacts on pedestrians, drivers, and adjacent facades
2. Visual glare impacts on drivers
3. Visual glare impacts on pedestrians and nearby facades

In summary, the solar reflection impacts of One Post Office Square on its surrounds are characterized as typical of any modern building of this size. First, because of the flat, planar facades of the building, the thermal impacts will not focus (multiply) in any particular area. Second, the visual glare impacts are considered to be primarily low to moderate. In a few instances where the glare is expected to be higher, the impacts are limited because the impacts are for short durations during short stints during the year, are mitigated by the building design (i.e., architectural fins on the façade), are not in the direction of vehicle travel (the glare is behind drivers due to one-way roadways), or are considered typical conditions for pedestrians or adjacent buildings in urban environments.

Please see Appendix F for the Detailed Solar Glare Analysis

## 5.5 AIR QUALITY

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### 5.5.1 Introduction

Air quality analyses were performed for the proposed One Post Office Square Tower and Garage Improvement Project (the "Project"). The project consists of the renovation of the existing 41-story office tower and six-story parking garage containing 371 spaces, which is located on a 41,326 square foot (0.94 acre) lot with frontage along Pearl Street, Milk Street and Oliver Street. As a worst-case scenario, an analysis was performed using the existing 371-space parking garage, but has subsequently been replaced with a 300-space automated garage, resulting in major improvements as vehicles will not be driving in the garage. The project analysis also includes evaluating the impact of the expansion of the office building floor plates over the garage. These analyses consisted of: 1) an evaluation of existing air quality; 2) an evaluation of potential carbon monoxide (CO) impacts from the operation of the Project's fuel combustion and parking garage, and 3) a microscale CO analysis for intersections in the Project area that meet the BPDA criteria for requiring such an analysis.

### 5.5.2 Existing Air Quality

The City of Boston is currently classified as being in attainment of the Massachusetts and National Ambient Air Quality Standards ("NAAQS") for all of the criteria air pollutants except ozone (see **Table 5**). These air quality standards have been established to protect the public health and welfare in ambient air, with a margin for safety.

The Massachusetts Department of Environmental Protection (MassDEP) currently operates air monitors in various locations throughout the city. The closest, most representative, MassDEP monitors for carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>), fine particulate matter (PM<sub>2.5</sub>), coarse particulate matter (PM<sub>10</sub>), and lead are located at Kenmore Square, Boston, MA.

### 5.5.3 Impacts from Fuel Combustion Equipment and Parking Garage

The Project will include roof-top fuel combustion equipment that will emit air pollutants to the atmosphere when operating. Fuel combustion equipment for the Project will include gas-fired boilers and oil-fired emergency generators. The objective of this analysis was to determine the maximum CO concentrations from fuel combustion equipment inside the garage and at the closest sensitive receptors surrounding the Project. These closest sensitive receptors include: air intakes located on the proposed buildings and nearby existing buildings, and pedestrians at ground level anywhere near the Project. CO emissions from motor vehicles operating inside the garage were calculated and the CO concentrations inside the garage and surrounding the Project were based on weekday afternoon peak traffic periods. CO emissions from fuel combustion equipment and garage exhaust vents were modeled using a U.S. EPA-approved air model.

Worst-case concentrations of CO from the fuel combustion equipment and parking garage vent were predicted for locations around the building using AERMOD model (Version 16216r) in screening-mode. The AERMOD model in screening-mode was used to predict the maximum concentration of CO by modeling the fuel combustion equipment emissions as two volume sources (boilers and generators) and the parking garage exhaust vent as a point source with aerodynamic building downwash using worst-case meteorological conditions for an urban area. The screening-mode option simulates modeling results predicted by AERSCREEN. The predicted concentrations presented here represent the worst-case air quality impacts from the fuel combustion equipment and garage at all locations on and around the Project. AERMOD predicted one-hour average concentrations of air pollutants.

**Table 5** *Massachusetts and National Ambient Air Quality Standards*

Pollutant	Averaging Time	NAAQS ( $\mu\text{g}/\text{m}^3$ )
Sulfur Dioxide (SO <sub>2</sub> )	1-hour <sup>P</sup>	196 <sup>a</sup>
	3-hour <sup>S</sup>	1,300 <sup>b</sup>
	Annual <sup>P</sup> (Arithmetic Mean)	80
Carbon Monoxide (CO)	1-hour <sup>P</sup>	40,000 <sup>b</sup>
	8-hour <sup>P</sup>	10,000 <sup>b</sup>
Nitrogen Dioxide (NO <sub>2</sub> )	1-hour <sup>P</sup>	188 <sup>c</sup>
	Annual <sup>P/S</sup> (Arithmetic Mean)	100
Coarse Particulate Matter (PM <sub>10</sub> )	24-hour <sup>P/S</sup>	150
Fine Particulate Matter (PM <sub>2.5</sub> )	24-hour <sup>P/S</sup>	35 <sup>d</sup>
	Annual <sup>P</sup> (Arithmetic Mean)	12 <sup>e,f</sup>
	Annual <sup>S</sup> (Arithmetic Mean)	15
Ozone (O <sub>3</sub> )	8-hour <sup>P/S</sup>	137 <sup>g</sup>
Lead (Pb)	Rolling 3-Month Avg. <sup>P/S</sup>	0.15

P = primary standard; S = secondary standard.

<sup>a</sup> 99th percentile 1-hour concentrations in a year (average over three years).

<sup>b</sup> One exceedance per year is allowed.

<sup>c</sup> 98th percentile 1-hour concentrations in a year (average over three years).

<sup>d</sup> 98th percentile 24-hour concentrations in a year (average over three years).

<sup>e</sup> Three-year average of annual arithmetic means.

<sup>f</sup> As of March 18, 2013, the U.S. EPA lowered the PM<sub>2.5</sub> annual standard from 15  $\mu\text{g}/\text{m}^3$  to 12  $\mu\text{g}/\text{m}^3$ .

<sup>g</sup> Three-year average of the annual 4th-highest daily maximum 8-hour ozone concentration must not exceed 0.070 ppm (137  $\mu\text{g}/\text{m}^3$ ) (effective December 28, 2015); the annual PM<sub>10</sub> standard was revoked in 2006.

**Table 6** *Representative Existing Air Quality in the Project Area*

Pollutant	Monitoring Location	Value (ug/m3)	NAAQS (ug/m3)	Percent of NAAQS
CO, 1-hour	Kenmore Square & Harrison Avenue, Boston	1,559 (1.4 ppm)	40,000	4%
CO, 8-hour	Kenmore Square & Harrison Avenue, Boston	1,031 (0.9 ppm)	10,000	1%
NO <sub>2</sub> , 1-hour	Kenmore Square, Boston	95.9	188	51%
NO <sub>2</sub> , Annual	Kenmore Square, Boston	33.4	100	33%
Ozone, 8-hour	Kenmore Square, Boston	110	137	80%
PM <sub>10</sub> , 24-hour	Kenmore Square, Boston	53	150	35%
PM <sub>2.5</sub> , 24-hour	Kenmore Square, Boston	15.7	35	45%
PM <sub>2.5</sub> , Annual	Kenmore Square, Boston	6.8	12	57%
Lead, Quarterly	Harrison Avenue, Boston	0.016	0.15	11%
SO <sub>2</sub> , 1-hour	Kenmore Square, Boston	23.7	196	12%

Source: MassDEP, <http://www.mass.gov/dep/air/priorities/aqreports.htm>, downloaded August 7, 2017.

Notes:

- (1) Annual averages are highest measured during the most recent three-year period for which data are available (2013 - 2015). Values for periods of 24-hours or less are highest, second-highest over the three-year period unless otherwise noted.
- (2) The eight-hour ozone value is the 3-year average of the annual fourth-highest values, the 24-hour PM<sub>2.5</sub> value is the 3-year average of the 98th percentile values, the annual PM<sub>2.5</sub> value is the 3-year average of the annual values – these are the values used to determine compliance with the NAAQS for these air pollutants.
- (3) The one-hour NO<sub>2</sub> value is the -year average of the 98th percentile values and the one-hour SO<sub>2</sub> value is the -year average of the 99th percentile values.
- (4) The one-hour ozone standard was revoked by the US EPA in 2005; the annual PM<sub>10</sub> standard was revoked in 2006 and the 3-hour SO<sub>2</sub> standard was revoked by the US EPA in 2010.

### 5.5.3.1 Fuel Combustion Equipment

The Project will include fuel combustion equipment that will emit air pollutants to the atmosphere when operating. Fuel combustion equipment for the Project will include 5 individual gas-fired boilers/hot water heaters (each with a heat input capacity of 4 million Btu per hour (MMBtu/hour)). The project will also consist of 4 oil-fired emergency generators (2 existing generators and 2 new generators).

EPA's AP-42 document was used to determine the uncontrolled CO emission rate for the gas-fired boilers. The gas-fired boiler heat input capacity for the project will be 20 MMBtu/hour. Assuming a heating value of 1,020 Btu/cubic foot of natural gas this translates to approximately 19,608 cubic feet of natural gas burned per hour. Using a CO emission factor of 0.084 lb/MMBtu,<sup>1</sup> the maximum total CO emissions from the project will be 1.68 lbs/hour (0.21 gram/second). This calculation conservatively assumes that all of the gas-fired fuel combustion equipment is operating simultaneously at its full design capacity.

<sup>1</sup> US EPA, "Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition Volume I: Stationary Point and Area Sources", Table 1.4-1, January 1995 (revised July 1998).

EPA’s AP-42 document was also used to determine the uncontrolled CO emission rate for the oil-fired generators.

### 5.5.3.2 Parking Garage

The proposed parking garage will have five-levels of parking require mechanical ventilation. The garage ventilation system will be designed to provide adequate dilution of the motor vehicle emissions before they are vented outside. The design of the garage ventilation system will meet all building code requirements. The ventilation of the garage will include two fans that will supply a minimum flow of approximately 6,000 cubic feet per minute (cfm) of fresh air and a maximum flow of approximately 90,000 cfm of fresh air. The speed of the fans and the corresponding cfm will depend on the inputs from carbon monoxide sensors. The garage ventilation exhausts will likely be located on the 17th floor roof of the addition, however for conservatism in the dispersion modeling the vents were placed halfway up the garage.

The peak weekday morning and afternoon one-hour entering and exiting traffic volumes for the parking garage are shown in **Table 7**.

**Table 7** Peak Hour Garage Traffic Volumes

Time Period	Entering (vehicles/hour)	Exiting (vehicles/hour)	Total (vehicles/hour)
Weekday Morning Peak Hour	130	13	143
Weekday Afternoon Peak Hour	37	150	187

Source: Tetra Tech, Inc.

The U.S. Environmental Protection Agency (EPA) MOVES2014 emission factor model was used to calculate single vehicle CO emissions rates, for a vehicle speed of 5 mph. The inputs to the MOVES2014 model followed the latest guidance from the MassDEP and were performed for the Existing year of 2017 consistent with the microscale air quality analysis. This represents the worst case, since the MOVES2014 model predicts decreasing CO emissions rates in future years due to more stringent emission control requirements for new motor vehicles. The CO emission rate calculated by MOVES2014, for a speed of 5 mph, was 4.998 grams per hour (gph) for each entering and exiting vehicle. These emission rates apply to wintertime conditions when motor vehicle CO emissions are greatest due to cold temperatures. MOVES2014 model output is provided in Appendix M Air Quality Study.

To determine the maximum one-hour CO emissions inside the garage it was necessary to estimate the amount of time each motor vehicle will be in the parking garage with its engine running. To be conservative, it was assumed that every car entering the garage will travel to the farthest parking spot, and that the vehicles leaving the garage will have to travel the same distance from inside the garage to the exit. The calculations in Appendix M. show how long each vehicle was calculated to travel in the garage for the weekday afternoon peak hour.

The peak one-hour CO emission rate for the parking garage was calculated to be 5.4 grams per minute (0.089 grams/second) for the weekday afternoon peak hour. Applying the minimum volumetric garage ventilation flow rate for the parking garage, the peak one-hour CO concentration inside the garage was calculated to be a maximum of 27.6 parts of CO per million parts of air (ppm) for the weekday afternoon peak hour. This prediction represents conservative estimates of the peak garage CO emissions and concentrations since this assumes the fans are operating at their lowest speed.



### 5.5.3.3 Cumulative Impacts from Fuel Combustion Equipment and Parking Garage

The results of the air quality analysis for locations outside and around the buildings are summarized in **Table 8**. The results represent all outside locations on and near the Project Site, including nearby building air intakes and nearby residences. Appendix N contains the AERMOD model output.

AERMOD predicted that the maximum one-hour CO concentration from the fuel combustion equipment and parking garage exhaust vents will be 2.95 ppm (3692 µg/m<sup>3</sup>). This concentration represents the maximum CO concentration at any location surrounding the Project.

The maximum predicted eight-hour CO concentration at any ambient (outside) location will be significantly smaller than the one-hour prediction. This is because: 1) the average number of vehicles entering and exiting the garage over the peak eight-hour period will be significantly less than the peak one-hour values used to predict the peak one-hour CO impact, 2) all fuel combustion equipment is operating at their maximum load simultaneously, and 3) the worst-case meteorological conditions used to predict the peak one-hour impact will not persist for eight consecutive hours. AERSCREEN guidance allows the maximum eight-hour CO impact to be conservatively estimated by multiplying the maximum one-hour impact by a factor of 0.9 (i.e. the eight-hour impact is 90% of the one-hour impact). The maximum predicted eight-hour CO concentration was determined to be approximately 2.66 ppm (2.95 ppm x 0.9).

The U.S. EPA has established National Ambient Air Quality Standards (NAAQS) to protect the public health and welfare in ambient air, with a margin for safety. The NAAQS for CO are 35 ppm for a one-hour average and 9 ppm for an eight-hour average. The Commonwealth of Massachusetts has established the same standards for CO. The CO background values of 1.9 ppm for a one-hour period and 1.1 ppm for an eight-hour period were added to the maximum predicted fuel combustion ambient impacts to represent the CO contribution from other, more distant, sources. With the background concentration added, the peak, total, one-hour and eight-hour CO impacts from the fuel combustion equipment, at any location around the building, will be no larger than 4.85 ppm and 3.76 ppm, respectively. These maximum predicted total CO concentrations (fuel combustion equipment and parking garage plus background) are safely in compliance with the NAAQS. This analysis demonstrates that the operation of the fuel combustion equipment will not have an adverse impact on air quality.

**Table 8** Fuel Combustion Equipment and Parking Garage Air Quality Impacts

Location	Predicted One-Hour Impact (ppm)*	One-Hour NAAQS (ppm)	Predicted Eight-Hour Impact (ppm)*	Eight-Hour NAAQS (ppm)
Ambient Air Near Garage	4.85	35	3.76	9

NAAQS = Massachusetts and National Ambient Air Quality Standards for CO (ppm = parts per million)

\* Representative of maximum CO impact at all nearby residences, buildings, and sidewalks.

### 5.5.4 Microscale CO Analysis for Selected Intersections

The Boston Planning & Development Agency (BPDA) and the DEP typically require a microscale air quality analysis for any intersection in the Project study area where the level of service (LOS) is expected to deteriorate to D and the proposed project causes a 10% increase in traffic or where the level of service is E or F and the project contributes to a reduction in LOS. For such intersections, a microscale air quality analysis is required to examine the carbon monoxide (CO) concentrations at sensitive receptors near the intersection.

A microscale CO air quality analysis was performed to predict the maximum one-hour and eight-hour CO concentrations for sensitive receptors at the four intersections in the Project area that meet the BPDA selection criteria. The analysis was performed for four cases: 2017 Existing, 2024 No-Build, 2024 Build and 2024 Build with

Mitigation. Estimation of CO levels at the intersections that meet the BPDA/DEP selection criteria under the 2024 Build scenario provides a good indication of whether the Project will interfere with the maintenance of the NAAQS for CO. Since CO levels are highest near intersections where the worst traffic congestion occurs, compliance with the NAAQS at these intersections and receptors protects public health elsewhere in the community.

The latest version of the U.S. EPA CAL3QHC model<sup>2</sup> (Version 2.0, dated October 1995) was used to predict maximum one-hour CO concentrations at each intersection from both moving and idling vehicles. This model includes the U.S. EPA CALINE-3 dispersion model<sup>3</sup> along with methods for estimating queue lengths and the contribution of emissions from idling vehicles at intersections. The Air Quality Appendix (Appendix N) contains the CAL3QHC model output.

#### 5.5.4.1 Meteorological Inputs

The following meteorological parameters were selected for the CAL3QHC modeling, in accordance with U.S. EPA and Massachusetts DEP guidance:

- Roughness Length: 321 cm (central business district)
- Mixing Height: 1,000 meters
- Wind Speed: 1.0 m/s (minimum)
- Wind Direction: 360° in 10° increments
- Stability Class: Class D.

#### 5.5.4.2 Receptors

Receptors are the locations where the CAL3QHC model predicts CO concentrations. Receptors were placed at regular intervals along each modeled roadway, where the public could have access. These receptors conservatively cover all of the locations where the general public may have frequent and prolonged access to the ambient air at each intersection. Following U.S. EPA guidance, all receptors were placed at a height of 1.8 meters and were located at least 3 meters from roadway curbsides.

#### 5.5.4.3 Modeled Roadways

Each roadway approach was modeled as a 1,000 meter, free-flow (moving vehicles), line source. The width of each free-flow link was set equal to the roadway width (excluding the parking areas) plus 3 meters on each side. Composite CO emission rates, in units of grams per mile, were applied to each free-flow link.

Each roadway approach with traffic signal control was also modeled as a queue link (vehicles waiting for a traffic signal to turn green). The width of each queue link was modeled as the actual approach lane width. The length of each queue was calculated by the CAL3QHC model. An idle CO emission factor, in grams per hour, was applied to each queue link.

The CAL3QHC model requires the input of signal timing for signalized intersections. Two of the four intersections of the intersections are signalized and were modeled as being signalized for all four cases. Signal timings were provided by Tetra Tech, Inc. and are shown in the Appendix N for the peak periods that were modeled

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<sup>2</sup> U.S. EPA, User's Guide to CAL3QHC Version 2.0: A Modeling Methodology for Predicting Pollution Concentrations Near Roadway Intersections, Office of Air Quality Planning and Standards, September 1995.

<sup>3</sup> California Department of Transportation, CALINE-3, A Versatile Dispersion Model for Predicting Air Pollutant Levels Near Highways and Arterial Streets, FHWA/CA/TL-79/23, Sacramento, CA, November 1979.

**Table 9** Summary of Build Case Level of Service

Intersection	Build LOS	Intersection
Congress Street and High Street – signalized	B/C	NO
Congress Street, Pearl Street and Water Street - signalized	B/B	NO
Devonshire Street, Congress Street and State Street - signalized	D/D	YES(+1%)
Pearl Street and Milk Street - signalized	A/A	NO
Congress Street and Franklin Street - signalized	B/B	NO
Pearl Street and Franklin Street - signalized	C/C	NO
Congress Street and Milk Street - signalized	B/C	NO
Surface/Purchase/SASB, Ramp to I93W-I-90S and Congress Street - signalized	C/E	YES
Congress Street and POSG Drive In - unsignalized	A/A	NO
Congress Street and POSG Drive Out - unsignalized	A/B	NO
Pearl Street and POSG Drive Out - unsignalized	A/B	NO
Pearl Street and POSG Drive In - unsignalized	A/A	NO
Water Street and Kilby Street – unsignalized	E/E	YES
Milk Street and Kilby Street Southbound - unsignalized	B/B	NO
Oliver Street and Kilby Street Northbound - unsignalized	B/B	YES*
Oliver Street and Private Drive – unsignalized	C/C	NO
Private Drive and Garage Drive - unsignalized	B/B	NO

The LOS shown represents the overall delay at each signalized intersection and the worst approach at the unsignalized intersection. Percentages shown for LOS D are percent increase in traffic from the Project.  
 \*2017 Existing and 2024 No-Build have LOS F for peak morning and afternoon hours.

Source: Tetra Tech, Inc.

### 5.5.4.4 Eight-Hour Average CO Concentrations

Peak eight-hour CO concentrations from roadway traffic were calculated by multiplying the model predicted one-hour CO values (without an added background concentration) by a persistence factor of 0.7.<sup>4</sup> The persistence factor takes into account that the intensity of the traffic during the peak eight-hour period will be less than that which will occur during the peak one-hour period. It also takes into account that the worst-case meteorological conditions (i.e. low wind speed blowing directly from the source to the receptor), corresponding to the peak one-hour concentrations, will not persist for an entire eight-hour period.

<sup>4</sup> U.S. EPA, Guideline for Modeling Carbon Monoxide from Roadway Intersections, EPA-454/R-92-005, Office of Air Quality Planning and Standards, November 1992.

### 5.5.4.5 Background CO Concentrations

The one-hour and eight-hour traffic-related CO concentrations predicted by the CAL3QHC model were added to conservative one-hour and eight-hour background CO concentrations of 1.9 parts of CO ppm and 1.1 ppm, respectively, for the existing case. Background concentrations for the year 2024 will likely be lower than the existing background CO concentrations. To be conservative, the same background concentrations were used for the 2024 No-Build, Build and Build with Mitigation cases. The sums of the CAL3QHC modeled CO concentrations plus background were compared to the NAAQS for CO.

### 5.5.4.6 CO Emission Factors

The U.S. Environmental Protection Agency (EPA) MOVES2014 emission factor model was used to calculate CO emissions factors. The inputs to the MOVES2014 model followed the latest guidance from the Massachusetts Department of Environmental Protection (DEP) and were performed for the existing (2017) and future (2024) traffic years. Both free flow and idling emissions factors were calculated for each traffic year. The free flow emission rate for vehicles traveling on the roadways was based on a vehicle speed of 25 mph for all of the modeled roadways. The free flow CO emission rates for a traffic speed of 25 mph were predicted to be 2.84 grams/mile in 2017 and 2.02 grams/mile in 2024. The CO emission rate calculated by MOVES2014, for idling vehicles, was 9.63 grams/mile in 2017 and 5.128 grams/mile in 2024. The CO emission rate calculated by MOVES2014, for queued vehicles at unsignalized intersections, was 5.67 grams/mile in 2017 and 3.86 grams/mile in 2024. These emission rates apply to wintertime conditions when motor vehicle CO emissions are greatest due to cold temperatures. MOVES2014 model output is provided in the Appendix N.

### 5.5.4.7 Traffic Information

Traffic volume data were available for the peak weekday morning and afternoon periods. Traffic data for the period with the worst LOS (i.e. largest traffic congestion and vehicle delays) at each intersection were modeled to reflect the potential worst-case air quality impacts.

### 5.5.4.8 Predicted Project Impacts

The microscale air quality analysis predicted maximum one-hour and eight-hour CO concentrations for sensitive receptors for three intersections in the project area which meet the BPDA/DEP selection criteria. The highest predicted CO concentrations for the one-hour and eight-hour periods, which consist of the sum of the maximum predicted impacts from intersection traffic and a conservative background CO concentration, are summarized in **Tables 10 and 11**. The results in these tables do not represent typical air pollution levels in the project area. Rather, they represent the highest concentrations that could exist during the joint occurrence of worst-case meteorology and peak roadway traffic.

*2017 Existing Case:* The maximum predicted one-hour and eight-hour CO concentrations, including conservative background concentrations of CO, for the 2017 Existing case are 2.3 ppm and 1.4 ppm, respectively. These maximum air quality impacts are in compliance with the NAAQS for CO.

*2024 No-Build Case:* For the 2024 No-Build case, the maximum predicted one-hour and eight-hour CO concentrations, including conservative background concentrations of CO, are 2.2 ppm and 1.3 ppm, respectively. These maximum concentrations are less than those predicted for the 2017 Existing case and comply with the one-hour and eight-hour NAAQS for CO.

**Table 10** Maximum Predicted One-Hour CO Concentrations at Sensitive Receptors (ppm)

Intersection	2017 Existing	2024 No-Build	2024 Build	2024 Build with Mitigation
Devonshire Street, Congress Street and State Street	2.3	2.1	2.1	2.1
Surface/Purchase/SASB, Ramp to I93W-I-90S and Congress Street	2.3	2.2	2.2	2.2
Water Street and Kilby Street	1.9	1.9	1.9	1.9
Oliver Street and Kilby Street Northbound	2.1	1.9	1.9	1.9
<b>NAAQS</b>	<b>35</b>	<b>35</b>	<b>35</b>	<b>35</b>

Note: Maximum predicted one-hour concentrations include background concentrations. The added one-hour average background CO concentration is 1.9 ppm in 2017 and 2024.

**2024 Build Case:** For the 2024 Build case, the maximum predicted one-hour and eight-hour CO concentrations, including conservative background concentrations of CO, are 2.2 and 1.3 ppm, respectively. These maximum concentrations are less than those predicted for the 2017 Existing case and the same as the 2024 No-Build case. The predicted CO impacts at all receptors are safely in compliance with the one-hour and eight-hour NAAQS for CO. These results demonstrate that the Project will not have an adverse impact on air quality at the most congested intersections in the project area.

**2024 Build with Mitigation Case:** For the 2024 Build with Mitigation case, the maximum predicted one-hour and eight-hour CO concentrations, including conservative background concentrations of CO, are 2.2 and 1.3 ppm, respectively. These maximum concentrations are less than those predicted for the 2017 Existing case and the same as the 2024 No-Build and Build cases. The predicted CO impacts at all receptors are safely in compliance with the one-hour and eight-hour NAAQS for CO. These results demonstrate that the Project will not have an adverse impact on air quality at the most congested intersections in the project area.

**Table 11** Maximum Predicted Eight-Hour CO Concentrations at Sensitive Receptors (ppm)

Intersection	2017 Existing	2024 No-Build	2024 Build	2024 Build with Mitigation
Devonshire Street, Congress Street and State Street	1.4	1.2	1.2	1.2
Surface/Purchase/SASB, Ramp to I93W-I-90S and Congress Street	1.4	1.3	1.3	1.3
Water Street and Kilby Street	1.1	1.1	1.1	1.1
Oliver Street and Kilby Street Northbound	1.2	1.1	1.1	1.1
<b>NAAQS</b>	<b>9</b>	<b>9</b>	<b>9</b>	<b>9</b>

Note: Maximum predicted eight-hour concentrations include background concentrations. The added eight-hour average background CO concentration is 1.1 ppm in 2017 and 2024.

The maximum predicted CO impacts for the 2024 No-Build and Build cases are less than those predicted for the 2017 Existing Case. This is a result of the lower CO emission rates for motor vehicles predicted by the MOVES2014a model for 2024, compared to 2017. The reduction in motor vehicle CO emission rates is primarily a

result of the improved motor vehicle emission controls, and occurs as newer vehicles with lower CO emissions replace older vehicles on the road. The maximum predicted CO impacts for the 2024 Build case are the same as those predicted for the 2024 No-Build Case. The results show that the project will not have a significant impact on the air quality at the analyzed intersections.

The worst-case air quality impacts at the Project site can be conservatively represented by the highest predicted intersection CO concentration adjacent to the Project site. Adding in the impacts from the fuel combustion equipment and standby generators and background concentration, the conservative estimate of the worst-case total one-hour and eight-hour CO impacts at the Project site will be 7.2 ppm and 5.2 ppm, respectively. These values are safely in compliance with the NAAQS for CO and indicate that the Project will not have an adverse impact on local air quality.

#### **5.5.4.9 Conclusions**

The microscale CO air quality dispersion modeling analysis clearly indicates that the worst-case traffic generated by the Project will not cause or contribute to any violations of the NAAQS for CO, and will not significantly affect air quality. Total CO impacts at the intersections with the largest delays and at the Project site, including the impacts from the fuel combustion equipment and parking garage, are predicted to be safely in compliance with the NAAQS for CO.

## **5.6 FLOOD HAZARD ZONE/WETLANDS**

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According to the Flood Insurance Rate Map for Suffolk County, Panel 81 of 176, Community Panel 25025C0081J dated March 16, 2016, the site is not located within the 100 year flood zone. There are no wetland resource areas on the parcel subject to jurisdiction under the Massachusetts Wetlands Protection Act.

## **5.7 STORMWATER MANAGEMENT**

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### **5.7.1 Existing Conditions**

The site in its current condition does not provide facilities for on-site stormwater management or infiltration. There are a series of landscape drains located within the Pearl Street sidewalk, which discharge into the Boston Water and Sewer Commission's (BWSC) combined sanitary and storm sewer system in Pearl Street. Stormwater from sidewalks along Milk and Oliver Street flows over the curb to the street drainage system. Stormwater runoff from the building roof is collected and piped into BWSC's combined sanitary and stormwater systems in Pearl and Milk Street.

### **5.7.2 Proposed Conditions**

The Project will not result in an increase in impervious area, nor will it generate any additional stormwater runoff. However, it is BWSC policy for all major projects to infiltrate one inch of stormwater from the entire site. The Project intends to comply with this requirement to the maximum extent feasible through routing stormwater runoff collected from the building's roof and directing it to a subsurface infiltration system beneath the Pearl Street sidewalk.

## **5.8 NOISE**

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Tech Environmental, Inc., performed a noise study to determine whether the operation of the proposed Project will comply with the City of Boston Noise Regulations and the Massachusetts Department of Environmental Protection ("DEP") Noise Policy.

### 5.8.1 Noise Terminology

The unit of sound pressure is the decibel (dB). The decibel scale is logarithmic to accommodate the wide range of sound intensities to which the human ear is subjected. A property of the decibel scale is that the sound pressure levels of two separate sounds are not directly additive. For example, if a sound of 70 dB is added to another sound of 70 dB, the total is only a 3-decibel increase (or 73 dB), not a doubling to 140 dB. Thus, every 3 dB increase represents a doubling of sound energy. For broadband sounds, a 3 dB change is the minimum change perceptible to the human ear. **Table 12** gives the perceived change in loudness of different changes in sound pressure levels.<sup>5</sup>

**Table 12** Subjective Effects of Changes in Sound Pressure Levels

Change in Sound Level	Apparent Change in Loudness
3 dB	Just perceptible
5 dB	Noticeable
10 dB	Twice (or half) as loud

Non-steady noise exposure in a community is commonly expressed in terms of the A-weighted sound level (dBA); A-weighting approximates the frequency response of the human ear. Levels of many sounds change from moment to moment. Some are sharp impulses lasting 1 second or less, while others rise and fall over much longer periods of time. There are various measures of sound pressure designed for different purposes. To establish the background ambient sound level in an area, the L<sub>90</sub> metric, which is the sound level exceeded 90 percent of the time, is typically used. The L<sub>90</sub> can also be thought of as the level representing the quietest 10 percent of any time period. Similarly, the L<sub>10</sub> can also be thought of as the level representing the quietest 90 percent of any time period. The L<sub>10</sub> and L<sub>90</sub> are broadband sound pressure measures, i.e., they include sounds at all frequencies. The Leq, or equivalent sound level, is the steady-state sound level over a period of time that has the same acoustic energy as the fluctuating sounds that actually occurred during that same period.

Sound level measurements typically include an analysis of the sound spectrum into its various frequency components to determine tonal characteristics. The unit of frequency is Hertz (Hz), measuring the cycles per second of the sound pressure waves, and typically the frequency analysis examines 10 octave bands from 32 Hz to 16,000 Hz.

The acoustic environment in an urban area such as the Project area results from numerous sources. Observations show that major contributors to the background sound level in the Project area include motor vehicle traffic on local and distant streets, pedestrians, and general city noises such as street sweepers and police/fire sirens. Typical sound levels associated with various activities and environments are presented in **Table 13**.

<sup>5</sup> American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc., 1989 *ASHRAE Handbook--Fundamentals* (I-P) Edition, Atlanta, GA, 1989.



## 5.8.2 Noise Regulations and Criteria

### *Commonwealth Noise Policy*

The DEP regulates noise through 310 CMR 7.00, "Air Pollution Control." In these regulations "air contaminant" is defined to include sound and a condition of "air pollution" includes the presence of an air contaminant in such concentration and duration as to "cause a nuisance" or "unreasonably interfere with the comfortable enjoyment of life and property."

Regulation 7.10 prohibits "unnecessary emissions" of noise. The DEP DAQC Policy Statement 90-001 (February 1, 1990) interprets a violation of this noise regulation to have occurred if the noise source causes either:

An increase in the broadband sound pressure level of more than 10 dBA above the ambient level; or A "pure tone" condition.

The ambient background level is defined as the  $L_{90}$  level as measured during equipment operating hours. A "pure tone" condition occurs when any octave band sound pressure level exceeds both of the two adjacent octave band sound pressure levels by 3 dB or more.

The DEP does not regulate noise from motor vehicles accessing a site or the equipment backup notification alarms. Therefore, the provisions described above only apply to a portion of the sources that may generate sound following construction of the Project.

### *Local Regulations*

The City of Boston Environment Department regulates noise through the Regulations for the Control of Noise as administered by the Air Pollution Control Commission. The Project is located in an area consisting of commercial and residential uses. The Project must comply with Regulation 2.2 for noise levels in Residential Zoning Districts at these residential locations. **Table 14** lists the maximum allowable octave band and broadband sound pressure levels for residential and business districts. Daytime is defined by the City of Boston Noise Regulations as occurring between the hours of 7:00 a.m. and 6:00 p.m. daily except Sunday. Compliance with the most restrictive nighttime residential limits will ensure compliance for other land uses with equal or higher noise limits.

**Table 13** Common Indoor and Outdoor Sound Levels

Outdoor Sound Levels	Sound Pressure ( $\mu\text{Pa}$ ) <sup>6</sup>	Sound Level (dBA)	Indoor Sound Levels
	6,324,555	110	Rock Band at 5 m
Jet Over-Flight at 300 m		105	
	2,000,000	100	Inside New York Subway Train
Gas Lawn Mower at 1 m		95	
	632,456	90	Food Blender at 1 m
Diesel Truck at 15 m		85	
Noisy Urban Area— Daytime	200,000	80	Garbage Disposal at 1 m
		75	Shouting at 1 m
Gas Lawn Mower at 30 m	63,246	70	Vacuum Cleaner at 3 m
Suburban Commercial Area		65	Normal Speech at 1 m
	20,000	60	
Quiet Urban Area— Daytime		55	Quiet Conversation at 1m
	6,325	50	Dishwasher Next Room
Quiet Urban Area— Nighttime		45	
	2,000	40	Empty Theater or Library
Quiet Suburb—Nighttime		35	
	632	30	Quiet Bedroom at Night
Quiet Rural Area— Nighttime		25	Empty Concert Hall
Rustling Leaves	200	20	Average Whisper
		15	Broadcast and Recording Studios
	63	10	
		5	Human Breathing
Reference Pressure Level	20	0	Threshold of Hearing

<sup>6</sup>  $\mu\text{Pa}$ , or micro-Pascals, describes sound pressure levels (force/area). DBA, or A-weighted decibels, describes sound pressure on a logarithmic scale with respect to 20  $\mu\text{Pa}$  (reference pressure level).

**Table 14** City of Boston Maximum Allowable Sound Pressure Levels (dB)

Octave Band (Hz)	Zoning Districts		
	Residential Daytime	All Other Times	Business (Anytime)
32 Hz	76	68	79
63 Hz	75	67	78
125 Hz	69	61	73
250 Hz	62	52	68
500 Hz	56	46	62
1000 Hz	50	40	56
2000 Hz	45	33	51
4000 Hz	40	28	47
8000 Hz	38	26	44
Broadband (dBA)	60	50	65

Notes:  $\mu$ Pa, or micro-Pascals, describes sound pressure levels (force/area). dBA, or A-weighted decibels, describes sound pressure on a logarithmic scale with respect to 20  $\mu$ Pa (reference pressure level).

### 5.8.3 Existing Conditions

#### 5.8.3.1 Baseline Noise Environment

The acoustic environment in an urban area such as the Project area results from numerous sources. Observations show that major contributors to the background sound level in the Project area include motor vehicle traffic on, local and distant streets, aircraft over-flights, mechanical equipment on nearby buildings, and general city noises such as street sweepers and police/fire sirens.

#### 5.8.3.2 Noise Measurement Methodology

Existing baseline sound levels in the Project area were measured during the quietest overnight period when human activity and street traffic were at a minimum, and when the Project’s mechanical equipment (the principal sound sources) could be operating. Since the Project’s mechanical equipment may operate at any time during a 24-hour day, a weekday between 12:00 a.m. and 4:00 a.m. was selected as the worst-case time period, i.e., the time period when Project-related sounds may be most noticeable due to the quieter background sound levels. Establishing an existing background (L90) during the quietest hours of the facility operation is a conservative approach for noise impact assessment and is required by the DEP Noise Policy.

#### 5.8.3.3 Measurement Equipment

Broadband (dBA) and octave band sound level measurements were made with a Larson Davis Type 831 environmental sound level analyzer, at each monitoring location, for a duration of approximately thirty minutes. The full octave band frequency analysis was performed on the frequencies spanning 16 to 16,000 Hertz. A time integrated statistical analysis of the data used to quantify the sound variation was also performed, including the calculation of the L90, which is used to set the ambient background sound level.

The Larson Davis Type 831 is equipped with a 1/2” precision condenser microphone and has an operating range of 5 dB to 140 dB and an overall frequency range of 3.5 Hz to 20,000 Hz. This meter meets or exceeds all requirements set forth in the ANSI S1.4 1983 Standards for Type 1 quality and accuracy and the State and City requirements for sound level instrumentation. Prior to any measurements, this sound analyzer was calibrated with

an ANSI Type 1 calibrator that has an accuracy traceable to the National Institute of Standards and Technology (NIST). During all measurements, the Larson Davis 831 was tripod mounted at approximately five feet above the ground in open areas away from vertical reflecting surfaces.

The nighttime noise measurement locations are as follows (see the Figure 1 in the Appendix J):

- Location #1: 137 Pearl St
- Location #2: 120 Milk St
- Location #3: 1 Devonshire Place
- Location #4: Leventhal Park

Broadband (dBA) and octave band sound level measurements were made with a Larson Davis Type 831 environmental sound level analyzer, at each monitoring location, for a duration of approximately thirty minutes. The full octave band frequency analysis was performed on the frequencies spanning 16 to 16,000 Hertz. A time integrated statistical analysis of the data used to quantify the sound variation was also performed, including the calculation of the L90, which is used to set the ambient background sound level.

The Larson Davis Type 831 is equipped with a ½" precision condenser microphone and has an operating range of 5 dB to 140 dB and an overall frequency range of 3.5 Hz to 20,000 Hz. This meter meets or exceeds all requirements set forth in the ANSI S1.4 1983 Standards for Type 1 quality and accuracy and the State and City requirements for sound level instrumentation. Prior to any measurements, this sound analyzer was calibrated with an ANSI Type 1 calibrator that has an accuracy traceable to the National Institute of Standards and Technology (NIST). During all measurements, the Larson Davis 831 was tripod mounted at approximately five feet above the ground in open areas away from vertical reflecting surfaces.

#### 5.8.3.4 Baseline Ambient Noise Levels

The daytime sound level monitoring was conducted on Thursday, August 3, 2017, and the nighttime sound level monitoring was conducted overnight on Tuesday, August 15 into Friday morning August 13, 2017. Weather conditions during the sound surveys were conducive to accurate sound level monitoring: the skies were clear, and the winds were light (i.e., less than 12 mph). The microphone of the sound level analyzer was fitted with a 7-inch windscreen to negate any effects of wind-generated noise.

The daytime sound level measurements taken in the vicinity of the Project Site reveal sound levels that are typical for an urban area. A significant source of existing sound at all locations is motor vehicle traffic on nearby highways and local streets, residential and commercial air handling equipment, and aircraft over-flights. Similarly, the nighttime sound level measurements taken in the vicinity of the Project Site reveal sound levels that are typical for an urban area. A significant source of existing sound at all locations is motor vehicle traffic on nearby highways and local streets, residential and commercial air handling equipment, and aircraft over-flights.

Noise monitoring at the Project Site during the daytime period were used to evaluate the existing ambient sound levels and to evaluate conformance with the Site Acceptability Standards established by HUD for residential development. These sound level measurements were taken to help estimate the  $L_{dn}$  for the Project Site. A 30-minute sound level measurement was taken during the afternoon on Thursday, August 3, 2017 between 12:48 p.m. and 1:18 p.m. at Leventhal Park (Location #4) representing the closest location to the Project Site.

The main source of noise during the peak afternoon traffic period sound level measurement was motor vehicle traffic and people walking on local streets, busses, sirens, and aircraft over-flights. The  $L_{eq}$  measured during the afternoon period was 76.8 dBA. The  $L_{eq}$  sound level measured during the nighttime at the same location was 59.2 dBA. Using both the daytime and nighttime  $L_{eq}$  sound levels, the calculated  $L_{dn}$  for the site is 75 dBA, which is above the HUD guideline noise limit of 65 dBA primarily due to the constant traffic of cars and people within downtown Boston.



The results of the nighttime baseline sound level measurements are presented in **Table 15**. The nighttime background  $L_{90}$  level range was 57.3 dBA at Location #4 to 62.6 dBA at Location #2. The octave band data in **Tables 15** show that no pure tone was detected at any locations in the nighttime noise measurements.

**Table 15** *Nighttime Baseline Sound Level Measurements, August 15-16, 2017*

Sound Levels	Location #1	Location #2	Location #3	Location #4
	137 Pearl St 11:40 PM – 12:10 AM	120 Milk St 11:00 PM – 11:30 PM	One Devonshire Pl 12:45 AM – 1:15 AM	Leventhal Park 12:15 AM – 12:45 AM
Octave Band $L_{90}$ (dB)				
32 Hz				
63 Hz	68.4	64.3	60.3	61.3
125 Hz	67.0	66.5	62.0	61.6
250 Hz	62.6	68.0	62.3	61.7
500 Hz	56.6	65.4	59.2	58.9
1000 Hz	53.9	60.6	55.5	54.7
2000 Hz	53.8	56.3	52.4	51.3
4000 Hz	50.4	50.3	47.7	47.6
8000 Hz	40.5	42.7	40.9	38.8
	33.5	32.8	29.4	29.8
Broadband (dBA)	58.3	62.6	57.7	57.3
Pure Tone?	No	No	No	No

### 5.8.3.5 Overview of Potential Project Noise Sources

The mechanical systems for the Proposed Project are in the early design stage. Typical sound power data for the equipment of the expected size and type for the Project have been used in the acoustic model to represent the Project’s mechanical equipment. The sound levels from all potential significant Project noise sources are discussed in this section.

The design for the Proposed Project is expected to include the following significant mechanical equipment:

- One (1) Marley NC8409UCN2 cooling tower, or equivalent, on the tower roof,
- Four (4) Mitsubishi PURY-P288 variable refrigeration units, or equivalent, on the tower roof,
- One (1) building maintenance unit (BMU) on the tower roof,
- Two (2) Marley NC8409UCN2 cooling towers, or equivalent, on the addition roof,
- Garage ventilation fan vents at Level 4 of the garage/addition facing towards Oliver Street,
- Mechanical room air handling units (AHUs) outside air (OA) vents at Levels 17 & 18 of the garage/addition, facing towards Oliver Street, and
- Mechanical room air handling units (AHUs) exhaust air (EA) discharge vents at Level 17 of the garage/addition, facing towards the existing hotel.

The equipment listed above was included in the noise impact analysis. The Project’s traffic was not included in the noise analysis because motor vehicles are exempt under both the City of Boston and DEP noise regulations.

The sound generation profiles for the mechanical equipment noise sources operating concurrently under full-load conditions were used to determine the maximum possible resultant sound levels from the Project Site as a whole, to define a worst-case scenario. To be in compliance with City and DEP regulations, the resultant sound level

must not exceed the allowable octave band limits in the City of Boston noise regulation and must be below the allowable incremental noise increase, relative to existing noise levels, as required in the DEP Noise Policy.

This sound level impact analysis was performed using sound generation data for representative equipment to demonstrate compliance with noise regulations. The building maintenance unit was assumed to have a total sound power of 73 dBA. The garage ventilation fan vents were assumed to have a total sound power of 98 dBA. The estimate for the garage ventilation fan vents represents approximately 20 dB in sound mitigation. The mechanical room air handling units outside air vents and exhaust air discharge vents were assumed to have total sound powers of 90 dBA and 95 dBA, respectively. The estimates for the mechanical room vents each represent approximately 7 dB in sound mitigation. Fan vent mitigation can be accomplished with in-line attenuation measures or via acoustically treated louvers. As the building design evolves, the sound generation for the actual equipment selected may differ from the values that were utilized for the analysis.

### 5.8.4 Modeling Methodology

Future maximum sound levels at the upper floors of all existing residences bordering the Project, and at the nearest residential property lines, were calculated with acoustic modeling software assuming simultaneous operation of all mechanical equipment at their maximum loads.

The Cadna-A computer program, a comprehensive 3-dimensional acoustical modeling software package was used to calculate Project generated sound propagation and attenuation. The model is based on ISO 9613, an internationally recognized standard specifically developed to ensure the highly accurate calculation of environmental noise in an outdoor environment. ISO 9613 standard incorporates the propagation and attenuation of sound energy due to divergence with distance, surface and building reflections, air and ground absorption, and sound wave diffraction and shielding effects caused by barriers, buildings, and ground topography.

### 5.8.5 Future Sound Level Project

The closest/worst-case sensitive (residential) location is to the east of the project area at 120 Milk Street. This location was selected based on the proximity of the equipment (smaller distances correspond to larger noise impacts) and the amount of shielding by the project (residences further from the project will experience less shielding from the Project's rooftop mechanical equipment, which may result in larger potential noise impacts from the Project). This location is expected to receive the largest sound level impacts from the Project's rooftop mechanical equipment. It can be classified as a residential zone.

The sound level impacts from the building's mechanical equipment were predicted at the closest residential location, as well as additional residential uses to the East (76 Batterymarch Street), South (137 Peal Street), Southwest (289 Devonshire Street), West (Levanthal Park & One Franklin Street), and Northwest (One Devonshire Place). Figure 1 in Appendix J shows the locations of the modeled noise receptors. Noise impacts at other nearby noise-sensitive locations (residences, parks, etc.) farther from the Project Site will be less than those predicted for these receptors.

#### 5.8.5.1 City of Boston Noise Standards

The City of Boston and DEP noise standards apply to the operation of the mechanical equipment at the proposed Project. The details of the noise predictions are presented in **Tables 16** through **22**. The sound impact analysis includes the simultaneous operation of the Project's HVAC equipment. The predicted sound levels are worst-case predictions that represent all hours of the day, as the analysis assumes full operation of the mechanical equipment 24-hours a day. The typical sound level impacts from the mechanical equipment will likely be lower than what is presented here, since most of the mechanical equipment will operate at full-load only during certain times of the day and during the warmer months of the year, it is not likely that all of the mechanical equipment will operate at the same time. Sound level impacts at locations farther from the Project (e.g. other residences, etc.) will be lower than those presented in this report.

The noise impact analysis results, presented in **Tables 16** through **22**, reveal that the sound level impact at the upper floors of the closest residences will be between 23.5 and 41.4 dBA. The smallest sound level impact of 23.5 dBA is predicted to occur at One Franklin Street. The largest sound level impact of 41.4 dBA is predicted to occur at Levanthal Park. Noise impacts predicted at all locations are in compliance with the City of Boston's nighttime noise limit (50 dBA) for a residential area. Note that sound levels from the Project will be below the residential nighttime limits at all times. The results also demonstrate compliance with the City of Boston, residential, non-daytime, octave band noise limits at both closest locations.

The City of Boston noise limits for business areas are significantly higher than the nighttime noise limits for residential areas (see **Table 14**). The Project will also easily comply with the City of Boston business area noise limits at all surrounding commercial properties.

**5.8.5.2 DEP Noise Regulations**

The predicted sound level impacts at the worst-case residential locations were added to the measured L<sub>90</sub> value of the quietest daily hour to test compliance with DEP's noise criteria. Assuming the Project's mechanical noise is constant throughout the day, the Project will cause the largest increase in sound levels during the period when the lowest background noise occurs. Minimum background sound levels (diurnal) typically occur between 12:00 a.m. and 5:00 a.m.

The predicted sound level impacts at the upper floors of the closest residences were added to the L<sub>90</sub> values measured during the period with the least amount of background noise to test compliance with DEP's noise criteria. The predicted noise impacts at the property line and the closest residences were added to the most-representative measured L<sub>90</sub> values to determine the largest possible increase in the sound level at each location during the quietest hour at the Project Site.

As shown in **Tables 16** through **22**, the Project is predicted to produce a less than 1 dBA change in the background sound levels at all modeled locations. Therefore, the Project's worst-case sound level impacts during the quietest nighttime periods will be in compliance with the Massachusetts DEP allowed noise increase of 10 dBA. The noise predictions for each octave band indicate that the mechanical equipment will not create a pure tone condition at any location.

**Table 16** *Estimated Future Sound Level Impacts – Anytime, 137 Pearl Street – Location R1*

Octave Bands	Residential Nighttime Noise Standards	Maximum Predicted Sound Levels
32 Hz	68	40
63 Hz	67	37
125 Hz	61	38
250 Hz	52	33
500 Hz	46	27
1000 Hz	40	26
2000 Hz	33	20
4000 Hz	28	7
8000 Hz	26	<1
<b>Broadband (dBA)</b>	<b>50</b>	<b>31</b>
Compliance with the City of Boston Noise Regulation?		<b>Yes</b>

Sound Level Metric	Maximum Sound Levels* (dBA)
Existing Nighttime Background, L <sub>90</sub>	58.3
One Post Office Square Project*	31.0
Calculated Combined Future Sound Level	58.3
Calculated Incremental Increase	+0.0
Compliance with DEP Noise Policy?	Yes

\* Assumes full-load operation of all mechanical equipment.  
 Note: DEP Policy allows a sound level increase of up to 10 dBA

**Table 17** *Estimated Future Sound Level Impacts – Anytime, 120 Milk Street – Location R2*

Octave Bands	Residential Nighttime Noise Standards	Maximum Predicted Sound Levels
32 Hz	68	46
63 Hz	67	44
125 Hz	61	46
250 Hz	52	42
500 Hz	46	37
1000 Hz	40	36
2000 Hz	33	33
4000 Hz	28	25
8000 Hz	26	15
<b>Broadband (dBA)</b>	<b>50</b>	<b>41</b>
Compliance with the City of Boston Noise Regulation?		<b>Yes</b>

Sound Level Metric	Maximum Sound Levels* (dBA)
Existing Nighttime Background, L <sub>90</sub>	62.6
One Post Office Square Project*	41.3
Calculated Combined Future Sound Level	62.6
Calculated Incremental Increase	+0.0
Compliance with DEP Noise Policy?	Yes

\* Assumes full-load operation of all mechanical equipment.  
 Note: DEP Policy allows a sound level increase of up to 10 dBA



**Table 18** *Estimated Future Sound Level Impacts – Anytime, One Devonshire Place – Location R3*

Octave Bands	Residential Nighttime Noise Standards	Maximum Predicted Sound Levels
32 Hz	68	38
63 Hz	67	34
125 Hz	61	33
250 Hz	52	28
500 Hz	46	22
1000 Hz	40	20
2000 Hz	33	14
4000 Hz	28	5
8000 Hz	26	<1
<b>Broadband (dBA)</b>	<b>50</b>	<b>26</b>
Compliance with the City of Boston Noise Regulation?		<b>Yes</b>

Sound Level Metric	Maximum Sound Levels* (dBA)
Existing Nighttime Background, L <sub>90</sub>	57.7
One Post Office Square Project*	25.6
Calculated Combined Future Sound Level	57.7
Calculated Incremental Increase	+0.0
Compliance with DEP Noise Policy?	Yes

\* Assumes full-load operation of all mechanical equipment.  
 Note: DEP Policy allows a sound level increase of up to 10 dBA

**Table 19** *Estimated Future Sound Level Impacts – Anytime, Leventhal Park – Location R4*

Octave Bands	Residential Nighttime Noise Standards	Maximum Predicted Sound Levels
32 Hz	68	44
63 Hz	67	43
125 Hz	61	48
250 Hz	52	41
500 Hz	46	36
1000 Hz	40	38
2000 Hz	33	33
4000 Hz	28	22
8000 Hz	26	5
<b>Broadband (dBA)</b>	<b>50</b>	<b>41</b>
Compliance with the City of Boston Noise Regulation?		<b>Yes</b>

Sound Level Metric	Maximum Sound Levels* (dBA)
Existing Nighttime Background, L <sub>90</sub>	57.3
One Post Office Square Project*	41.4
Calculated Combined Future Sound Level	57.4
Calculated Incremental Increase	+0.1
Compliance with DEP Noise Policy?	Yes

\* Assumes full-load operation of all mechanical equipment.  
 Note: DEP Policy allows a sound level increase of up to 10 dBA

**Table 20** *Estimated Future Sound Level Impacts – Anytime, 76 Batterymarch Street – Location R5*

Octave Bands	Residential Nighttime Noise Standards	Maximum Predicted Sound Levels
32 Hz	68	42
63 Hz	67	38
125 Hz	61	38
250 Hz	52	31
500 Hz	46	23
1000 Hz	40	21
2000 Hz	33	15
4000 Hz	28	6
8000 Hz	26	<1
<b>Broadband (dBA)</b>	<b>50</b>	<b>28</b>
Compliance with the City of Boston Noise Regulation?		<b>Yes</b>

Sound Level Metric	Maximum Sound Levels* (dBA)
Existing Nighttime Background, L <sub>90</sub>	62.6
One Post Office Square Project*	27.7
Calculated Combined Future Sound Level	62.6
Calculated Incremental Increase	+0.0
Compliance with DEP Noise Policy?	Yes

\* Assumes full-load operation of all mechanical equipment.  
 Note: DEP Policy allows a sound level increase of up to 10 dBA

**Table 21** *Estimated Future Sound Level Impacts – Anytime, One Franklin Street – Location R6*

Octave Bands	Residential Nighttime Noise Standards	Maximum Predicted Sound Levels
32 Hz	68	34
63 Hz	67	31
125 Hz	61	30
250 Hz	52	25
500 Hz	46	20
1000 Hz	40	19
2000 Hz	33	13
4000 Hz	28	1
8000 Hz	26	<1
<b>Broadband (dBA)</b>	<b>50</b>	<b>23</b>
Compliance with the City of Boston Noise Regulation?		<b>Yes</b>

Sound Level Metric	Maximum Sound Levels* (dBA)
Existing Nighttime Background, L <sub>90</sub>	57.7
One Post Office Square Project*	23.5
Calculated Combined Future Sound Level	57.7
Calculated Incremental Increase	+0.0
Compliance with DEP Noise Policy?	Yes

\* Assumes full-load operation of all mechanical equipment.  
 Note: DEP Policy allows a sound level increase of up to 10 dBA



**Table 22** *Estimated Future Sound Level Impacts – Anytime, 289 Devonshire Street – Location R7*

Octave Bands	Residential Nighttime Noise Standards	Maximum Predicted Sound Levels
32 Hz	68	36
63 Hz	67	34
125 Hz	61	38
250 Hz	52	34
500 Hz	46	27
1000 Hz	40	26
2000 Hz	33	20
4000 Hz	28	3
8000 Hz	26	<1
<b>Broadband (dBA)</b>	<b>50</b>	<b>31</b>
Compliance with the City of Boston Noise Regulation?		<b>Yes</b>

Sound Level Metric	Maximum Sound Levels* (dBA)
Existing Nighttime Background, L <sub>90</sub>	58.3
One Post Office Square Project*	31.1
Calculated Combined Future Sound Level	58.3
Calculated Incremental Increase	+0.0
Compliance with DEP Noise Policy?	Yes

\* Assumes full-load operation of all mechanical equipment.  
 Note: DEP Policy allows a sound level increase of up to 10 dBA

### 5.8.5.3 Conclusions

Sound levels at all nearby sensitive locations and at all property lines will fully comply with the most stringent City of Boston and DEP daytime and nighttime sound level limits.

This acoustic analysis demonstrates that the Project’s design will meet the applicable acoustic criteria.

## 5.9 SOLID AND HAZARDOUS WASTES

### 5.9.1.1 Hazardous Waste

One Post Office Square has not had any known or documented occurrences with hazardous materials. One Post Office Square maintains a Health and Safety Manual and Emergency Response Plan for the management of the property, which outlines plans and procedures to address health and safety hazards in the workplace.

### 5.9.1.2 Solid Waste

A waste stream audit was conducted for One Post Office Square on August, 9, 2016. The waste audit was conducted off-site by Charles George Companies, Inc. at Northeast Packaging, Inc. located at 7 Republic RD

Billerica, MA 01862. The waste audit was performed to determine the specific types of materials that make up the waste stream from the audited building and to analyze the effectiveness of the current diversion program.

The waste sources for this audit, which were collected over a 24-hour period on August 8, 2016, included the landfill and recycling waste stream from the entire building. The collection period adequately represents the typical waste stream for the building and provides a reasonable collection amount from which to assess the building set's waste stream make up and recycling efforts.

- Diversion efforts for this building currently support:
- Single-stream recycling of paper, metals, plastics, and glass
- Separate recycling of corrugated cardboard
- Collection of e-waste (i.e. batteries and other electronics)
- Collection of compost

### 5.9.1.3 Audit Procedure

The waste was taken to an off-site location. The auditors followed the following steps:

1. Weigh incoming waste/recycling
2. Sort incoming waste/recycling
3. Compile sorted waste/recycling
4. Weigh sorted waste/recycling

This process was conducted for the landfill waste and recycling waste streams. Categories for sorting included non-recyclable/non-compostable waste, bathroom waste, compostable waste, and recyclable paper, cardboard, metal, glass, and plastic.

### 5.9.1.4 Results

The total amount of waste examined during the audit includes the following sub-totals for each waste type:

- 2076 lbs of waste was successfully diverted for recycling
- 0 lbs of waste was successfully diverted for composting
- 904 lbs of waste was sent to the landfill

**Table 23** Waste Stream Audit Results

Waste Type	Amount (by weight or volume)		Percent of Waste Type Diverted	Percentage of Total Waste Associated with Waste Type	Diversion Program Currently in Place?
	Landfill Stream	Division Stream			
Glass		64	2%	2%	yes
Metal		176	6%	6%	yes
Plastics		458	15%	15%	yes
Mixed Paper		961	32%	32%	yes
Cardboard		417	14%	14%	yes
Wet Waste	462		0	16%	yes
Restroom Waste	98		0	3%	no
Miscellaneous	344		0	12%	no
<b>Totals</b>	<b>904</b>	<b>2076</b>	<b>69%</b>	<b>100%</b>	

**5.9.1.5 Diversion Improvement Opportunities**

Continued education Organic Waste Recycling specifically for tenants.

**5.9.1.6 Source Reduction Opportunities**

Elimination of cross-contamination which will reduce soiling of recoverable dry material.

**5.9.1.7 Summary**

Majority of non-recoverable is misplaced organic waste and contaminated material that does not meet quality standards.

**5.10 GEOTECHNICAL**

Subsurface conditions at the site are based on review of historic testing boring information. Subsurface conditions in the general location of the site consist of miscellaneous fill soils overlaying a relatively thick deposit of glacial soils. Bedrock consisting of Cambridge Argillite underlies the glacial deposit at approximately El. -70 to El. -76 BCB, approximately 90-96 feet below adjacent street grades.

The existing building is supported on a combination of pressure injected footings and conventional spread footings depending on the depth to suitable bearing material, and the existing garage floor slab was designed to withstand hydrostatic water pressures (pressure slab). The proposed construction includes new foundations to be constructed within the perimeter of the existing garage footprint to support the new garage and office structure. High capacity, small diameter drilled pile foundations extending into the Cambridge Argillite will be used for support of the new columns. The existing lowest level floor slab would be demolished and replaced with a pressure-relieved slab on grade bearing on the naturally-deposited low-permeability glacial soils.

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## 5.11 GROUNDWATER

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The Project site is not located within the Groundwater Conservation Overlay District. Groundwater is anticipated at approximately El. 10 BCB or below, per historical data, and is tidally influenced. The proposed construction is not anticipated to impact local groundwater levels. Recent exploratory testing in the existing garage indicates that the natural subgrade materials are very low permeability. Any groundwater that is collected from the underdrain system will be routed to a subsurface infiltration system beneath the Pearl Street sidewalk.

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## 5.12 CONSTRUCTION TERM IMPACTS & MITIGATION

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### 5.12.1 Introduction

A Construction Management Plan (CMP) in compliance with the City's Construction Management Program will be submitted to the Boston Transportation Department (BTD) once final plans are developed and the construction schedule is fixed. The construction contractor will be required to comply with the details and conditions of the approved CMP.

Proper pre-planning with the City and neighborhood will be essential to the successful construction of the Project. Construction methodologies, which ensure public safety and protect nearby residences and businesses, will be employed. Techniques such as barricades, walkways and signage will be used. The CMP will include routing plans for trucking and deliveries, plans for the protection of existing utilities, and control of noise and dust.

During the construction phase of the Project, the Proponent will provide the name, telephone number and address of a contact person to communicate with on issues related to the construction. The construction contact will be a person responsible for responding to the questions/comments/complaints of the residents and businesses in the neighborhood.

The Proponent intends to follow the guidelines of the City of Boston and the MassDEP, which direct the evaluation and mitigation of construction impacts.

### 5.12.2 Construction Methodology/Public Safety

Construction methodologies that ensure public safety and protect nearby tenants will be employed. Techniques such as barricades and signage will be used. Construction management and scheduling will minimize impacts on the surrounding environment and will include plans for construction worker commuting and parking, routing plans for trucking and deliveries, and the control of noise and dust.

As the design of the Project progresses, the Proponent will meet with BTD to discuss the specific location of barricades, the need for lane closures, pedestrian walkways, and truck queuing areas. Secure fencing, signage, and covered walkways may be employed to ensure the safety and efficiency of all pedestrian and vehicular traffic flows. In addition, sidewalk areas and walkways near construction activities will be well marked and lighted to protect pedestrians and ensure their safety. Public safety for pedestrians on abutting sidewalks will also include covered pedestrian walkways when appropriate. If required by BTD and the Boston Police Department, police details will be provided to facilitate traffic flow. These measures will be incorporated into the CMP which will be submitted to BTD for approval prior to the commencement of construction work.

### 5.12.3 Construction Schedule

Construction is anticipated to commence in June, 2018, with completion anticipated in the fall of 2020.

Typical construction hours will be from 7:00 a.m. to 6:00 p.m., Monday through Friday, with most shifts ordinarily ending at 3:30 p.m. No substantial sound-generating activity will occur before 7:00 a.m. If longer hours, additional shifts, or Saturday work is required, the construction manager will place a work permit request to the Boston



Inspectional Services and BTB in advance. It is noted that some activities such as concrete foundation and finishing activities could run beyond 6:00 p.m. to ensure the structural integrity of the finished product; certain components must be completed in a single pour, and placement of concrete cannot be interrupted. It should also be noted that façade removal operations may take place during off peak business hours of 10:00 p.m. to 7:00 a.m.

#### **5.12.4 Construction Staging/Access**

Access to the site and construction staging areas will be provided in the CMP.

Although specific construction and staging details have not been finalized, the Proponent and its construction management consultant will work to ensure that staging areas will be located to minimize impacts to pedestrian and vehicular flow. Secure fencing and barricades will be used to isolate construction areas from pedestrian traffic adjacent to the site. Construction procedures will be designed to meet all Occupational Safety and Health Administration (OSHA) safety standards for specific site construction activities.

#### **5.12.5 Construction Mitigation**

The Proponent will follow City and MassDEP guidelines which will direct the evaluation and mitigation of construction impacts. As part of this process, the Proponent and construction team will evaluate the Commonwealth's Clean Air Construction Initiative.

A CMP will be submitted to BTB for review and approval prior to issuance of a Building Permit. The CMP will include detailed information on specific construction mitigation measures and construction methodologies to minimize impacts to abutters and the local community. The CMP will also define truck routes which will help in minimizing the impact of trucks on City and neighborhood streets.

"Don't Dump - Drains to the Boston Harbor" plaques will be installed at storm drains that are replaced or installed as part of the Project.

#### **5.12.6 Construction Employment and Worker Transportation**

The number of workers required during the construction period will vary. It is anticipated that approximately 700 construction jobs will be created over the length of construction. The developer of each Project component will make reasonable good-faith efforts to have at least 50% of the total employee work hours be for Boston residents, at least 25% of total employee work hours be for minorities and at least 10% of the total employee work hours be for women. The developer of each Project component will enter into jobs agreements with the City of Boston.

To reduce vehicle trips to and from the construction site, minimal construction worker parking will be available at the site and all workers will be strongly encouraged to use public transportation and ridesharing options. The general contractors will work aggressively to ensure that construction workers are well informed of the public transportation options serving the area. Space on-site will be made available for workers' supplies and tools so they do not have to be brought to the site each day.

#### **5.12.7 Construction Truck Routes and Deliveries**

Truck traffic will vary throughout the construction period, depending on the activity. The construction team will manage deliveries to the site during morning and afternoon peak hours in a manner that minimizes disruption to traffic flow on adjacent streets. Construction truck routes to and from the site for contractor personnel, supplies, materials, and removal of excavations required for the development will be coordinated with BTB. Traffic logistics and routing will be planned to minimize community impacts. Truck access during construction will be determined by the BTB as part of the CMP. These routes will be mandated as a part of all subcontractors' contracts for the development. The construction team will provide subcontractors and vendors with Construction Vehicle & Delivery Truck Route Brochures in advance of construction activity.

“No Idling” signs will be included at the loading, delivery, pick-up and drop-off areas.

### 5.12.8 Construction Air Quality

Short-term air quality impacts from fugitive dust may be expected during demolition, excavation and the early phases of construction. Plans for controlling fugitive dust during demolition, excavation and construction include mechanical street sweeping, wetting portions of the site during periods of high wind, and careful removal of debris by covered trucks. The construction contract will provide for a number of strictly enforced measures to be used by contractors to reduce potential emissions and minimize impacts, pursuant to this Article 80 approval. These measures are expected to include:

- Using wetting agents on areas of exposed soil on a scheduled basis;
- Using covered trucks;
- Minimizing spoils on the construction site;
- Monitoring of actual construction practices to ensure that unnecessary transfers and mechanical disturbances of loose materials are minimized;
- Minimizing storage of debris on the site; and
- Periodic street and sidewalk cleaning with water to minimize dust accumulations.

### 5.12.9 Noise

The Proponent is committed to mitigating noise impacts from the construction of the Project. Increased community sound levels, however, are an inherent consequence of construction activities. Construction work will comply with the requirements of the City of Boston Noise Ordinance. Every reasonable effort will be made to minimize the noise impact of construction activities.

Mitigation measures are expected to include:

- Instituting a proactive program to ensure compliance with the City of Boston noise limitation policy;
- Using appropriate mufflers on all equipment and ongoing maintenance of intake and exhaust mufflers;
- Muffling enclosures on continuously running equipment, such as air compressors and welding generators;
- Replacing specific construction operations and techniques by less noisy ones where feasible;
- Selecting the quietest of alternative items of equipment where feasible;
- Scheduling equipment operations to keep average noise levels low, to synchronize the noisiest operations with times of highest ambient levels, and to maintain relatively uniform noise levels;
- Turning off idling equipment; and
- Locating noisy equipment at locations that protect sensitive locations by shielding or distance.

### 5.12.10 Construction Waste

The Proponent will take an active role with regard to the reprocessing and recycling of construction waste. The disposal contract will include specific requirements that will ensure that construction procedures allow for the necessary segregation, reprocessing, reuse and recycling of materials when possible. For those materials that cannot be recycled, solid waste will be transported in covered trucks to an approved solid waste facility, per MassDEP Regulations for Solid Waste Facilities, 310 CMR 16.00. This requirement will be specified in the disposal contract. Construction will be conducted so that materials that may be recycled are segregated from those materials not recyclable to enable disposal at an approved solid waste facility.

### 5.12.11 Protection of Utilities

Existing public and private infrastructure located within the public right-of-way will be protected during construction. The installation of proposed utilities within the public way will be in accordance with the MWRA, BWSC, Boston Public Works, Dig Safe, and the governing utility company requirements. All necessary permits will be obtained before the commencement of the specific utility installation. Specific methods for constructing proposed utilities where they are near to, or connect with, existing water, sewer and drain facilities will be reviewed by BWSC as part of its site plan review process.

### 5.12.12 Rodent Control

A rodent extermination certificate will be filed with each building permit application for the Project. Rodent inspection monitoring and treatment will be carried out before, during, and at the completion of all construction work, in compliance with the City's requirements.

### 5.12.13 Wildlife Habitat

The Project site is in an established urban neighborhood and is developed. There are no wildlife habitats in or adjacent to the Project site.

### 5.12.14 Construction Vibration

All means and methods for performing work at the site will be evaluated for potential vibration impacts on adjoining property, utilities, and adjacent existing structures. Acceptable vibration criteria will be established prior to construction, and vibration will be monitored, if required, during construction to ensure compliance with the agreed-upon standard.

### 5.12.15 Erosion Prevention and Sediment Control

Construction term erosion prevention and sediment control plans will be prepared and include the specific practices, installation methods and requirements for pollution prevention and sediment control practices. The practices to be included in the plans will include the following measures:

- Minimize the extent and time of exposed soils;
- Provide perimeter sediment control, including silt fence and/or compost filter tubes;
- Provide catch basin inlet protection including geotextile filter fabric;
- Minimize sediment track out with stabilized construction exits and street sweeping;
- Control discharges from soil stockpiles include temporary erosion measures and perimeter sediment controls;
- Use of wet saws for brick and masonry cutting.
- Provisions for dedicated concrete washout areas;
- Provide temporary storage of runoff, including sediment traps and linear sediment trenches;
- Provisions for dewatering including sediment tanks, geotextile filter bags;
- Good housekeeping pollution prevention measures, including secondary containment and storage of materials under cover; and
- Maintenance requirements including repair/replacement criteria for sediment controls.

### 5.12.16 Coordination with Other Construction Projects

The One Post Office Square team has been studying and reviewing the project with the Boston Planning and Development Agency since early 2017. There are two on-going projects located within the Project vicinity of One Post Office Square. The Congress Square project is under construction and scheduled for completion in 2018;

100 Federal Street is also under construction and scheduled for completion in 2018. One Post Office Square is planning to start construction in mid-2018, and will be ramping up in Q4 of 2018, as these two projects are ramping down and nearing completion, minimizing construction impacts on the Downtown Financial District. The project team has proposed initiatives to mitigate construction impacts during the project construction, and will develop a Construction Management Plan (CMP) in compliance with the City's Construction Management Program through this process.

## 6.0 URBAN DESIGN

The repositioning of One Post Office Square begins by redefining how the building interacts with its urban fabric. Its impact on the city will be understood locally at PO Square, in the Financial District Neighborhood, and on Boston's skyline. Careful consideration has been given to how the building's design will elevate both the Tenant's and Public's experience at a range of scales.

The Project's goal for the pedestrian is to enhance and increase public activity by emphasizing the building's openness and connectivity at the street level as well as to Post Office Square. This will be accomplished by adding a significant, three story retail space, which includes the potential repurposing of the underused private drive. The resulting design will provide a multistory, transparent window embracing the park while inviting the public into a range of venues for eating, drinking and socializing. The exposure of the existing retail on Milk and Oliver Streets will be enhanced architecturally in concert with the vocabulary of the Tower. Aside from the potential infill of the drive-thru, the Project will have minimal impact on the existing curb lines, cuts or any street plantings. Improvements to the Pearl and Milk Street sidewalks have been made in recent years and will be maintained, including an extension of the Pearl Street sidewalk treatment where the drop-off is removed. The existing Oliver Street sidewalk has not been improved, and will be upgraded as part of the construction.

The project design has proposed several outdoor areas throughout the building providing indoor-outdoor opportunities for the public, the building occupants at large and private tenants. They will offer dynamic experiences for the building's occupants while adding further richness and vitality to the financial district. Outdoor spaces are proposed at levels 3, 4, 18, 25, 34 and 41 of the building.

Most of the project's design is a renovation of existing building. In addition, the existing parking structure and associated spaces will be demolished and replaced by a new structure with ground floor retail and drop-off for an automated parking garage. The automated parking garage will include a 13-story addition above the garage that extends the existing office floor plates from the One Post Office Square office tower. The volume of the addition was designed in concert with the neighboring buildings on Oliver and Kilby Streets and its architectural language is consistent with that of the Tower.

The OPOS roof structure is being modified to re-purpose the Level 41 Penthouse into a multi-purpose venue enclosed in a unique glass expression deemed the 'lantern' for its aspiration to offer glowing visibility on the nighttime skyline.

## 7.0 SUSTAINABLE DEVELOPMENT / HIGH PERFORMANCE GREEN BUILDINGS

### 7.1 LEED

The Applicant intends to measure the results of their sustainability initiatives using the framework of the LEED v4 rating system to show compliance with Article 37. The LEED rating system tracks the sustainable features of a project by achieving points in the following categories: Integrative Process; Location and Transportation; Sustainable Sites; Water Efficiency; Energy and Atmosphere; Materials and Resources; Indoor Environmental Quality; Innovation in Design; and Regional Priority. One Post Office Square is currently pursuing LEED Core and Shell (CS) Certification (v4). The project target is LEED Gold, for which a minimum of 60 points are required.



The LEED CS Certification Scorecard is included in Appendix L, and shows the credits the Project anticipates achieving. The scorecard will be updated regularly as the design develops and engineering assumptions are substantiated. At this early design stage, there are 53 points indicated as 'easy', and another 30 points identified as 'moderate'. The project will target achieving 12 of those 'moderate' points to obtain LEED Gold Certification, with a five-point margin. Points that are still being studied further and are listed in the 'moderate' category are italicized below.

## INTEGRATIVE PROCESS

*Credit – Integrative Process.* The project has performed preliminary energy modeling and water budget analysis as part of the schematic design process to identify and use opportunities for synergy across building systems.

## LOCATION AND TRANSPORTATION

*Credit – Sensitive Land Protection.* The project is on land that has been previously developed.

*Credit – Surrounding Density and Diverse Uses.* The site has a surrounding existing density with a ¼-mile radius of at least 25,000 square feet per acre and has eight or more publicly available diverse uses within a ½-mile walking distance.

*Credit – Access to Quality Transit.* The project site is located within ¼-mile of multiple transit types, providing over 360 trips per weekday and over 216 trips per weekend day.

*Credit – Bicycle Facilities.* The project will provide a minimum of 164 secure long-term bike storage spots, 7 short-term bike storage spots, and 23 showers with changing facility for building occupants.

*Credit – Reduced Parking Footprint.* The project will not increase existing parking spaces in the adjoining garage for building occupants and will provide preferred parking for carpools for 5% of the total spaces.

*Credit – Green Vehicle.* The project will designate a minimum of 5% of all parking spaces used by the project as preferred parking for low-emitting and fuel-efficient vehicles and will provide a minimum of 2% of all parking spaces with access to electric-vehicle charging stations.

## SUSTAINABLE SITES

*Prerequisite – Construction Activity Pollution Prevention.* The project construction manager will submit and implement an Erosion and Sedimentation Control (ESC) Plan for construction and demolition activities associated with the project. The Plan will conform to the 2012 EPA Construction General Permit and specific municipal requirements for the City of Boston.

*Credit – Site Assessment.* The project will complete a site assessment that includes information on topography, hydrology, climate, vegetation, soils, human use and human health effects. The documentation will detail the relationship between site features and project design.

*Credit – Protect or Restore Habitat.* The project will pursue an increase in vegetated areas of the site, including vegetated roof surfaces. All vegetation will be native or adapted species and will be selected to promote biodiversity.

*Credit – Open Space.* The project will provide physically accessible outdoor space, inclusive of vegetated roofs and associated hardscape areas.

*Credit – Rainwater Management.* The project will manage on site the runoff from the developed site for either the 85<sup>th</sup> %tile or 95<sup>th</sup> %tile rainfall event using low-impact development (LID) and green infrastructure.

*Credit – Heat Island Reduction.* The project will use a combination of high-reflectance roof and vegetative cover on the roof.

*Credit – Light Pollution Reduction.* The project will meet requirements for all exterior luminaries to reduce up-light and light trespass.

*Credit – Tenant Design and Construction Guidelines.* The project will provide tenants with an illustrated document containing: (1) A description of the sustainable design and construction features incorporated in the core and shell project and the project's sustainability goals and objectives, including those for tenant spaces; (2) Recommendations, including examples, for sustainable strategies, products, materials and services; and (3) Information to enable the tenant to coordinate space design with the building systems when pursuing LEED v4 prerequisites and credits.

## WATER EFFICIENCY

*Prerequisite – Outdoor Water Use Reduction.* The project will have no permanent irrigation system that uses potable water.

*Prerequisite – Indoor Water Use Reduction.* The project will specify plumbing fixtures that meet or exceed the minimum of a 20-percent reduction in water use compared to the baseline for the building.

*Prerequisite – Building-Level Water Metering.* The project will install permanent water meters that measure total potable water use. Meter data will be compiled into monthly and annual summaries and shared with the U.S. Green Building Council (USGBC) for at least five years.

*Credit – Outdoor Water Use Reduction.* The project will have no permanent irrigation system for landscaping that may be installed beyond a maximum two year establishment period for any such native plants.

*Credit – Indoor Water Use Reduction.* The project will install plumbing fixtures that provide a 45-percent reduction in overall water use compared to the baseline for the building. *The project will also meet a 50-percent reduction target.*

*Credit – Cooling Tower Water Use.* The project will conduct a one-time potable water analysis in order to optimize cooling tower cycles, measuring the following five control parameters and confirming they are at or below the stated maximum concentrations: Ca (as CaCO<sub>3</sub>) ≤ 1000 ppm; Total alkalinity ≤ 1000 ppm; SiO<sub>2</sub> ≤ 100 ppm; Cl<sup>-</sup> ≤ 250 ppm; and Conductivity ≤ 2000 μS/cm. The project will design cooling tower operation to maximize the number of cycles without exceeding any of these parameter limits. *The project will also increase the level of treatment in the condenser or make-up water.*

*Credit – Water Metering.* The project will install permanent water meter systems for two or more of the following: Indoor plumbing fixtures and fittings; irrigation (if any) for 80% of landscaped area; 80% of installed domestic hot water heating capacity; reclaimed water; and 80% of other process water.

## ENERGY AND ATMOSPHERE

*Prerequisite – Fundamental Commissioning and Verification.* Building systems will be commissioned in accordance with the U.S. Green Building Council (USGBC) LEED requirements. The commissioning services provided include the Owner's Project Requirements (OPR) and Basis of Design (BOD) documents, development of a commissioning plan, incorporation of a commissioning specification section into the construction documents, and verification through startup observation and functional testing that the installed systems are operating in accordance with the OPR, BOD and construction documents. Commissioned systems to which the above services apply are HVAC, lighting controls and domestic hot water systems.

*Prerequisite – Minimum Energy Performance.* As a core and shell (CS) development, the proposed project will demonstrate through energy modeling an improvement of at least 2% in the performance rating compared with the baseline building performance rating using ASHRAE 90.1-2010 Appendix G.

*Prerequisite – Building Level Energy Metering.* If not present, the project will install base building-level energy metering, or sub-meters, which can be aggregated to provide base building-level data representing total building energy consumption which captures at a minimum one month intervals. The project will commit to sharing data with USGBC for five years.

*Prerequisite – Fundamental Refrigerant Management.* The project will specify equipment and systems with no chlorofluorocarbon (CFC) based refrigerants.

*Credit – Enhance Commissioning.* The project will complete the commissioning activities for mechanical, plumbing and renewable energy systems and assemblies in accordance with ASHRAE Guideline 0-2005 and ASHRAE Guideline 1.1-2007 for HVAC&R systems, as they relate to energy, water, indoor environmental quality and durability. *The project will also develop monitoring-based procedures and identifying points to be measured and evaluated to assess performance of energy- and water-consuming systems. The project will also fulfill the requirements in the LEED v4 EA Prerequisite Fundamental Commissioning and Verification as they apply to the building's thermal envelope. Requirements will be included in the Commissioning Provider's Scope of Work and Specifications.*

*Credit – Optimize Energy Performance.* The project will be designed with the goal of exceeding the ASHRAE 90.1-2010 Appendix G baseline, as measured by Energy Use Intensity in kBtu/sf-year, by 8%. *The project will also meet a more ambitious goal of exceeding the baseline performance rating by 11%.*

*Credit – Advanced Energy Metering.* If not currently present, the project will install meters for future tenant spaces so that tenants will be capable of independently metering energy consumption. Provide a sufficient number of meters to capture total tenant energy use for each energy source, such as domestic hot water, gas and electricity with a minimum of one meter per energy source per floor.

*Credit – Demand Response.* The project will design building and equipment for participation in demand-response programs through load shedding or load shifting.

*Credit – Enhanced Refrigerant Management.* The project will select refrigerants for the HVAC equipment based on their capacity to minimize impacts of ozone depletion and global warming.

*Credit – Green Power and Carbon Offsets.* The project will engage in a contract for qualified resource that have come online since January 1, 2005, for a minimum of five years, to be delivered annually. The contract will specify the provision of at least 50% or 100%, of the project's energy from green power, carbon offsets, or renewable energy certificates (RECs).

## **MATERIALS AND RESOURCES**

*Prerequisite – Storage and Collection of Recyclables.* The project will provide dedicated areas for the collection and storage of the following recyclable materials for the entire building: mixed paper, corrugated cardboard, glass, plastics and metals. The project will also take appropriate measures for the safe collection, storage and disposal of batteries, mercury-containing lamps and electronic waste.

*Prerequisite – Construction and Demolition Waste Management Planning.* The project will develop and implement a construction and demolition waste management plan that establishes waste-diversion goals by identifying at least five materials targeted for diversion, and approximates a percentage of the overall project waste that these materials represent. The plan will specify whether materials will be separated or co-mingled and will describe the diversion strategies. The project will also provide a final report detailing all major waste streams generated, including disposal and diversion rates.

*Credit – Building Impact Life-Cycle Reduction.* The project will reuse existing building resources and demonstrate a reduction in materials use through life-cycle assessment.

*Credit – Building Product and Disclosure Optimization: EPDs.* The construction will use at least 20 different permanently installed products sourced from at least five different manufacturers that have industry wide or product specific Environmental Product Declarations (EPDs) which conform to ISO 14025, 14040, 14044, and EN 15804 or ISO 21930 specifications. *The project will use products, for 50% by cost of the total value of permanently installed products that comply with third-party certifications for impact reduction below industry averages.*

*Credit – Building Product and Disclosure Optimization: Sourcing.* *The project will use 20 different permanently installed products from at least five different manufacturers that have publically released a report from their raw material suppliers which include raw material supplier extraction locations, a commitment to long-term ecologically responsible land use, a commitment to reducing environmental harms from extraction and/or manufacturing processes, and a commitment to meeting applicable standards or programs voluntarily that address responsible sourcing criteria.*

*Credit – Building Product and Disclosure Optimization: Ingredients.* *The project will use 20 different permanently installed products from at least five different manufacturers that use a Manufacturer Inventory or Health Product Declaration to demonstrate chemical inventory of the product to at least 1000 ppm.*

*Credit – Construction and Demolition Waste Management.* The project will develop and implement a construction and demolition waste management plan that has a target to recycle and/or salvage non-hazardous construction and demolition materials by 75%.

## INDOOR ENVIRONMENTAL QUALITY

*Prerequisite – Minimum Indoor Air Quality (IAQ) Performance.* The project will meet the minimum requirements of ASHRAE Standard 62.1-2010, Sections 4-7, Ventilation for Acceptable Indoor Air Quality (with errata), or a local equivalent, whichever is more stringent. For all mechanically ventilated spaces, the system will measure minimum Outside Air (OA) intake flow with 10% accuracy to design condition. The system will set an alarm at 15% change in design conditions. The system will provide 40 cfm/person of OA.

*Prerequisite – Environmental Tobacco Smoke Control.* The project will prohibit smoking inside the building and outside the building except in designated smoking areas located at least 25 feet from all entries, outdoor air intakes and operable windows. Signage will be posted within 10 feet of all building entrances stating the no-smoking policy.

*Credit – Enhanced IAQ Strategies.* The project will install permanent entryway systems at least 10 feet long (e.g., permanently installed grates, grilles, slotted systems, rollout mats) and maintain all on a weekly basis. The project will ensure each ventilation system that supplies outdoor air to occupied spaces has a MERV 13 or higher particle filter or air-cleaning device, and the project will replace all air filtration media after completion of construction and before occupancy. The project will also provide dedicated exhaust for each space where hazardous gases or chemicals may be present or used (e.g., garages, housekeeping and laundry areas, copying and printing rooms), at a minimum of 0.50 cfm per sf, to create negative pressure. For each of these spaces, the project will provide self-closing doors and deck-to-deck partitions or a hard-lid ceiling. The project will also install CO2 monitors in all densely occupied spaces, i.e. those with more than 25 occupants per 1,000 sf. Such CO2 monitors will set an audible or visual alarm, or alert the building automation system, if the sensed CO2 concentration exceeds the set-point by more than 10% using methods in ASHRAE 62.1-2010, Appendix C.

*Credit – Low Emitting Materials.* The project will only use materials that comply with the VOC content and General Emissions Evaluation requirements and Composite Wood Evaluation for Wood, and appropriate testing methods, for paints and coatings; adhesives and sealants; flooring; composite wood; and ceiling, walls, thermal and

acoustic insulation. In addition, composite wood will not contain any added urea-formaldehyde, or meet CARB air testing for ULEF.

**Credit – Construction IAQ Management Plan.** The project will develop and implement an IAQ management plan for the construction and pre-occupancy phases of the building. During construction, the project will meet or exceed all applicable recommended control measures of the Sheet Metal and Air Conditioning National Contractors Association (SMACNA) IAQ Guidelines for Occupied Buildings under Construction, 2<sup>nd</sup> Edition, 2007, ANSI/SMACNA 008-2008, Chapter 3.

**Credit – Quality Views.** The project design will achieve a direct line of sight to the outdoors via vision glazing for 75% of all regularly occupied floor area.

## INNOVATION IN DESIGN

**Credit – Innovation.** The project will achieve significant, measurable environmental performance using a strategy not addressed in the LEED green building rating system, or will achieve a pilot credit from the USGBC's Pilot Credit Library, or will achieve exemplary performance in an existing LEED v4 prerequisite or credit.

**Credit – LEED Accredited Professional (AP).** The project has a principal participant of the project team who is LEED-AP with a specialty appropriate for the project.

## REGIONAL PRIORITY

**Credit – Regional Priority.** Special Regional Priority credits, for the Boston region, will be earned by the project for the Indoor Water Use Reduction and Building Life-Cycle Impact Reduction credits discussed above. *The project may earn Regional Priority credits for the Rainwater Management credit discussed above.*

See Appendix L for the LEED CS Certification Scorecard.

## 7.2 CLIMATE CHANGE PREPAREDNESS CHECKLIST

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As the project is subject to Article 80, Large Project Review, the City of Boston's Climate Change Preparedness and Resiliency Checklist has been prepared for the project and is provided in Appendix K.

## 7.3 ENERGY SAVINGS AND GHG REDUCTIONS

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Energy models were created for both a future baseline case (at Code) and proposed Schematic Design (SD) following ASHRAE 90.1-2013 Appendix G protocols. The results are reported in terms of the Energy Use Intensity (EUI) in units of kBtu/sf-year. The energy model runs reveal the future baseline model with a EUI of 46.1 and the proposed SD model with a EUI of 43.3, documenting a 6.1% energy savings over the baseline model in total future energy use. The existing building has an estimated EUI of 67.0. Thus, the proposed SD model has a EUI that is 35.5% lower than the existing EUI.

Total energy use by a building is a function of both the Energy Use Intensity (EUI) and the total conditioned square feet. The project proposes additional conditioned space for One Post Office Square of slightly less than 180,000 sf. Using the natural gas and electricity consumption figures from the energy models, and accounting for the increased size of the future project compared to the existing building, total future energy use for the future baseline and SD cases are 49,790 x 10<sup>6</sup> Btu/yr and 46,766 x 10<sup>6</sup> Btu/yr, respectively. The future SD case energy use of 46,766 x 10<sup>6</sup> Btu/yr is 22.6% less than the energy use for the existing building of 60,434 x 10<sup>6</sup> Btu/year.

Greenhouse gas (GHG) emissions associated with use of natural gas and electricity in the building systems were calculated using CO<sub>2</sub> emission rates of 117.1 lb/MMBtu natural gas (U.S. Dept. of Energy) and 747 lb/MWhr



electricity (ISO New England, Electric Generator Air Emissions Report). Calculated CO<sub>2</sub> emissions are 6,000 tons/yr for the existing building, 4,953 tons/year for the future project baseline, and 4,619 tons/yr for the future SD case. Thus, at this early SD stage, the GHG analysis shows the project will produce 23.0% less CO<sub>2</sub> emissions than the existing building, and will advance the City’s goals for sustainable design.

### 7.4 SEA LEVEL RISE

The projected highest elevation for sea level in Massachusetts based on a high emissions scenario of climate change, sea level rise could reach six feet by 2100. The map projections show that the parcel is not at risk for flooding. According to the Massachusetts Office of Coastal Zone Management’s Sea Level Rise guidance<sup>[1]</sup>, Boston should prepare for a sea level rise of 4.20 feet by 2100 (Intermediate High scenario).

[1] Sea Level Rise: Understanding and Applying Trends and Future Scenarios for Analysis and Planning <http://www.mass.gov/eea/docs/czm/stormsmart/slr-guidance-2013.pdf>

The map projections show that the parcel is not at risk for flooding. The sea level rise associated with Boston Harbor to the east, reaches as far inland as Battery March Street and does not extend onto the project site.

## 8.0 INFRASTRUCTURE SYSTEMS COMPONENT

The existing building is serviced by existing infrastructure including water, sewer, gas, electric, and telephone.

### 8.1 CAPACITIES AND PROJECT DEMANDS

The existing and proposed wastewater flows were estimated using 310 CMR 15.203 Title 5 System Sewage Flow Design Criteria.

**Table 24** Existing Wastewater Generation Estimate

Use Description	Units	Generation Rate (Title 5)	Average Flow (gpd)
General Office	726,200 sf	75 gpd/ 1,000 sf	54,450
Garage Parking	371 spaces	0.1 gpd/space	37
<b>Total GPD</b>			<b>54,487</b>

**Table 25** Proposed Wastewater Generation Estimate

Use Description	Units	Generation Rate (Title 5)	Average Flow (gpd)
General Office	1,004,000 sf	75 gpd/1,000 sf	75,300
Retail	52,100 sf	50 gpd/1,000 sf	2,605
Restaurant	300 seats	35 gpd/seat	10,500
Garage Parking	300 spaces	0.1 gpd/space	30
<b>Total GPD</b>			<b>88,435</b>

[1] cite Sea Level Rise: Understanding and Applying Trends and Future Scenarios for Analysis and Planning <http://www.mass.gov/eea/docs/czm/stormsmart/slr-guidance-2013.pdf>

Based on 310 CMR 15.203 Title 5 System Sewage Flow Design Criteria the proposed uses will generate a total of 88,435 gallons of sewage per day, representing an increase of 33,948 gallons per day. The increase in flows will require either an upsized 12 inch service connection or a second 8 inch service connection to the existing 8 inch service connection to the 42 inch by 54 inch BWSC line currently conveying wastewater flows in Milk Street. An additional 8 inch sewer service will be installed to serve the garage floor drains. The additional sewer service will also connect into the 42 inch by 54 inch BWSC line in Milk Street.

**Water consumption.** The estimated water use will be similar to the wastewater generation with an additional 10% that is not captured through building sanitary systems, such as uses of water for outdoor roof level landscaping features. Therefore it's anticipated that the water demand will be approximately 97,280 gpd. Measures to conserve water consumption will include low flow fixtures throughout the new building.

The following section presents the interior space hearing energy sources, consideration for the reuse of condensate and the air conditioning system and make up water.

## 8.2 UPGRADES

As noted above, the existing sanitary sewer service will be upgraded. Either a second 8 inch sewer service will be added to serve the office tower or the existing 8 inch sewer service will be upgraded to a 12 inch service. Also a new 8 inch sewer service will be provided to serve the garage floor drains.

For the water systems, a new 8 inch fire service connection is proposed from Milk Street in order to separate an existing combined domestic and fire water service.

## 8.3 MITIGATION

The project will participate in BWSC's Inflow and Infiltration (I/I) Reduction program for the increase in wastewater generated by the project. The program will require a monetary payment based on 4 gallons of I/I removal for each new gallon of wastewater.

No other utility mitigation is anticipated at this time.

# 9.0 HISTORIC AND ARCHAEOLOGICAL RESOURCES

## 9.1 INTRODUCTION

This section identifies historic and archaeological resources located on the Project site and within the Project's vicinity. Reviews of the State and National Registers of Historic Places, as well as the Massachusetts Historical Commission's (MHC) Inventory of Historic and Archaeological Assets of the Commonwealth (the Inventory), were undertaken to identify historic and archaeological resources.

## 9.2 HISTORIC RESOURCES

### 9.2.1 Project Site

The Project site is located in Boston's Financial District across Pearl Street from the Norman Leventhal Park (Post Office Square Park). The site is bound by Milk Street to the north, Oliver Street to the east, Pearl Street to the west and Franklin Street to the south. The Project site currently contains three components; a forty-one story office building, a six-story open air parking garage and the five-story Langham Hotel. The hotel is under separate ownership from the office building and garage.

#### One Post Office Square

The office building address at One Post Office Square was designed by Jung Brannen Associates in 1981. The building was constructed as part of the renovation of the adjacent Federal Reserve Bank building as the Hotel Meridien. The forty-one story tower is of tubular frame construction with a diagonally braced core. The building's exterior is covered with coarse pebble aggregate interspersed with bands of finished concrete and horizontal rectangular windows. The building and the adjacent former bank building, now the Langham Hotel are connected by a three-story glass and steel atrium.

### Langham Hotel / Federal Reserve Bank

The five-story Langham Hotel addressed at 250 Franklin Street was designed by R. Clipston Sturgis in 1922. The Second Renaissance Revival structure was purpose built for the Federal Reserve Bank, which continued to occupy the building until 1977. In 1981 the building was renovated for use as a hotel with designs by Jung Brannen Associates. The five-story granite and limestone former bank building measures 11 by 20 bays wide. The 11-bay wide façade (Pearl Street) is divided vertically into three 3-bay units framed by two end bays. Resting on an above grade basement floor the buildings contains a rusticated first floor topped by three-story upper floor section capped by a heavy stone modillion cornice punctuated by relief-carved eagles and a parapet set back from the plane of the façade. The 1981 renovation included the construction of a three-story glass mansard rooftop addition.

The rusticated granite-faced first floor contains narrow, undecorated vertical window openings capped by a limestone belt course. The main central entrance is set within a three-bay wide two-story projecting central pavilion. The entrance is framed by bracketed pilasters supporting a second floor balustrade. The second floor of the pavilion contains foliated pilasters supporting a modillioned cornice and balustrade. The fenestration of the second through fifth floor features a variety of classical style treatment. The façade is framed by end bays of ashlar blocks with narrow vertical window openings. The building is capped by a modillion projecting cornice. The Franklin and Oliver Street elevations have identical fenestration to that of the Pearl Street façade.

The building was designated a City of Boston landmark in 1978 and was nominated for individual listed in the National Register of Historic Places in 1990. The building holds significance to the city and state as a notable early 20<sup>th</sup> century building designed by a prominent architect and as a prominent feature in the downtown streetscape. The building also holds significance as the first permanent location in Boston of the Federal Reserve Bank.

### Parking Garage

A six-story parking garage is located in the northeast corner of the Project site, at the intersection of Oliver Street and Milk Street. Constructed of poured concrete the open air garage contains 371 parking spaces and is directly connect to both the One Post Office Square Building and the historic Federal Reserve Bank building. As noted earlier, the existing parking garage will be demolished and replaced by a new structure with ground floor retail and drop-off for an automated parking garage. The automated parking garage will include 3 stories above grade and 2 stories below, with a 13-story addition above the garage that extends the existing office floor plates from the One Post Office Square office tower.

## 9.2.2 Historic Resources in the Project Vicinity

In addition to the Langham Hotel / Federal Reserve Bank building located on the Project site, there are numerous other State and National Register listed historic resources and districts within the Project vicinity. Notable resources include: United Shoe Machinery Corporation Building; the National Shawmut Bank Building, the Custom House District and the Gridley Street Historic District. These historic resources, and others within a quarter-mile radius of the Project site, are listed in **Table 25** and identified in **Figure 9-1**.

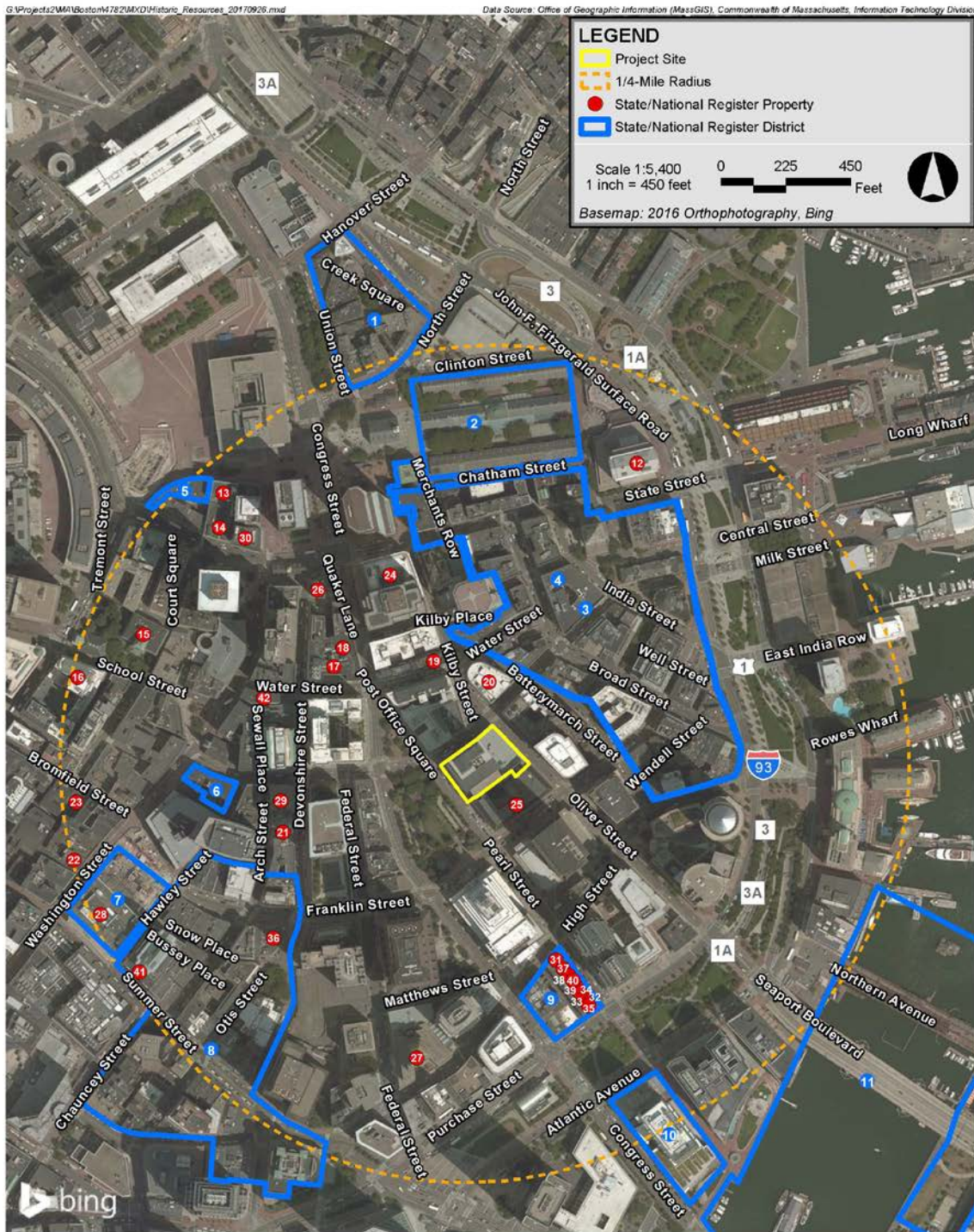
**Table 26** *Historic Resources within the vicinity of the Project*

Map No	Name	Address	Designation
1	Blackstone Block Historic District (BOS.AK)	Bound by Union Street, Hanover Street, Blackstone Street and North Street	National Register District
2	Quincy Market (BOS.AT)	Bound by Clinton Street, Chatham Street, Congress Street and John F. Fitzgerald Surface Road	National Historic Landmark, National Register District
3	Custom House District (BOS.AN)	Roughly bound by Chatham Street, John F. Fitzgerald Surface Road, High Street, Battery March Street, and Kilby Street	National Register District
4	Custom House District (1996 Amendment) (BOS.RF)	Roughly bound by Chatham Street, John F. Fitzgerald Surface Road, High Street, Battery March Street, and Kilby Street	National Register District
5	Sears' Crescent and Sears' Block (BOS.AV)	38-68 and 70-72 Cornhill	National Register District
6	Newspaper Row (BOS.AR)	322-328 Washington Street, 5-23 Milk Street, 11 Hawley Street	National Register District
7	The Filene's Complex (BOS.YM)	426 Washington Street	Local Landmark
8	Commercial Palace Historic District (BOS.AM)	Roughly bound by Franklin Street, Devonshire Street, Summer Street, Lincoln Street, Bedford Street, Chauncy Street and Hawley Street	National Register District
9	Gridley Street Historic District (BOS.ABS)	Bound by High Street, Pearl Street, Purchase Street and Congress Street	National Register District
10	Russia Wharf Buildings (BOS.BD)	Bound by Pearl Street, Atlantic Avenue, Congress Street Boston Harbor Walk	National Register District
11	Fort Point Channel Historic District (BOS.WZ)	Roughly bound by Dorchester Avenue, Necco Street, A Street, Iron Street, Medallion Avenue, West Service Road, Boston Wharf Road, Seaport Boulevard, Boston Harbor Walk	National Register District
12	Market Place Center	115 State Street	National Register District

Map No	Name	Address	Designation
	(BOS.15930)		
13	Old Colony Trust Company (BOS.1671)	30 Cornhill Street	National Register Individual Property
14	Old Colony Trust Company Building (BOS.1679)	17 Court Street	National Register Individual Property
15	Old City Hall (BOS.1977)	41-45 School Street	National Register Individual Property, National Historic Landmark
16	Parker House (BOS.1973)	60 Tremont Street	National Register Determination of Eligibility
17	National Shawmut Bank Building (BOS.15948)	20-42 Water Street	National Register Determination of Eligibility
18	Monks Building – National Shawmut Bank Building (BOS.1669)	33-59 Congress Street	National Register Determination of Eligibility
19	Codman Building (BOS.1815)	51-57 Kilby Street	National Register Individual Property
20	Samuel Appleton Building (BOS.1875)	1 Liberty Square	National Register Determination of Eligibility
21	Compton Building (BOS.1688)	161-175 Devonshire Street	National Register Individual Property
22	I.J. Fox Building (BOS.2134)	407 Washington Street	National Register Individual Property
23	Ballard Block (BOS.1603)	20-30 Bromfield Street	Local Landmark
24	Stock Exchange Building (BOS.2015)	53-65 State Street	Local Landmark
25	Federal Reserve Bank Building (BOS.1938)	27 Oliver Street	Local Landmark
26	Second Brazer Building (BOS.2013)	25-29 State Street	Local Landmark, National Register Individual Property
27	United Shoe Machinery Corporation Building (BOS.1787)	160 Federal Street	Local Landmark, National Register Individual Property
28	Filene's Department Store (BOS.2119)	426 Washington Street	Local Landmark, National Register Individual Property
29	International Trust Company Building (BOS.1890)	39-47 Milk Street	Local Landmark, National Register Individual Property



Map No	Name	Address	Designation
30	The Ames Building (BOS.1678)	1 Court Street	Local Landmark, National Register Individual Property
31	Richardson Block (BOS.1939)	109-113 Pear Street	National Register Individual Property
32	Richardson Block (BOS.16599)	149 Pearl Street	National Register Individual Property
33	Richardson Block (BOS.16598)	141 Pearl Street	National Register Individual Property
34	Richardson Block (BOS.16597)	137 Pearl Street	National Register Individual Property
35	Richardson Block (BOS.1944)	145 Pearl Street	National Register Individual Property
36	Wigglesworth Building (BOS.1742)	89-93 Franklin Street	National Register Individual Property
37	Richardson Block (BOS.1940)	115-117 Pearl Street	National Register Individual Property
38	Richardson Block (BOS.1941)	121-125 Pearl Street	National Register Individual Property
39	Richardson Block (BOS.1943)	133-143 Pearl Street	National Register Individual Property
40	Richardson Block (BOS.1942)	129-131 Pearl Street	National Register Individual Property
41	Kennedy's Building (BOS.2025)	26-38 Summer Street	National Register Determination of Eligibility
42	Winthrop Building (BOS.2111)	276-278 Washington Street	National Register Individual Property



1 Post Office Square Boston, Massachusetts



Figure 9-1  
Historic Resources

Figure 9-1- Historic Resources

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## 9.3 ARCHAEOLOGICAL RESOURCES

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The Project site consists of a previously developed urban parcel. Based on previous site disturbances, including construction of the existing buildings and parking garage structure, no significant archaeological resources are anticipated to be impacted as a result of the Project.

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## 9.4 IMPACTS TO HISTORIC RESOURCES

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### 9.4.1 Urban Design

The Proposed Project includes a façade retrofit and addition to the existing 41-story One Post Office Square building. The Project proposes the removal of the existing pre-cast façade between levels 3 and 30 and replaced with an aluminum-framed, thermally-broken factory-glazed unitized curtain wall system. Between levels 31 and 38 the proposed glazed curtainwall system will be applied over the existing pre-cast panel system. Outdoor spaces will be located throughout the building, levels; 3, 4, 18, 25, 34, and 41. The existing inset corner areas of the building will be infilled. A Penthouse at level 41 will contain a multi-purpose venue space enclosed in glass.

The replacement garage structure and office addition will replace the existing 6-story parking garage structure. The addition was designed to be consistent with the architecture and volume of the tower and the neighboring buildings on Oliver and Kilby Streets.

The Project will engage the streetscape and increase public activity by emphasizing the building's openness at the street level. A three-story retail space with multistory transparent window will enhance the underused private drive and embrace the adjacent Post Office Square Park and enhance the building's existing retail space on Milk and Oliver Streets.

No physical changes are proposed to the exterior of the Federal Reserve Bank Building; thereby retaining its architectural integrity. The proposed transparent retail addition to the Pearl Street elevation of One Post Office Square will set back from the face of the building's north elevation; the detailed return at the northwest corner of the building will remain exposed.

### 9.4.2 Shadow Impacts

Section 5.2 and Appendix I discuss in greater detail shadow impacts. A shadow impact analysis was conducted to investigate shadow impacts from the Project during three time periods (9:00 a.m., 12:00 noon, and 3:00 p.m.) during the vernal equinox (March 21), summer solstice (June 21), autumnal equinox (September 21), and winter solstice (December 21), as well as 6:00 p.m. during the summer solstice and autumnal equinox.

The Project area is densely developed urban setting and the surrounding streets and sidewalks are currently in shadow during many times of the day. The shadow analysis shows that new shadow will largely be limited to the immediate surrounding area north and east of the tower. New shadow created by the Project will largely be limited to waterways, roadways and parking lots with minimal impacts to the nearby buildings. Some new shadow will be cast within the Custom House District, east of the Project site. The new shadow will occur during the September 21<sup>st</sup>- 3:00 p.m. period and will be focused largely on Milk Street and Oliver Street.

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## 9.5 STATUS OF PROJECT REVIEW WITH HISTORICAL AGENCIES

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### 9.5.1 Massachusetts Historical Commission

In the event that a state or federal license, permit or approval is required for the Project, or if state or federal funding is utilized, a Massachusetts Historical Commission (MHC) Project Notification Form will be filed for the Project in compliance with MHC's State Register Review (950 CMR 71.00) and/or Section 106 of the National

Historic Preservation Act (36 CFR 800). Currently, there are no state or federal actions anticipated that will trigger MHC's review.

### **9.5.2 Boston Landmarks Commission**

As noted above, the Langham Hotel / Federal Reserve Bank building is a designated City of Boston landmark subject to review by the BLC; however, because no exterior physical changes are proposed to the building, review by BLC will not be required. In the event that the Project is revised to include exterior alterations to the building, the Proponent will file a formal Design Review application with the BLC to initiate review.

*Appendix A*

# Existing Conditions Survey Plan



NOTES

- 1. COORDINATES IN U.S. SURVEY FEET, ARE REFERENCED TO THE NORTH AMERICAN DATUM OF 1983...
2. ELEVATIONS, IN U.S. SURVEY FEET, ARE REFERENCED TO BOSTON CITY BASE (BCB) DATUM...
3. SUBSURFACE UTILITY LINES AND FEATURES, AS SHOWN HEREON, WERE COMPILED FROM FIELD EVIDENCE OR AVAILABLE RECORD INFORMATION...
4. LOCATION OF EMERGENCY ACCESS STAIRWELL EASEMENT NOT SHOWN ON THIS PLAN.
5. SEWER AND DRAIN INVERTS ARE NOT SHOWN ON THIS EDITION.

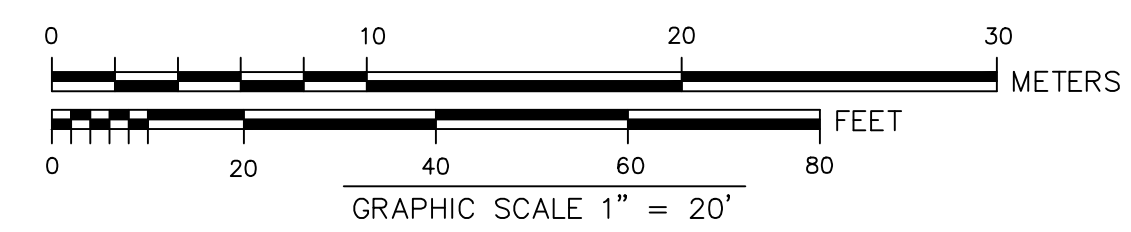
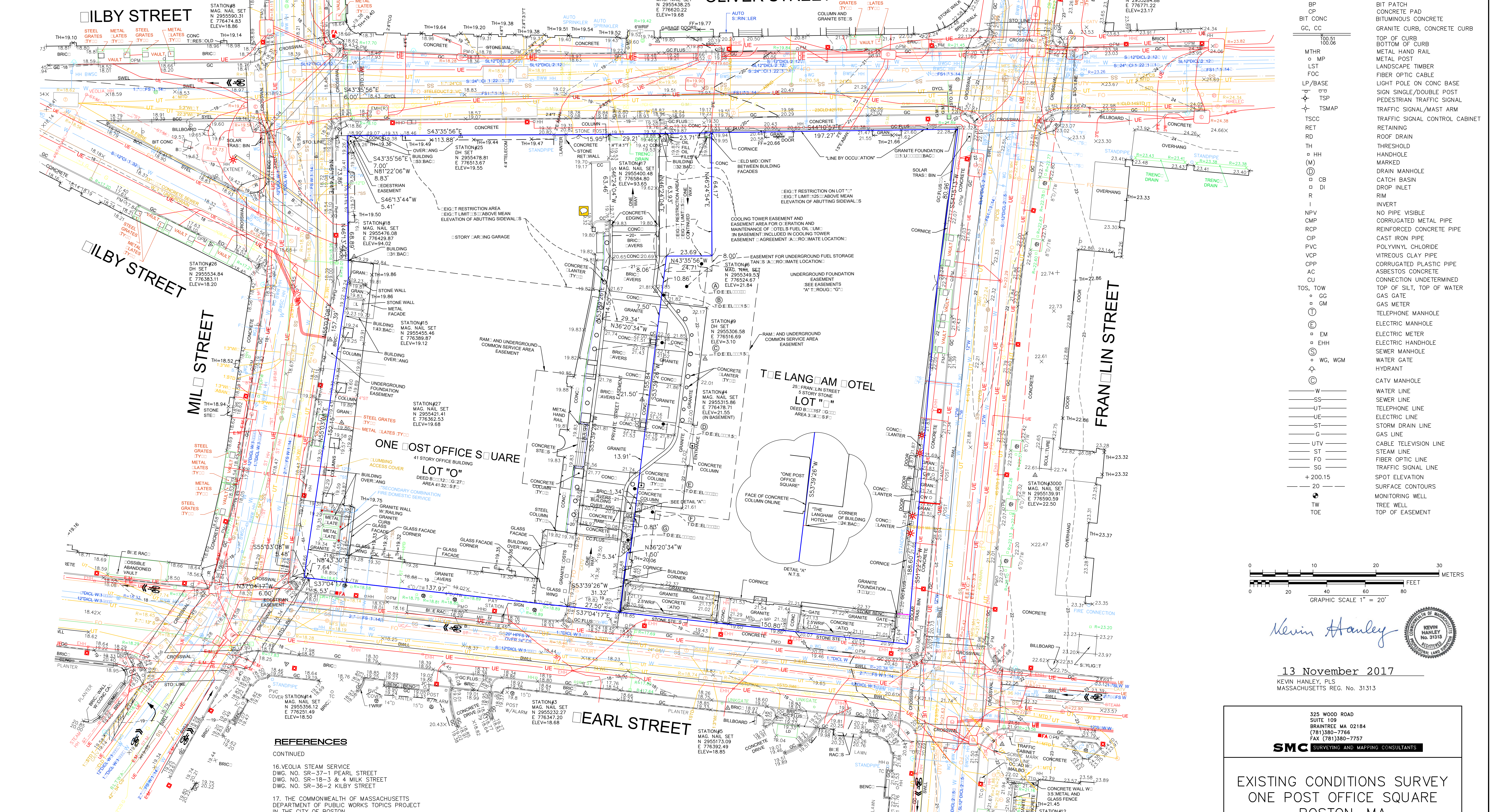
REFERENCES

- 1. OLIVER STREET FROM MILK STREET TO PURCHASE STREET-AS-BUILT PLAN NO. 09-308-003, OLIVER, W01 MILK STREET FROM INDIA STREET TO OLIVER STREET DATED: JUNE 16, 1906, SCALE: 1"=20' PLAN NO. C-615
2. CITY OF BOSTON PUBLIC WORKS DEPARTMENT SEWER AND WATER DIVISION HIGH PRESSURE FIRE SERVICE LOCATION PLAN-PEARL STREET DATED: JUNE 30, 1914, SCALE: 1"=10' PLAN NO. HPF 281
3. CITY OF BOSTON PUBLIC WORKS DEPARTMENT SEWER AND WATER DIVISION HIGH PRESSURE FIRE SERVICE LOCATION PLAN-FRANKLIN STREET DATED: FEBRUARY 3, 1914, SCALE: 1"=10' SHEETS 5 AND 6 OF 7 SHEETS, PLAN NO. HPF 97 & 98
4. CITY OF BOSTON PUBLIC WORKS DEPARTMENT SEWER AND WATER DIVISION HIGH PRESSURE FIRE SERVICE LOCATION PLAN-MILK STREET DATED: FEBRUARY 3, 1914, SCALE: 1"=10' SHEETS 3 AND 6 OF 7 SHEETS, PLAN NO. HPF 297 & 298
5. CITY OF BOSTON PUBLIC WORKS DEPARTMENT SEWER AND WATER DIVISION PEARL STREET FROM MILK STREET TO FRANKLIN STREET DATED: JULY 14, 1942, SCALE: 1"=10' PLAN NO. C-1166

- 6. CITY OF BOSTON PUBLIC WORKS DEPARTMENT SEWER AND WATER DIVISION MILK STREET FROM INDIA STREET TO OLIVER STREET DATED: JUNE 16, 1906, SCALE: 1"=20' PLAN NO. C-615
7. CITY OF BOSTON PUBLIC WORKS DEPARTMENT SEWER AND WATER DIVISION KILBY STREET FROM CENTRAL STREET TO MILK STREET DATED: APRIL 12, 1916, SCALE: 1"=20' PLAN NO. C-743
8. BOSTON WATER AND SEWER COMMISSION WATER AND SEWER GIS PLANS
9. EVERSOURCE ELECTRIC PLAN FOR OLIVER STREET DATED: APRIL 20, 2017, SCALE: 1"=100'
10. NATIONAL GRID GAS FOR POST OFFICE SQUARE PLAT 24 DATED: MARCH 15, 2017
11. COMCAST PLAN OF UNDERGROUND FACILITIES FOR POST OFFICE SQUARE, BOSTON, MA DATED MARCH 17, 2017.

LEGEND

- SB/DH BENCHMARK
FND FOUND
N/F NOW OR FORMERLY
W/ RECORD
(R) EASEMENT LINE
PROPERTY LINE
GUARD RAIL
TREE LINE
DECIDUOUS TREE AND SIZE
EVERGREEN AND SIZE
BUSH
WOOD POST
CHAIN LINK FENCE
WROUGHT IRON FENCE
POST & RAIL FENCE
EDGE OF PAVEMENT
BIT CONC WALK
BIT PATCH
CONCRETE PAD
BITUMINOUS CONCRETE
GRANITE CURB, CONCRETE CURB
TOP OF CURB
BOTTOM OF CURB
METAL HAND RAIL
METAL POST
LANDSCAPE TIMBER
FIBER OPTIC CABLE
LIGHT POLE ON CONC BASE
SIGN SINGLE/DOUBLE POST
PEDESTRIAN TRAFFIC SIGNAL
TRAFFIC SIGNAL/MAST ARM
TRAFFIC SIGNAL CONTROL CABINET
RETAINING
ROOF DRAIN
THRESHOLD
HANDHOLE
MARKED
DRAIN MANHOLE
CATCH BASIN
DROP INLET
RIM
INVERT
NO PIPE VISIBLE
CORRUGATED METAL PIPE
REINFORCED CONCRETE PIPE
CAST IRON PIPE
POLYVINYL CHLORIDE
VITREOUS CLAY PIPE
CORRUGATED PLASTIC PIPE
ASBESTOS CONCRETE
CONNECTION UNDETERMINED
TOP OF SILT, TOP OF WATER
GAS GATE
GAS METER
TELEPHONE MANHOLE
ELECTRIC MANHOLE
ELECTRIC HANDHOLE
SEWER MANHOLE
WATER GATE
HYDRANT
CATV MANHOLE
WATER LINE
SEWER LINE
TELEPHONE LINE
ELECTRIC LINE
STORM DRAIN LINE
GAS LINE
CABLE TELEVISION LINE
STEAM LINE
FIBER OPTIC LINE
TRAFFIC SIGNAL LINE
SPOT ELEVATION
SURFACE CONTOURS
MONITORING WELL
TREE WELL
TOP OF EASEMENT



Kevin Hanley

13 November 2017
KEVIN HANLEY, PLS
MASSACHUSETTS REG. NO. 31313

325 WOOD ROAD
SUITE 109
BRANTREE MA 02184
(781)380-7766
FAX (781)380-7757
SMC SURVEYING AND MAPPING CONSULTANTS

EXISTING CONDITIONS SURVEY
ONE POST OFFICE SQUARE
BOSTON, MA
PREPARED FOR: TETRA TECH, INC.

REFERENCES

- 16. VEOLIA STEAM SERVICE DWG. NO. SR-37-1 PEARL STREETS DWG. NO. SR-18-3 & 4 MILK STREET DWG. NO. SR-36-2 KILBY STREET
17. THE COMMONWEALTH OF MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS TOPICS PROJECT IN THE CITY OF BOSTON FEDERAL AID PROJECT T-8964(1) FILE NO. 7040 SHEETS 3, 6 AND 7 OF 17ATS 317A AND 318 MILK STREET PLAT 278 KILBY STREET
18. ALTA/ACSM LAND TITLE SURVEY ONE POST OFFICE SQUARE, BOSTON, MA. PREPARED BY R.E. CAMERON & ASSOCIATES, INC. DATED: OCTOBER 8, 1996, SCALE 1"=16'

Table with 2 columns: Field, Value. Includes Date (JUNE 20, 2017), Job No. (2017106.00), Drawn By (MN/EP/JF), Checked By (KH), and Drawing No. (201710600WS.DWG).



*Appendix B*

# Site and Floor Plans











SHEET NOTES

Morgan Stanley

**JLL**  
ANCHORLINE  
PARTNERS

**ONE POST OFFICE SQUARE**

One Post Office Square  
Boston, MA 02110

**Gensler**

One Post Office Square  
Third Floor  
Boston, MA 02108  
United States  
Tel: 617.316.5703  
Fax: 617.316.5701

-  SLAB INFILL
-  EXISTING PARTITION
-  NEW PARTITION
-  1 HR. RATED PARTITION
-  2 HR. RATED PARTITION
-  3 HR. RATED PARTITION

GENERAL NOTES

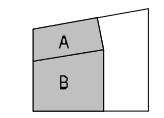
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Seal/Signature

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CONSTRUCTION**

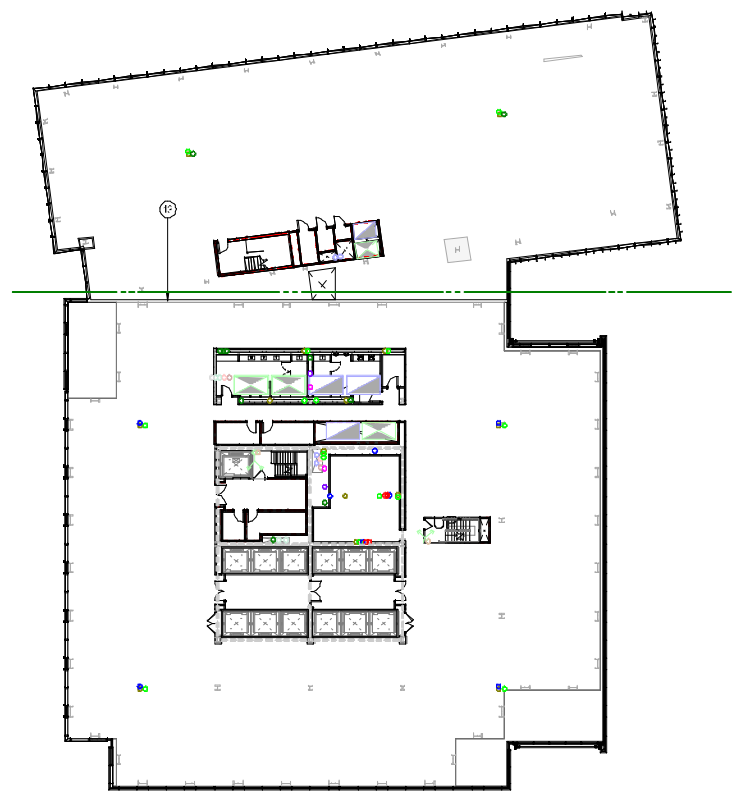
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Repositioning  
Project Number  
11.7081.000  
Description  
LEVELS 13-16 - OVERALL PLANS

KEY PLAN

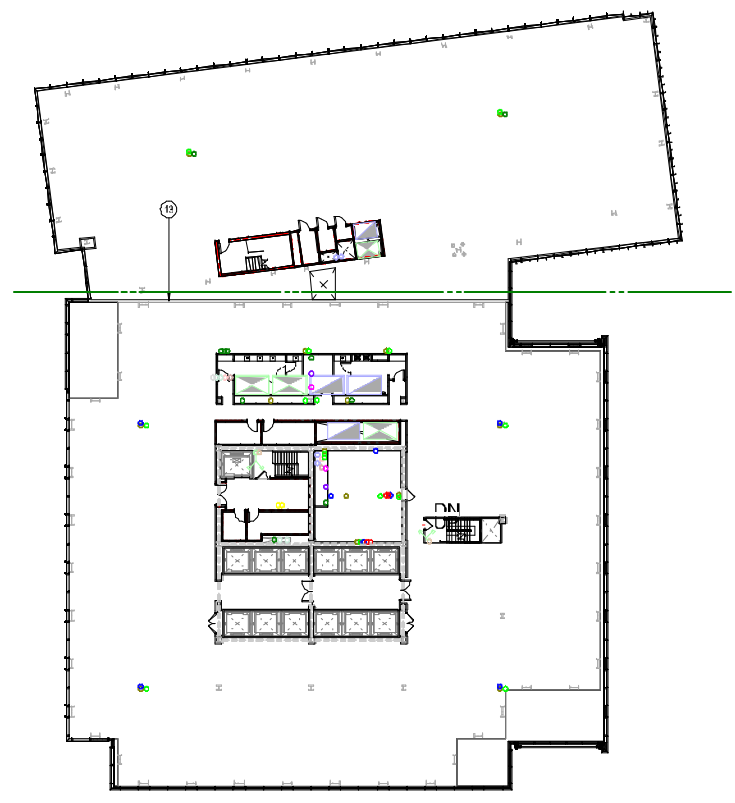


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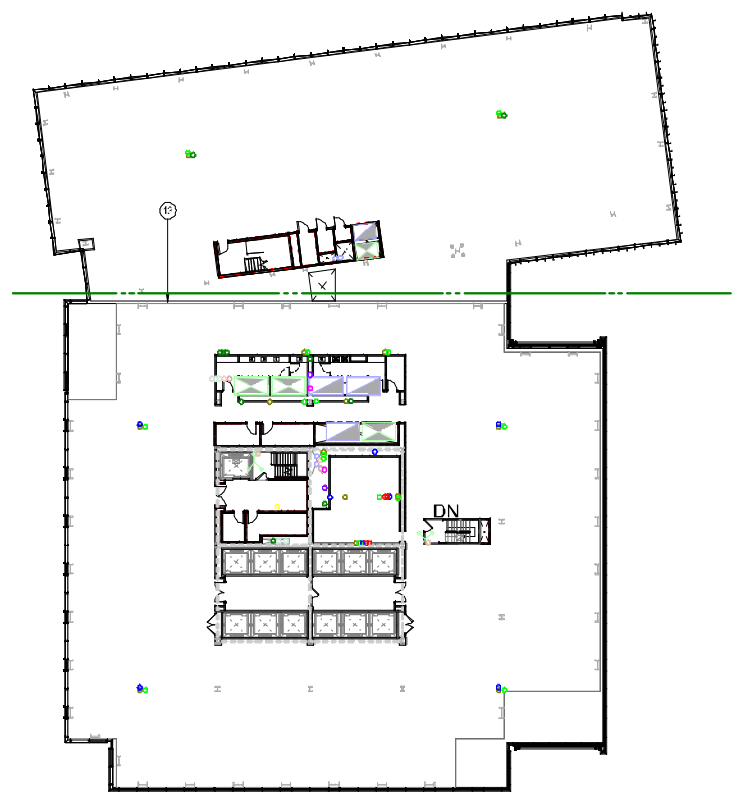
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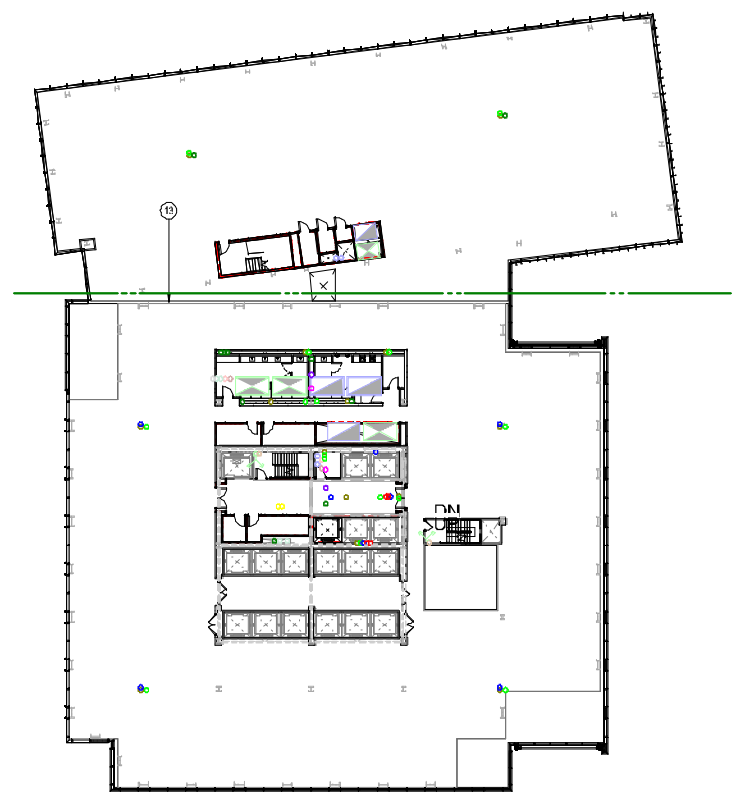
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SCALE: 3/8" = 1'-0"



**02 LEVEL 14 - OVERALL FLOOR PLAN**  
SCALE: 3/8" = 1'-0"

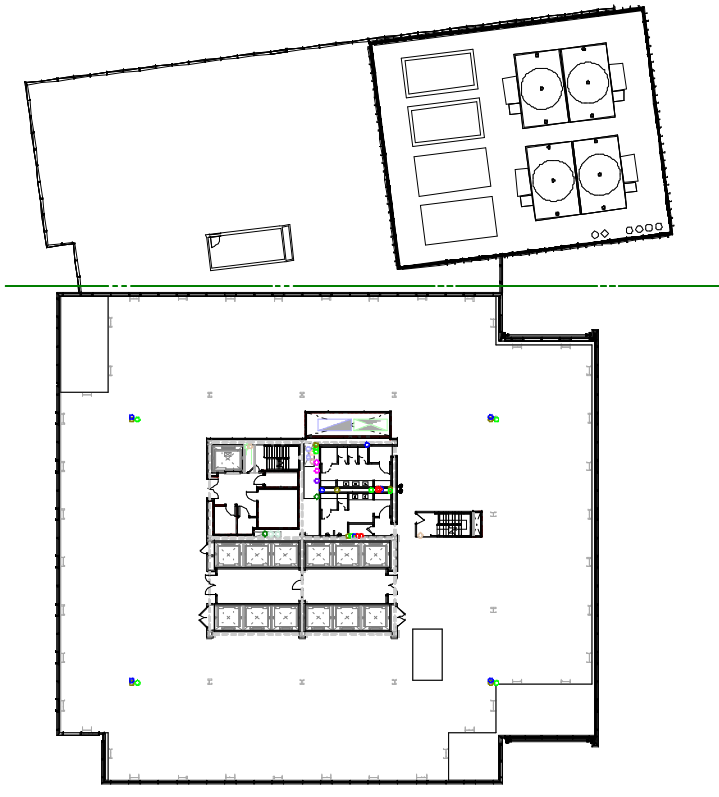


**03 LEVEL 15 - OVERALL FLOOR PLAN**  
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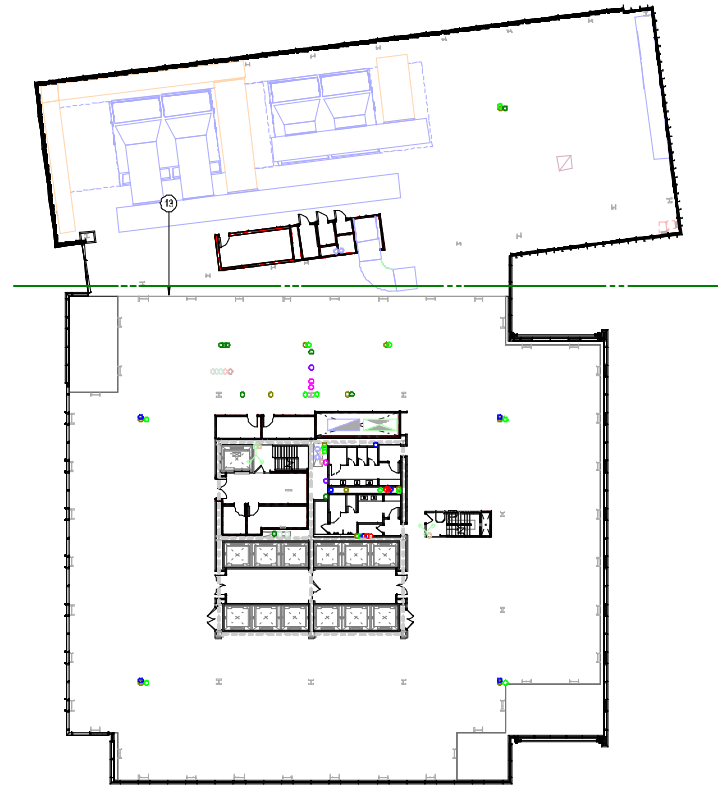


**01 LEVEL 13 - OVERALL FLOOR PLAN**  
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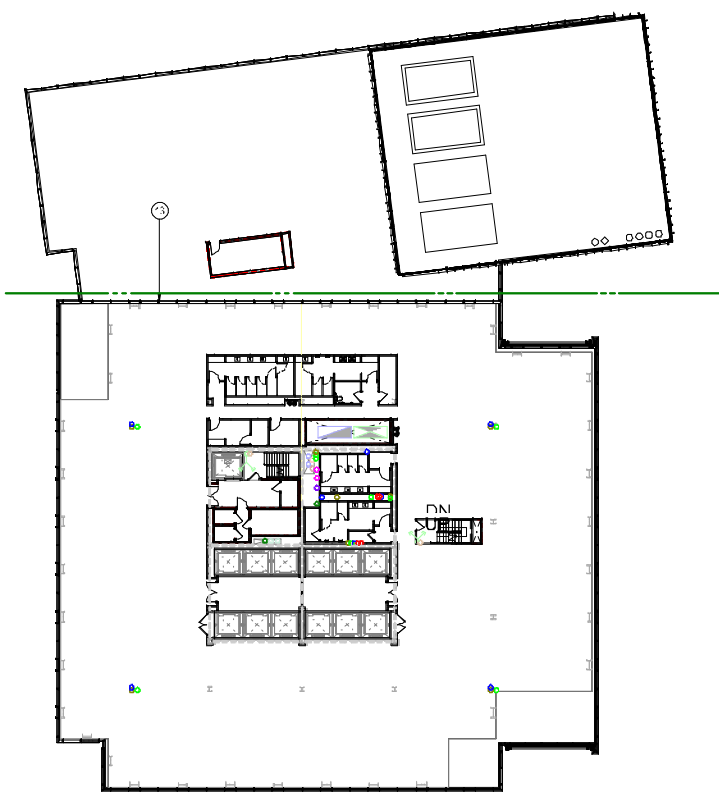
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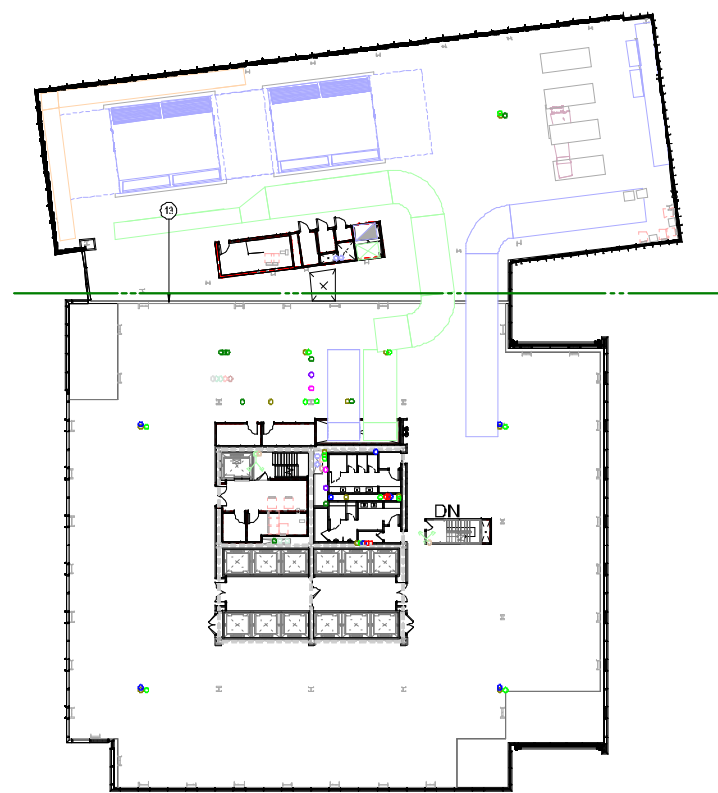
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**02 LEVEL 18 - OVERALL FLOOR PLAN**  
SCALE: 3/8" = 1'-0"



**03 LEVEL 19 - OVERALL FLOOR PLAN**  
SCALE: 3/8" = 1'-0"



**01 LEVEL 17 - OVERALL FLOOR PLAN**  
SCALE: 3/8" = 1'-0"

SHEET NOTES

- SLAB INFILL
- EXISTING PARTITION
- NEW PARTITION
- 1-HP RATED PARTITION
- 2-HP RATED PARTITION
- 3-HP RATED PARTITION

GENERAL NOTES



**ONE POST  
OFFICE SQUARE**

One Post Office Square  
Boston, MA 02110

**Gensler**

One Post Office Square  
Third Floor  
Boston, MA 02108  
United States  
Tel: 617.516.5700  
Fax: 617.516.5701

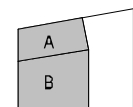
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Seal/Signature

**PROGRESS SET  
NOT FOR  
CONSTRUCTION**

Project Name  
One Post Office Square  
Repositioning  
Project Number  
11.7081.000  
Description  
LEVELS 17-20 - OVERALL PLANS

KEY PLAN



Scale  
As indicated

**A1.017**



*Appendix C*

# Building Massing and Elevations

**ONE POST  
OFFICE SQUARE**

One Post Office Square  
Boston, MA 02110

**Gensler**

One Post Office Square  
Third Floor  
Boston, MA 02108  
United States  
Tel: 617.316.5700  
Fax: 617.316.5701

GENERAL NOTES

△ Date Description Drawn by Check by

Seal/Signature

**PROGRESS SET  
NOT FOR  
CONSTRUCTION**

Project Name  
One Post Office Square  
Repositioning  
Project Number  
11.7081.000

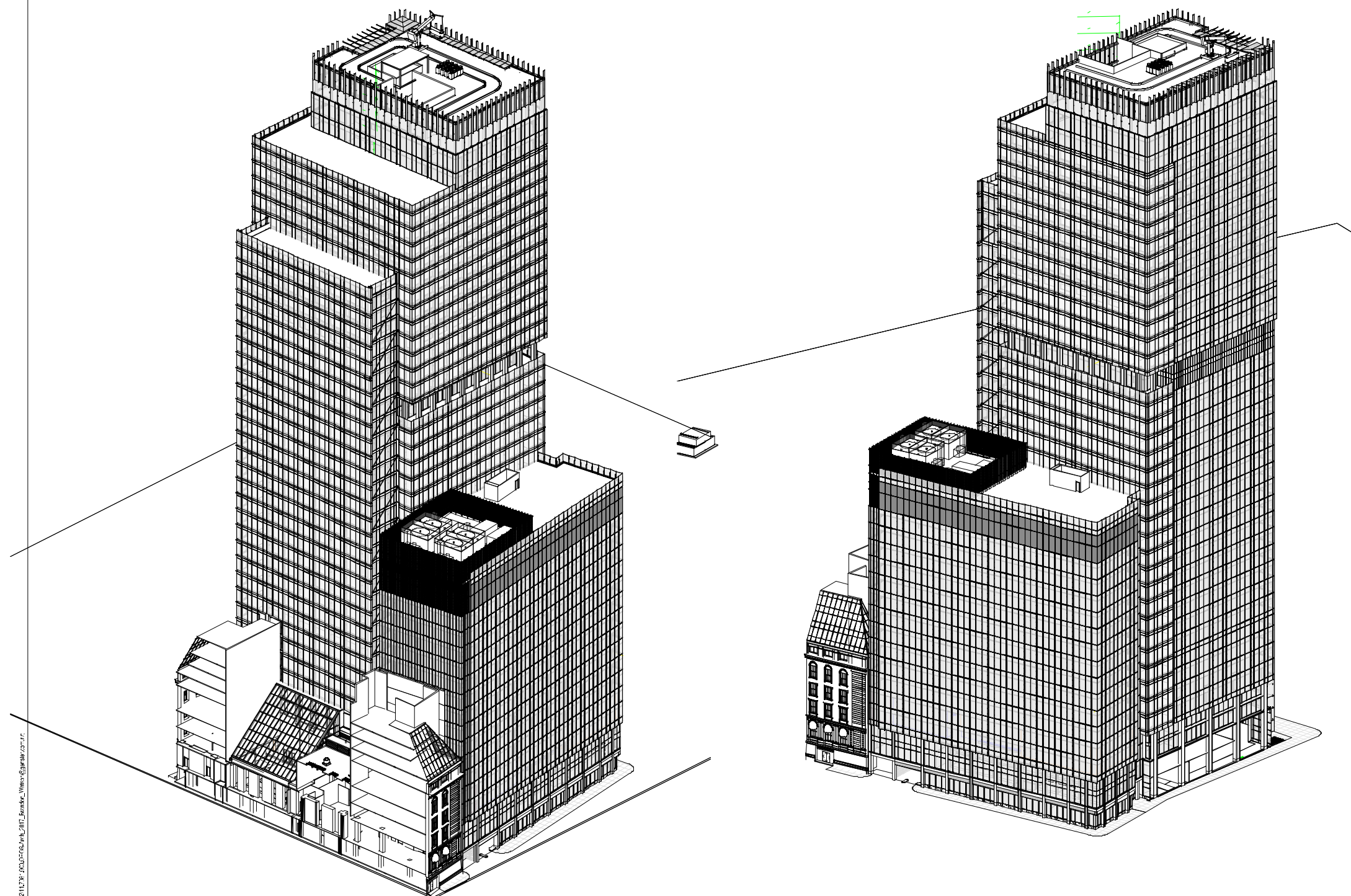
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3D AXONOMETRIC - NW/NE

KEY PLAN

Scale

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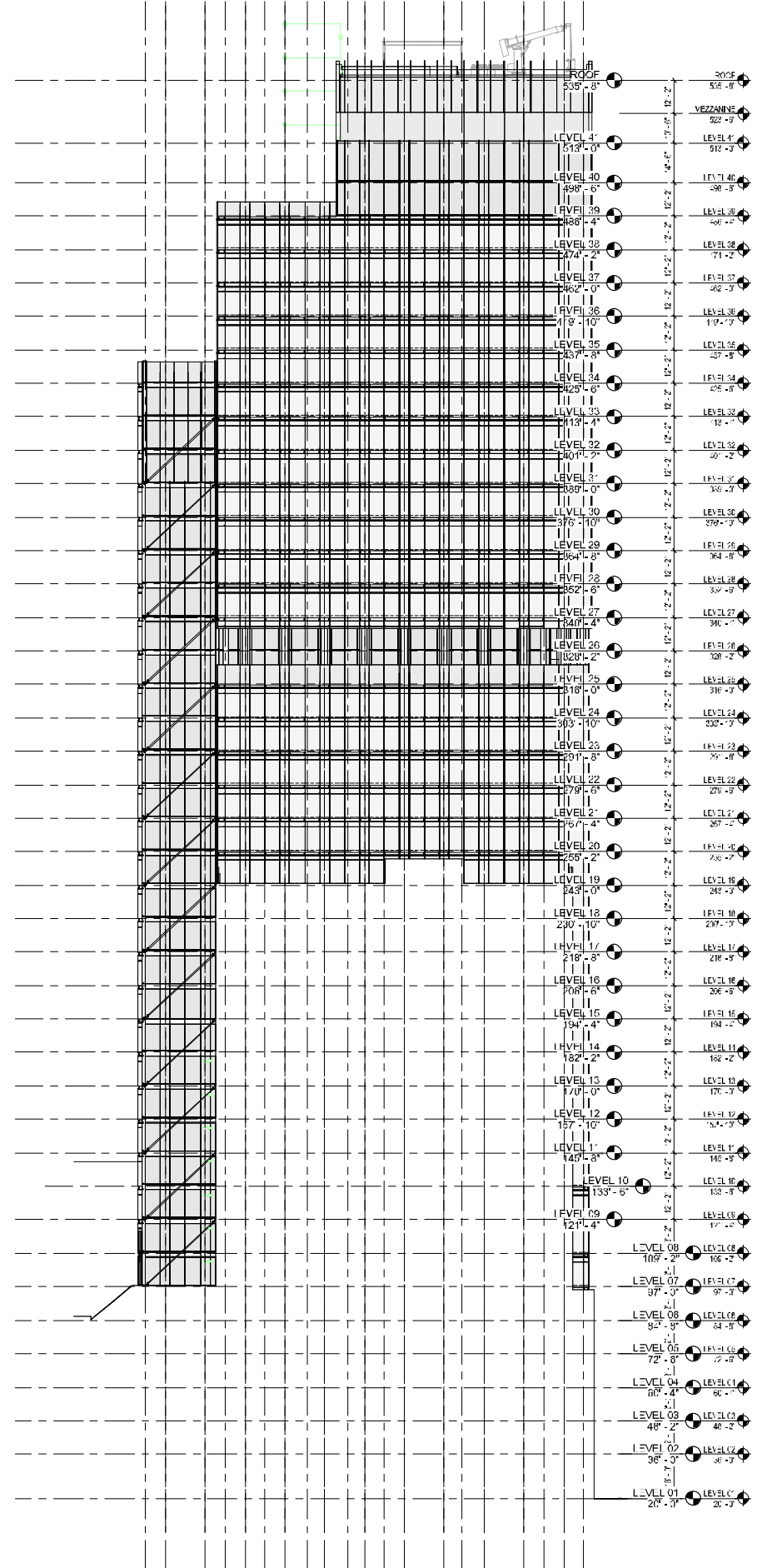
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01 AXO - NW VIEW



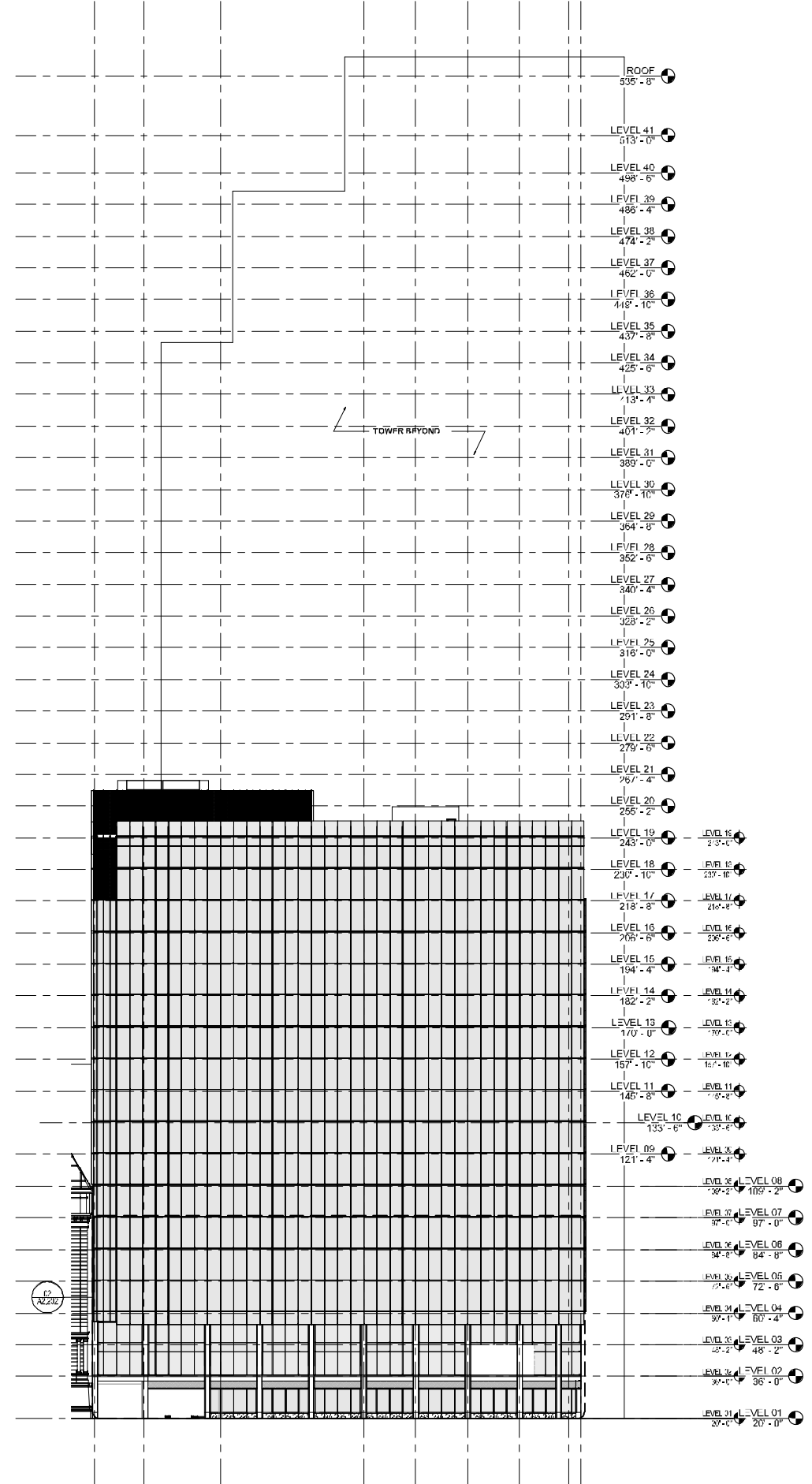


16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1



02 NORTH ELEVATION @ TOWER - OLIVER STREET

A-10 A-9 A-8 A-7 A-6 A-5 A-4 A-3 A-2 A-1



01 NORTH ELEVATION @ GARAGE/ADDITION - OLIVER STREET

SHEET NOTES

GENERAL NOTES

GENERAL NOTES

Table with columns: Date, Description, Drawn by, Check by. Includes revision information.

ONE POST OFFICE SQUARE

One Post Office Square Boston, MA 02110 Gensler

PROGRESS SET NOT FOR CONSTRUCTION. Project Name: One Post Office Square Repositioning. Project Number: 11.7081.000. Description: BUILDING ELEVATIONS - NORTH. Scale: 3/8" = 1'-0". A2.101

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A B C D E F G H J K L M N P Q R

B D F G H J K L N Q

SHEET NOTES

Morgan Stanley



ONE POST OFFICE SQUARE

One Post Office Square  
Boston, MA 02110

Gensler

One Jackson Street  
Third Floor  
Boston, MA 02108  
United States  
Tel: 617.316.5700  
Fax: 617.316.5701

GENERAL NOTES

Date	Description	Drawn by	Checked by
05/17/20	20	JCC	JK

See I/Signature

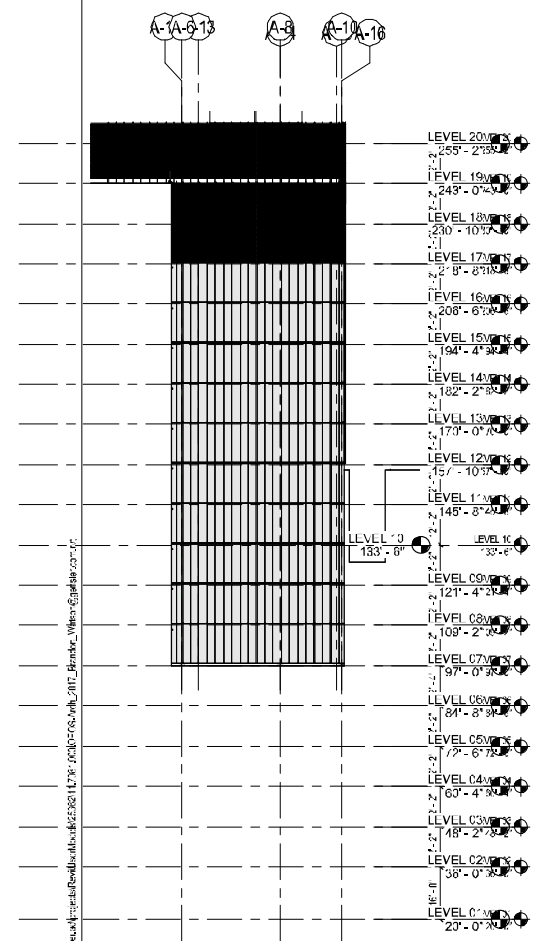
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Repositioning  
Project Number  
11.7081.000  
Description  
BUILDING ELEVATIONS - EAST/SOUTH

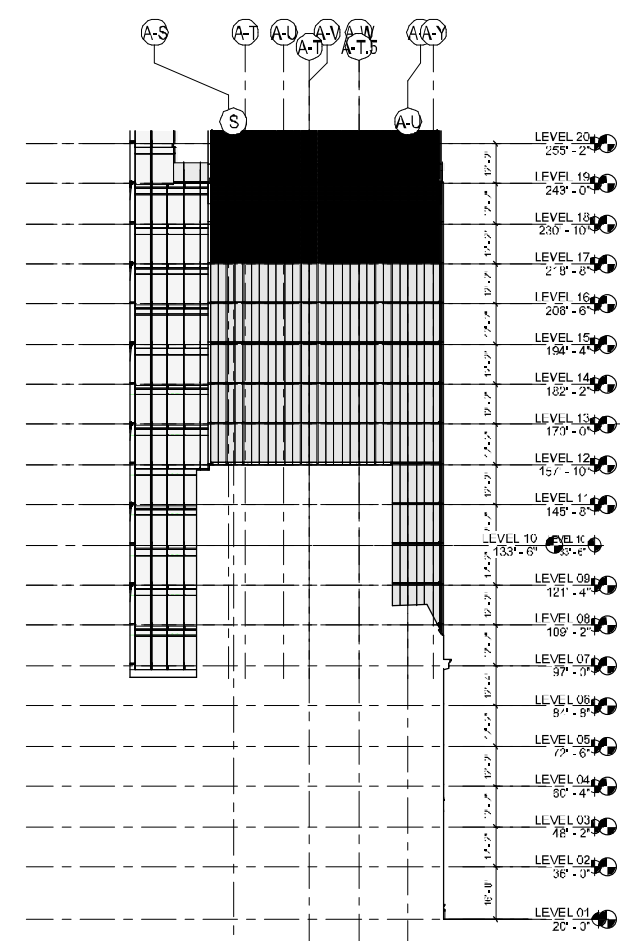
KEY PLAN

Scale  
3/64" = 1'-0"

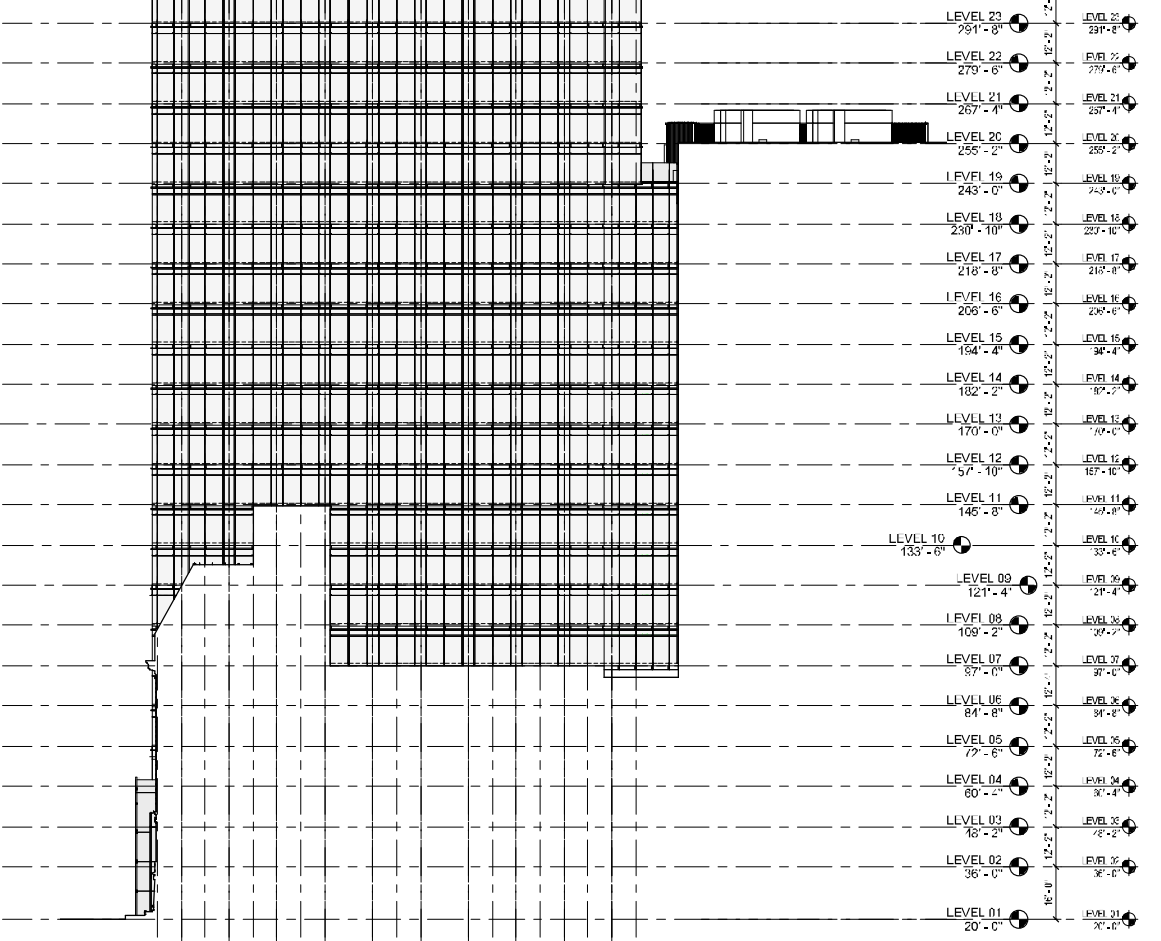
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03 SOUTH ELEVATION @ ADDITION  
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02 EAST ELEVATION @ ADDITION  
SCALE: 3/64" = 1'-0"

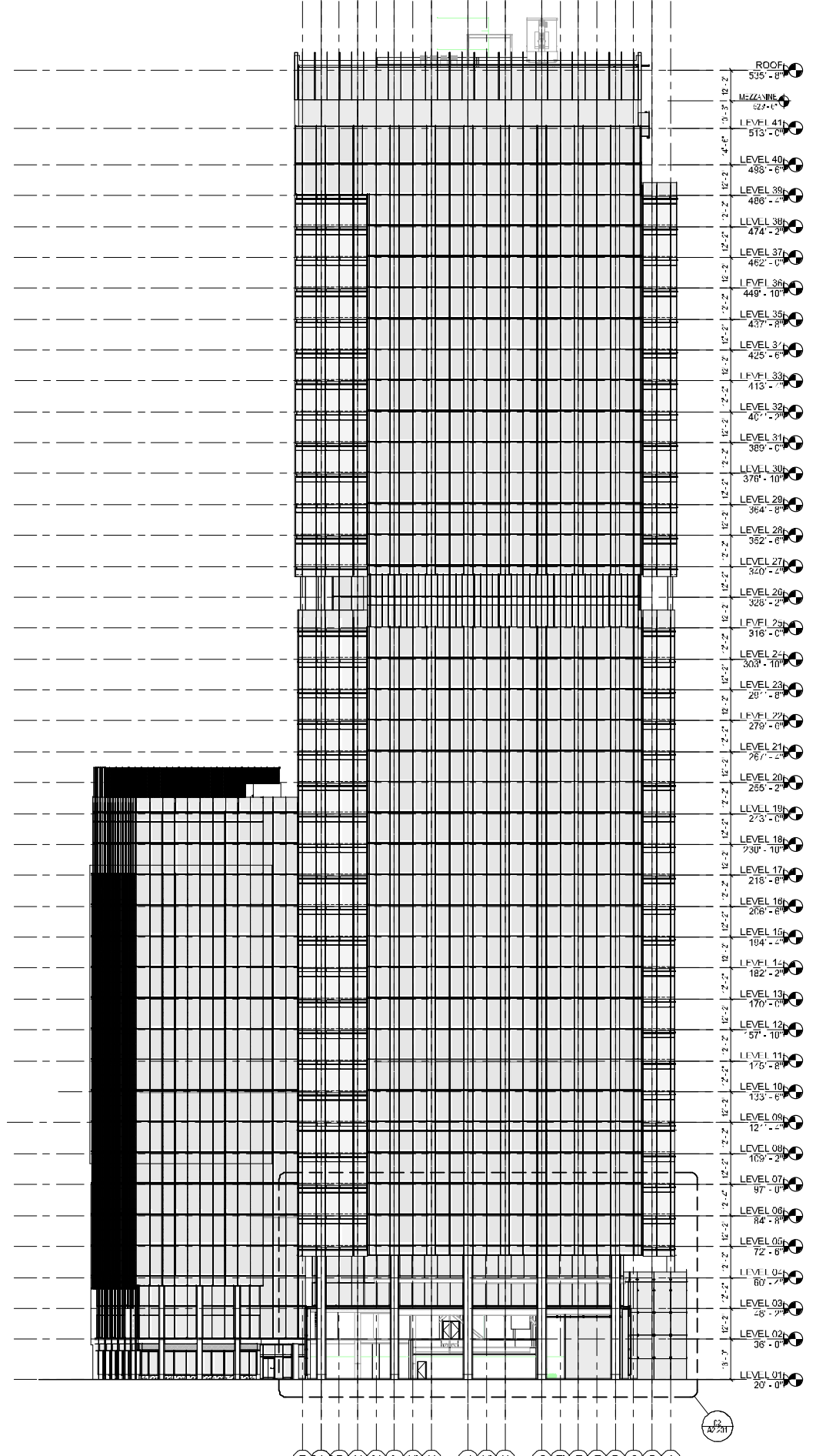


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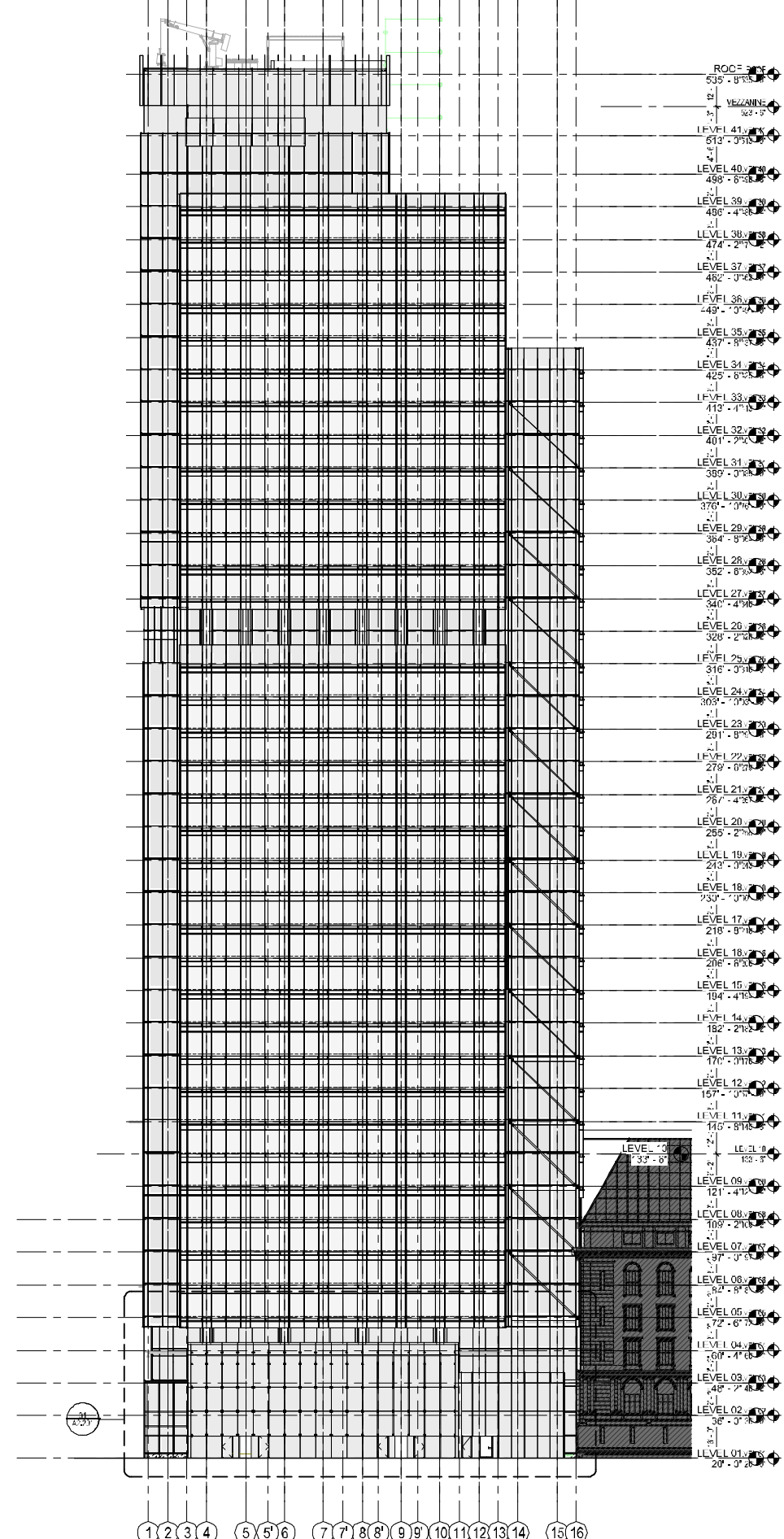
R G I P N M L K J H G F E D C B A



ROOF 535'-8"  
 MEZZANE 523'-0"  
 LEVEL 41 513'-0"  
 LEVEL 40 498'-6"  
 LEVEL 39 486'-2"  
 LEVEL 38 474'-2"  
 LEVEL 37 462'-4"  
 LEVEL 36 449'-10"  
 LEVEL 35 437'-8"  
 LEVEL 34 425'-6"  
 LEVEL 33 413'-2"  
 LEVEL 32 401'-0"  
 LEVEL 31 389'-0"  
 LEVEL 30 376'-10"  
 LEVEL 29 364'-6"  
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 LEVEL 22 279'-0"  
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 LEVEL 19 243'-0"  
 LEVEL 18 230'-10"  
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 LEVEL 10 133'-6"  
 LEVEL 09 121'-2"  
 LEVEL 08 109'-2"  
 LEVEL 07 97'-0"  
 LEVEL 06 84'-8"  
 LEVEL 05 72'-6"  
 LEVEL 04 60'-2"  
 LEVEL 03 48'-0"  
 LEVEL 02 36'-0"  
 LEVEL 01 24'-0"

02 WEST ELEVATION - MILK STREET  
 SCALE: 3/8" = 1'-0"

1 2 3 4 5 5' 6 7 8 8' 9 9' 10 11 12 13 14 15 16



ROOF 535'-8"  
 MEZZANE 523'-0"  
 LEVEL 41 513'-0"  
 LEVEL 40 498'-6"  
 LEVEL 39 486'-2"  
 LEVEL 38 474'-2"  
 LEVEL 37 462'-4"  
 LEVEL 36 449'-10"  
 LEVEL 35 437'-8"  
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 LEVEL 19 243'-0"  
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 LEVEL 13 170'-0"  
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 LEVEL 10 133'-6"  
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 LEVEL 08 109'-2"  
 LEVEL 07 97'-0"  
 LEVEL 06 84'-8"  
 LEVEL 05 72'-6"  
 LEVEL 04 60'-2"  
 LEVEL 03 48'-0"  
 LEVEL 02 36'-0"  
 LEVEL 01 24'-0"

01 SOUTH ELEV. - PEARL STREET  
 SCALE: 3/8" = 1'-0"

SHEET NOTES



ONE POST OFFICE SQUARE

One Post Office Square  
 Boston, MA 02110

Gensler

One Post Office Square  
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 Fax: 617.316.5101

GENERAL NOTES

Date	Description	Drawn By	Checked By
05/31/17	2/2	JCC	JK

Seal/Signature  
**PROGRESS SET  
 NOT FOR  
 CONSTRUCTION**

Project Name  
 One Post Office Square  
 Relocation  
 Project Number  
 11.7081.000  
 Description  
 BUILDING ELEVATIONS -  
 SOUTH/WEST

KEY PLAN

Scale  
 3/8" = 1'-0"

A2.103

*Appendix D*

# Accessibility Checklist



## Article 80 – Accessibility Checklist

### A requirement of the Boston Planning & Development Agency (BPDA) Article 80 Development Review Process

The Mayor’s Commission for Persons with Disabilities strives to reduce architectural, procedural, attitudinal, and communication barriers that affect persons with disabilities in the City of Boston. In 2009, a Disability Advisory Board was appointed by the Mayor to work alongside the Commission in creating universal access throughout the city’s built environment. The Disability Advisory Board is made up of 13 volunteer Boston residents with disabilities who have been tasked with representing the accessibility needs of their neighborhoods and increasing inclusion of people with disabilities.

In conformance with this directive, the BPDA has instituted this Accessibility Checklist as a tool to encourage developers to begin thinking about access and inclusion at the beginning of development projects, and strive to go beyond meeting only minimum MAAB / ADAAG compliance requirements. Instead, our goal is for developers to create ideal design for accessibility which will ensure that the built environment provides equitable experiences for all people, regardless of their abilities. As such, any project subject to Boston Zoning Article 80 Small or Large Project Review, including Institutional Master Plan modifications and updates, must complete this Accessibility Checklist thoroughly to provide specific detail about accessibility and inclusion, including descriptions, diagrams, and data.

For more information on compliance requirements, advancing best practices, and learning about progressive approaches to expand accessibility throughout Boston’s built environment. Proponents are highly encouraged to meet with Commission staff, prior to filing.

#### Accessibility Analysis Information Sources:

1. Americans with Disabilities Act – 2010 ADA Standards for Accessible Design  
[http://www.ada.gov/2010ADASTandards\\_index.htm](http://www.ada.gov/2010ADASTandards_index.htm)
2. Massachusetts Architectural Access Board 521 CMR  
<http://www.mass.gov/eopss/consumer-prot-and-bus-lic/license-type/aab/aab-rules-and-regulations-pdf.html>
3. Massachusetts State Building Code 780 CMR  
<http://www.mass.gov/eopss/consumer-prot-and-bus-lic/license-type/csl/building-codebbrs.html>
4. Massachusetts Office of Disability – Disabled Parking Regulations  
<http://www.mass.gov/anf/docs/mod/hp-parking-regulations-summary-mod.pdf>
5. MBTA Fixed Route Accessible Transit Stations  
[http://www.mbta.com/riding\\_the\\_t/accessible\\_services/](http://www.mbta.com/riding_the_t/accessible_services/)
6. City of Boston – Complete Street Guidelines  
<http://bostoncompletestreets.org/>
7. City of Boston – Mayor’s Commission for Persons with Disabilities Advisory Board  
[www.boston.gov/disability](http://www.boston.gov/disability)
8. City of Boston – Public Works Sidewalk Reconstruction Policy  
[http://www.cityofboston.gov/images\\_documents/sidewalk%20policy%200114\\_tcm3-41668.pdf](http://www.cityofboston.gov/images_documents/sidewalk%20policy%200114_tcm3-41668.pdf)
9. City of Boston – Public Improvement Commission Sidewalk Café Policy  
[http://www.cityofboston.gov/images\\_documents/Sidewalk\\_cafes\\_tcm3-1845.pdf](http://www.cityofboston.gov/images_documents/Sidewalk_cafes_tcm3-1845.pdf)

#### Glossary of Terms:

1. **Accessible Route** – A continuous and unobstructed path of travel that meets or exceeds the dimensional and inclusionary requirements set forth by MAAB 521 CMR: Section 20
2. **Accessible Group 2 Units** – Residential units with additional floor space that meet or exceed the dimensional and inclusionary requirements set forth by MAAB 521 CMR: Section 9.4
3. **Accessible Guestrooms** – Guestrooms with additional floor space, that meet or exceed the dimensional and inclusionary requirements set forth by MAAB 521 CMR: Section 8.4
4. **Inclusionary Development Policy (IDP)** – Program run by the BPDA that preserves access to affordable housing opportunities, in the City. For more information visit: <http://www.bostonplans.org/housing/overview>
5. **Public Improvement Commission (PIC)** – The regulatory body in charge of managing the public right of way. For more information visit: <https://www.boston.gov/pic>
6. **Visitability** – A place’s ability to be accessed and visited by persons with disabilities that cause functional limitations; where architectural barriers do not inhibit access to entrances/doors and bathrooms.

**Article 80 | ACCESSIBILTY CHECKLIST**

<p><b>1. Project Information:</b>  <i>If this is a multi-phased or multi-building project, fill out a separate Checklist for each phase/building.</i></p>			
Project Name:	One Post Office Square Tower and Garage Improvement Project		
Primary Project Address:	One Post Office Square, Boston, Massachusetts 02110		
Total Number of Phases/Buildings:	One Phase		
Primary Contact (Name / Title / Company / Email / Phone):	Michael Connelly, Jones Lang LaSalle <a href="mailto:Michael.Connelly@am.jll.com">Michael.Connelly@am.jll.com</a> 617-523-8000		
Owner / Developer:	Anchor Line/ Jones Lang LaSalle		
Architect:	Gensler		
Civil Engineer:	Tetra Tech		
Landscape Architect:	Tetra Tech		
Permitting:	Goulston & Storrs / Tetra Tech		
Construction Management:	Moriarty		
At what stage is the project at time of this questionnaire? Select below:			
	<input checked="" type="checkbox"/> PNF / Expanded PNF Submitted	Draft / Final Project Impact Report Submitted	BPDA Board Approved
	BPDA Design Approved	Under Construction	Construction Completed:
Do you anticipate filing for any variances with the Massachusetts Architectural Access Board (MAAB)? <i>If yes, identify and explain.</i>	No		
<p><b>2. Building Classification and Description:</b>  <i>This section identifies preliminary construction information about the project including size and uses.</i></p>			
What are the dimensions of the project?			
Site Area:	41,326 SF	Building Area:	986,300 GSF (currently - in design)

**Article 80 | ACCESSIBILITY CHECKLIST**

Building Height:	515 FT.	Number of Stories:	41 Flrs.	
First Floor Elevation:	19.35 EL	Is there below grade space:	Yes / No	
What is the Construction Type? (Select most appropriate type)				
	Wood Frame	Masonry	Steel Frame	Concrete
What are the principal building uses? (IBC definitions are below – select all appropriate that apply)				
	Residential – One - Three Unit	Residential - Multi-unit, Four +	Institutional	Educational
	<input checked="" type="checkbox"/> Business	<input checked="" type="checkbox"/> Mercantile	Factory	Hospitality
	Laboratory / Medical	Storage, Utility and Other		
List street-level uses of the building:	Office tower lobby, bank/ATMs, restaurant, barber shop, parking garage access			
<p><b>3. Assessment of Existing Infrastructure for Accessibility:</b></p> <p><i>This section explores the proximity to accessible transit lines and institutions, such as (but not limited to) hospitals, elderly &amp; disabled housing, and general neighborhood resources. Identify how the area surrounding the development is accessible for people with mobility impairments and analyze the existing condition of the accessible routes through sidewalk and pedestrian ramp reports.</i></p>				
Provide a description of the neighborhood where this development is located and its identifying topographical characteristics:	The Project site is located in the center of the Financial District of Boston’s Downtown neighborhood. The Project building is attached to the Langham Hotel and is located directly across from Post Office Square/Norman B. Leventhal Park. The surrounding neighborhood primarily consists of commercial buildings.			
List the surrounding accessible MBTA transit lines and their proximity to development site: commuter rail / subway stations, bus stops:	The project site has easy access to public transportation amenities operated by the MBTA, including bus and subway services which are supplemented by regional commuter rail services. State Street Station is the closest subway station and is located approximately one-quarter mile to the north of the site and provides access to the Orange and Blue subway lines. The closest bus stop is provided within one block of the site near the Congress Street/Water Street intersection and offers access to six MBTA bus lines. South Station is the closest commuter rail station and is located less than one-half mile walking distance from the site and provides access to eight commuter rail lines, buses and the Red line subway service.			
List the surrounding institutions: hospitals, public housing, elderly and disabled housing developments, educational facilities, others:	Massachusetts General Hospital is located ¾ miles northwest of the Project Site and Tufts Medical Center is located ¾ miles southwest of the Project site. Suffolk University is located less than ½ mile west of the Project site.			
List the surrounding government buildings: libraries, community	The West End Branch of the Boston Public Library is located approximately ½ mile west of the site and the North End Branch of the Boston Public Library is located approximately ¾ miles north of the site. Government Center is located			

**Article 80 | ACCESSIBILITY CHECKLIST**

<p>centers, recreational facilities, and other related facilities:</p>	<p>½ mile north of the site. The Project site is located within 1 mile of numerous parks including Post Office Square/Norman B. Leventhal Park, Boston Common, Fanueil Hall Marketplace, and the Boston Waterfront area.</p>
<p><b>4. Surrounding Site Conditions – Existing:</b>  <i>This section identifies current condition of the sidewalks and pedestrian ramps at the development site.</i></p>	
<p>Is the development site within a historic district? <b>If yes</b>, identify which district:</p>	<p>The Project site is not located within a Local Historic District based on the Boston Landmarks Commission Map. The site building is connected to the Langham Hotel which is designated as an historic landmark.</p>
<p>Are there sidewalks and pedestrian ramps existing at the development site? <b>If yes</b>, list the existing sidewalk and pedestrian ramp dimensions, slopes, materials, and physical condition at the development site:</p>	<p>Sidewalks are provided adjacent to all three of the building’s exterior walls along Pearl Street, Milk Street and Oliver Street and are in generally fair condition. Pedestrian ramps are provided at the adjacent intersections of Milk Street with Pearl Street and Oliver Street.</p>
<p>Are the sidewalks and pedestrian ramps existing-to-remain? <b>If yes</b>, have they been verified as ADA / MAAB compliant (with yellow composite detectable warning surfaces, cast in concrete)? <b>If yes</b>, provide description and photos:</p>	<p>As part of the Project, the existing site driveway along Pearl Street is proposed to be closed and replaced with new sidewalk that will tie into the existing adjacent sidewalk. Existing sidewalks and pedestrian ramps are proposed to remain along Pearl and Milk Street; the Oliver Street sidewalk will be replaced. Observations conducted in 2017 indicate that some pedestrian ramps may not meet current ADA standards.</p>
<p><b>5. Surrounding Site Conditions – Proposed</b>  <i>This section identifies the proposed condition of the walkways and pedestrian ramps around the development site. Sidewalk width contributes to the degree of comfort walking along a street. Narrow sidewalks do not support lively pedestrian activity, and may create dangerous conditions that force people to walk in the street. Wider sidewalks allow people to walk side by side and pass each other comfortably walking alone, walking in pairs, or using a wheelchair.</i></p>	
<p>Are the proposed sidewalks consistent with the Boston Complete Street Guidelines? <b>If yes</b>, choose which Street Type was applied: Downtown Commercial, Downtown Mixed-use, Neighborhood Main, Connector,</p>	<p>As part of the Project, the existing sidewalks will remain, and the site driveway along Pearl Street is proposed to be closed and replaced with new sidewalk that will tie into the existing adjacent sidewalk.</p>

**Article 80 | ACCESSIBILTY CHECKLIST**

Residential, Industrial, Shared Street, Parkway, or Boulevard.	
What are the total dimensions and slopes of the proposed sidewalks? List the widths of the proposed zones: Frontage, Pedestrian and Furnishing Zone:	Not applicable.
List the proposed materials for each Zone. Will the proposed materials be on private property or will the proposed materials be on the City of Boston pedestrian right-of-way?	Not applicable.
Will sidewalk cafes or other furnishings be programmed for the pedestrian right-of-way? <b>If yes</b> , what are the proposed dimensions of the sidewalk café or furnishings and what will the remaining right-of-way clearance be?	No.
If the pedestrian right-of-way is on private property, will the proponent seek a pedestrian easement with the Public Improvement Commission (PIC)?	Not applicable.
Will any portion of the Project be going through the PIC? <b>If yes</b> , identify PIC actions and provide details.	<b>Yes – the project will be reviewed for improvements to Pearl Street where the existing curb cut and hotel drop-off/garage access will be removed, and replaced to match the existing sidewalk on Pearl Street in front of One Post Office Square. The sidewalk along Oliver Street will also be replaced.</b>
<p><b>6. Accessible Parking:</b>  <i>See Massachusetts Architectural Access Board Rules and Regulations 521 CMR Section 23.00 regarding accessible parking requirement counts and the Massachusetts Office of Disability – Disabled Parking Regulations.</i></p>	
What is the total number of parking spaces provided at the development site? Will these be in a parking lot or garage?	The existing parking garage at the site provides 371 parking spaces. The existing parking garage is proposed to be replaced with an automated parking garage system with 4 vehicle lifts and a parking supply of 280 – 300 spaces.



**Article 80 | ACCESSIBILTY CHECKLIST**

<p>What is the total number of accessible spaces provided at the development site? How many of these are “Van Accessible” spaces with an 8 foot access aisle?</p>	<p>The proposed automated parking system will include one vehicle lift stall that is handicap-accessible. All parking spaces in the automated garage will be able to accommodate handicap-accessible vans.</p>
<p>Will any on-street accessible parking spaces be required? <b>If yes</b>, has the proponent contacted the Commission for Persons with Disabilities regarding this need?</p>	<p>No.</p>
<p>Where is the accessible visitor parking located?</p>	<p>Accessible visitor parking will be provided in the proposed automated parking garage at the site. An ADA-compliant walkway will be provided connecting the parking garage to the office tower lobby which has 17 elevators.</p>
<p>Has a drop-off area been identified? <b>If yes</b>, will it be accessible?</p>	<p>An ADA-compliant parking space is proposed in the parking garage for passenger pick-up/drop-off and is located immediately adjacent to the proposed walkway that will connect the parking garage to the office tower lobby.</p>

**7. Circulation and Accessible Routes:**

*The primary objective in designing smooth and continuous paths of travel is to create universal access to entryways and common spaces, which accommodates persons of all abilities and allows for visitability-with neighbors.*

<p>Describe accessibility at each entryway: Example: Flush Condition, Stairs, Ramp, Lift or Elevator:</p>	<p>All entryways are flush with the adjacent sidewalks.</p>
<p>Are the accessible entrances and standard entrance integrated? <b>If yes</b>, describe. <b>If no</b>, what is the reason?</p>	<p>Yes</p>
<p><b>If project is subject to Large Project Review/Institutional Master Plan</b>, describe the accessible routes way-finding / signage package.</p>	<p>None proposed.</p>

**8. Accessible Units (Group 2) and Guestrooms: (If applicable)**

*In order to facilitate access to housing and hospitality, this section addresses the number of accessible units that are proposed for the development site that remove barriers to housing and hotel rooms.*

**Article 80 | ACCESSIBILTY CHECKLIST**

<p>What is the total number of proposed housing units or hotel rooms for the development?</p>	<p>Zero.</p>
<p><b>If a residential development</b>, how many units are for sale? How many are for rent? What is the breakdown of market value units vs. IDP (Inclusionary Development Policy) units?</p>	<p>Not applicable.</p>
<p><b>If a residential development</b>, how many accessible Group 2 units are being proposed?</p>	<p>Not applicable.</p>
<p><b>If a residential development</b>, how many accessible Group 2 units will also be IDP units? <b>If none</b>, describe reason.</p>	<p>Not applicable.</p>
<p><b>If a hospitality development</b>, how many accessible units will feature a wheel-in shower? Will accessible equipment be provided as well? <b>If yes</b>, provide amount and location of equipment.</p>	<p>Not applicable.</p>
<p>Do standard units have architectural barriers that would prevent entry or use of common space for persons with mobility impairments? Example: stairs / thresholds at entry, step to balcony, others. <b>If yes</b>, provide reason.</p>	<p>Not applicable.</p>
<p>Are there interior elevators, ramps or lifts located in the development for access around architectural barriers and/or to separate floors? <b>If yes</b>, describe:</p>	<p>Not applicable.</p>
<p><b>9. Community Impact:</b>  <i>Accessibility and inclusion extend past required compliance with building codes. Providing an overall scheme that allows full and equal participation of persons with disabilities makes the development an asset to the surrounding community.</i></p>	

**Article 80 | ACCESSIBILTY CHECKLIST**

<p>Is this project providing any funding or improvements to the surrounding neighborhood? Examples: adding extra street trees, building or refurbishing a local park, or supporting other community-based initiatives?</p>	<p>The Project will be entering into a TAPA agreement with the City that will outline the Project’s mitigation which may include improvements to the surrounding neighborhood such as implementation of optimized signal timings along Congress Street and installation of an additional Hubway Station.</p>
<p>What inclusion elements does this development provide for persons with disabilities in common social and open spaces? Example: Indoor seating and TVs in common rooms; outdoor seating and barbeque grills in yard. Will all of these spaces and features provide accessibility?</p>	<p>Not applicable; the spaces are all private</p>
<p>Are any restrooms planned in common public spaces? <b>If yes</b>, will any be single-stall, ADA compliant and designated as “Family”/ “Companion” restrooms? <b>If no</b>, explain why not.</p>	<p>All restrooms are accessible</p>
<p>Has the proponent reviewed the proposed plan with the City of Boston Disability Commissioner or with their Architectural Access staff? <b>If yes</b>, did they approve? <b>If no</b>, what were their comments?</p>	<p>Not yet reviewed</p>
<p>Has the proponent presented the proposed plan to the Disability Advisory Board at one of their monthly meetings? Did the Advisory Board vote to support this project? <b>If no</b>, what recommendations did the Advisory Board give to make this project more accessible?</p>	<p>Not yet reviewed</p>

**10. Attachments**

**Article 80 | ACCESSIBILITY CHECKLIST**

<p><i>Include a list of all documents you are submitting with this Checklist. This may include drawings, diagrams, photos, or any other material that describes the accessible and inclusive elements of this project. <b>The Accessibility Check-list is being provided as part of the Article 80 Expanded Project Notification Form, including Existing Conditions Survey, Site Plan, Architectural Floor Plans, Circulation Diagrams, and site photos.</b></i></p>
<p>Provide a diagram of the accessible routes to and from the accessible parking lot/garage and drop-off areas to the development entry locations, including route distances. <b>Please see FIGURE 13, Site Access Plan, included in the full Appendix G Traffic Report</b></p>
<p>Provide a diagram of the accessible route connections through the site, including distances. <b>Please see FIGURE 13, Site Access Plan, included in the full Appendix G Traffic Report</b></p>
<p>Provide a diagram the accessible route to any roof decks or outdoor courtyard space? (if applicable) <b>Not applicable; spaces are privately managed by tenants and not accessible to the public</b></p>
<p>Provide a plan and diagram of the accessible Group 2 units, including locations and route from accessible entry.</p> <p>Not applicable.</p>
<p>Provide any additional drawings, diagrams, photos, or any other material that describes the inclusive and accessible elements of this project. <b>Please see the full EPNF filed for the City of Boston Article 80 review. The EPNF includes additional information, including</b></p> <ul style="list-style-type: none"><li>• Site Access Plan</li><li>• Site Photos</li><li>• Building Floor Plans</li><li>•</li></ul>

This completes the Article 80 Accessibility Checklist required for your project. Prior to and during the review process, Commission staff are able to provide technical assistance and design review, in order to help achieve ideal accessibility and to ensure that all buildings, sidewalks, parks, and open spaces are usable and welcoming to Boston's diverse residents and visitors, including those with physical, sensory, and other disabilities.

For questions or comments about this checklist, or for more information on best practices for improving accessibility and inclusion, visit [www.boston.gov/disability](http://www.boston.gov/disability), or our office:

The Mayor's Commission for Persons with Disabilities  
1 City Hall Square, Room 967,  
Boston MA 02201.

Architectural Access staff can be reached at:

[accessibility@boston.gov](mailto:accessibility@boston.gov) | [patricia.mendez@boston.gov](mailto:patricia.mendez@boston.gov) | [sarah.leung@boston.gov](mailto:sarah.leung@boston.gov) | 617-635-3682



*Appendix E*

# Traffic

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# 1.0 TRANSPORTATION IMPACTS/ ACCESS PLAN

## 1.1 INTRODUCTION

Tetra Tech has evaluated the potential transportation impacts associated with the proposed redevelopment of the existing office tower and parking garage, collectively known as One Post Office Square (OPOS), in Boston, Massachusetts. The purpose of this study is to evaluate existing and projected transportation operations in the vicinity of the project site, and identify measures needed to provide safe and efficient access to the proposed development and minimize potential project-related traffic impacts on the surrounding area roadway network.

The transportation access plan for the project describes the existing transportation conditions in the vicinity of the site, evaluates potential project-related transportation impacts, and recommends measures to minimize these impacts. The proximity of the project site to major transit hubs is expected to result in a significant portion of employees and visitors to One Post Office Square traveling on foot, rather than by car. The proposed project will minimize potential traffic impacts by taking full advantage of the excellent nearby public transit and extensive pedestrian and bicycle accommodations on the surrounding roadways. The project Proponent will also implement Travel Demand Management (TDM) measures, such as membership in the local transportation management association (ABC TMA), to encourage employees and visitors of the project site to utilize the nearby transit, bicycle and pedestrian travel modes.

### 1.1.1 Project Description

The project site consists of approximately 41,326 square feet of land, bounded by Pearl Street, Milk Street, Oliver Street, and the Langham Hotel, in the Financial District of Boston, MA. The project site currently supports an existing 41-story office tower and 6-story parking garage (with 371 spaces) for a total of **approximately 853,300** gross square feet of development. Vehicular access to the existing parking garage is provided via an existing “breezeway” connecting Oliver Street and Pearl Street, which passes underneath a portion of the parking garage and office tower at ground level. Access to the existing underground loading and delivery area (which is shared with the adjacent Langham Hotel) is provided by an existing service driveway on Oliver Street. Primary pedestrian access to the existing office tower lobby is provided from Pearl Street, with secondary pedestrian access provided for existing ground floor retail on Milk Street and Oliver Street.

The proposed project calls for the renovation and expansion of the existing 41-story office tower and complete reconstruction of the existing 6-story parking garage. The office tower renovations will include new façade and window treatments, and extension of the existing floor plates. The office tower renovations will also include a revitalization of existing retail and office amenities including an expanded gym and juice bar, a new pedestrian entrance, ground floor retail on Pearl Street (facing Post Office Square) and creation of a new midlevel “Porch” restaurant and penthouse level “Lantern” club restaurant. The existing 6-story parking garage will be demolished and replaced with a new 18-story office tower and automated parking garage system with up to **300 parking spaces**. The proposed project will include a new total of approximately **1.1 million** gross square feet of development, with **up to 370,000 square feet** of additional rentable commercial space and supporting ancillary amenities.

Pedestrian access to the office tower will continue to be provided via the existing lobby entrance along Pearl Street. The first-floor retail uses will continue to be accessed from the Milk Street and Oliver Street sidewalks. The existing underground delivery area that the site shares with the Langham Hotel immediately south of the parking garage access will also remain. Subject to the Applicant’s obtaining any required third-party consents, the Project is also proposed to include closure of the breezeway’s existing enter-only driveway on Pearl Street. This transportation access plan assumes such closure and accounts for the minor reassignment of



project-related traffic to the Oliver Street driveway. With or without the proposed Pearl Street driveway closure, project-related traffic increases on the surrounding area roadways would be negligible.

### 1.1.2 Study Area

The OPOS project is located in the Financial District of Boston's Downtown neighborhood bounded by Milk Street, Oliver Street and Pearl Street. The site is currently occupied by numerous commercial tenants with approximately 5 percent of the 796,164 square feet (sf) vacant as of March 2017. The project site location in relation to the surrounding area roadways is presented in Figure 1.

Approximately 371 parking spaces are currently provided at the site in a parking garage accessed via a "breezeway" with an entrance-only access driveway on Pearl Street and full access on Oliver Street. A 1,400-space parking garage is also located beneath the Post Office Square/Norman B. Leventhal Park immediately across Pearl Street from the site with access driveways located along Congress Street and Pearl Street.

There are nineteen Massachusetts Bay Transportation Authority (MBTA) bus routes that pass through the study area. The closest bus stop is located at the Congress Street/Water Street intersection one block to the north of the site and serves six of these routes. The nearest subway access is provided at State Station located approximately one-quarter mile (5-minute walk) from the site at the Congress Street/State Street/Devonshire intersection.

### 1.1.3 Study Methodology

This study was conducted in three phases. The first phase involved an inventory of existing transportation conditions in the vicinity of the site. As part of the existing conditions assessment, peak period traffic counts were collected in March 2017 at several key intersections. Field visits were also conducted to inventory existing roadway geometry, parking and traffic control, and to observe the general operational characteristics of the study area roadways and intersections in May 2017.

The second phase of the study builds upon the data collected in the first phase and establishes the framework for evaluating potential transportation impacts associated with the proposed project along with future demands of other nearby developments that could influence traffic levels at the study area intersections. The 2017 existing traffic demands were projected to the year 2024 by which time the proposed project is expected to be built.

In the third phase of the study, measures to minimize project-related traffic impacts and encourage alternative modes of transportation to and from the project site were identified. This report concludes with a list of recommended TDM and mitigation measures recommended to be implemented as part of the proposed project.

## 1.2 EXISTING CONDITIONS

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The effective evaluation of potential transportation impacts associated with the project requires a thorough understanding of the existing traffic conditions on the roadways and intersections in the vicinity of the project site. The existing conditions assessment consists of an inventory of the roadway and intersection geometries and traffic control devices, collection of peak period traffic volumes and field observations and analysis of existing traffic operations.

### 1.2.1 Study Area Roadways

The site is bounded by Milk Street, Oliver Street and Pearl Street and the Langham Hotel in the Financial District of Boston's Downtown neighborhood. Most project-generated traffic will travel to and from the site via the following study area roadways. On-street parking regulations vary among the study area roadways as described in more detail under the Parking section of this report.

**Congress Street.** Congress Street is under local (City) jurisdiction and generally runs in a north-south direction through the study area between New Chardon Street and Dorchester Avenue and is classified by the Massachusetts Department of Transportation (MassDOT) as an Urban Principal Arterial roadway. South of the study area at Dorchester Avenue, Congress Street runs in a southeast-northwest orientation where it is classified as an Urban Minor Arterial roadway between Dorchester Avenue and D Street, and a local roadway between D Street and Northern Avenue. Within the study area, Congress Street generally allows one-way travel southbound except north of Post Office Square where two-way travel is permitted. Two to three lanes are generally provided in each travel direction with additional turn lanes provided at major intersections. Dedicated bike lanes are provided along certain segments of Congress Street and sidewalks are provided along both sides of the street.

**Pearl Street.** Pearl Street generally runs in a north-south direction between Post Office Square and Atlantic Avenue and allows one-way travel northbound. The roadway is under City jurisdiction and is classified by MassDOT as an Urban Minor Arterial roadway between Atlantic Avenue and High Street and as an Urban Principal Arterial north of High Street. Pearl Street provides three lanes of travel between Atlantic Avenue and Purchase Street, one lane of travel between Purchase Street and Franklin Street and two lanes of travel elsewhere. A dedicated bike lane is provided along Pearl Street except for the segment between Atlantic Avenue and Purchase Street where shared bike/vehicle lanes are provided. Sidewalks are provided along both sides of Pearl Street.

**Oliver Street.** Oliver Street is a local roadway under City jurisdiction. Oliver Street generally runs in a north-south direction between Milk Street and Purchase Street and generally allows one-way travel northbound except between Milk Street and Franklin Street where bi-directional travel is permitted. Oliver Street provides two travel lanes northbound between Purchase Street and Franklin Street, and one travel lane in each direction between Milk Street and Franklin Street. Bike accommodations are provided along portions of Oliver Street. Sidewalks are provided along both sides of Oliver Street.

**Kilby Street.** Kilby Street is a local roadway under City jurisdiction that runs in a north-south direction between State Street and Milk Street. Kilby Street provides two-way travel between Milk Street and Water Street, and one-way northbound travel between Water Street and State Street. Sidewalks are provided along both sides of Kilby Street. A dedicated bike lane is provided along the majority of Kilby Street, except for a short segment between Milk Street and Water Street.

**State Street.** State Street generally runs in an east-west direction between Old Atlantic Avenue and Washington Street. State Street is under City jurisdiction and is classified by MassDOT as an Urban Principal Arterial roadway except between Atlantic Avenue and Old Atlantic Avenue where it is classified as a local roadway. State Street generally allows one-way westbound travel except between Atlantic Avenue and Old Atlantic Avenue where two-way travel is permitted. State Street generally provides two travel lanes with additional turn lanes provided at major intersections except between Atlantic Avenue and Old Atlantic Avenue where one travel lane in each direction is provided, and in the vicinity of India Street where one travel lane is provided. Sidewalks are provided along both sides of the roadway. Bike accommodations are not generally provided along State Street.

**Water Street.** Water Street generally runs in an east-west orientation between Broad Street and Washington Street. Water Street is under City jurisdiction and is classified by MassDOT as an Urban Minor Arterial between Washington Street and Congress Street and a local roadway elsewhere. Water Street generally allows one-way travel eastbound between Washington Street and Kilby Street and one-way westbound travel between Broad Street and Batterymarch Street. Two travel lanes are provided along Water Street between Washington Street and Congress Street with one travel lane provided elsewhere. A short segment of Water Street, between Kilby Street and Batterymarch Street allows two-way travel. Sidewalks are provided along both sides of the roadway. Bike accommodations are not generally provided along Water Street.

**Milk Street.** Milk Street generally runs in an east-west orientation between Washington Street and Old Atlantic Avenue. Milk Street provides one-way eastbound travel between Devonshire Street and Atlantic Avenue with two-way travel for portions of the street. Milk Street is under City jurisdiction and is classified by MassDOT as an

Urban Minor Arterial everywhere except between Atlantic Avenue and Old Atlantic Avenue where it is classified as a local roadway. Milk Street varies between one lane and three lanes per direction. Dedicated bike lanes are generally provided along Milk Street. Sidewalks are provided along both sides of the roadway.

**Franklin Street.** Franklin Street is generally an east-west roadway that runs between Hawley Street and India Street. Franklin Street is under City jurisdiction and is classified by MassDOT as an Urban Minor Arterial roadway between Washington Street and Broad Street and as a local roadway between Broad Street and India Street. Franklin Street is generally one-way westbound from Broad Street to Hawley Street and one-way eastbound east of Broad Street. Franklin Street generally provides one travel lane east of Pearl Street and two travel lanes west of Pearl Street where it narrows back down to one lane westbound west of Arch Street. A dedicated bike lane is generally provided between Pearl Street and Broad Street. Sidewalks are provided along both sides of the roadway.

**High Street.** High Street generally runs in a southwest-northeast direction between Summer Street and Atlantic Avenue. High Street is under City jurisdiction and is classified by MassDOT as an Urban Minor Arterial roadway between Summer Street and Congress Street and an Urban Principal Arterial roadway elsewhere. High Street allows one-way travel eastbound and generally provides one lane of travel with additional turn lanes at major intersections. A dedicated bike lane is provided along High Street except between Purchase Street (John Fitzgerald Surface Road) and Atlantic Avenue. Sidewalks are provided along both sides of the roadway.

**Purchase Street.** Purchase Street, also known as John F Fitzgerald Surface Road, is generally a north-south roadway that runs from Haymarket Square to Albany Street. Within the study area, Purchase Street is under City jurisdiction and is classified by MassDOT as an Urban Principal Arterial roadway. Purchase Street provides three travel lanes east of Congress Street and two travel lanes west of Congress Street through the study area. A dedicated bike lane is provided along Purchase Street within the study area. Sidewalks are generally provided along both sides of the roadway except where it runs adjacent to the ramps to and from I-93.

## 1.2.2 Study Area Intersections

The study area intersections chosen for detailed analysis were determined in consultation with the Boston Transportation Department (BTD) in March 2017. The study area intersections are shown in Figure 2 and are listed below:

1. Congress Street/State Street/Devonshire Street
2. Congress Street/Water Street
3. Congress Street/Milk Street
4. Congress Street/Post Office Square Parking Garage Drive In
5. Congress Street/ Post Office Square Parking Garage Drive Out
6. Congress Street/Franklin Street
7. Congress Street/High Street
8. Congress Street/Purchase Street/I-93 SB On-Ramp
9. Pearl Street/Milk Street
10. Pearl Street/ Post Office Square Parking Garage Drive Out
11. Pearl Street/Site Driveway
12. Pearl Street/Post Office Square Parking Garage Drive In
13. Pearl Street/Franklin Street

14. Kilby Street/Water Street
15. Kilby Street/Milk Street
16. Oliver Street/Milk Street
17. Oliver Street/Site Driveway
18. Oliver Street/Franklin Street
19. Site Driveway/Parking Garage Access

A detailed analysis of existing and future traffic operations at each of the study intersections is provided in subsequent sections of this report. A brief description of the study area intersections is presented below.

**Congress Street/State Street/Devonshire Street.** Congress Street intersects State Street to form a five-legged, signalized intersection with Devonshire Street. In the northbound travel direction, Congress Street provides two through lanes approaching the intersection and three departure lanes. The Congress Street southbound approach provides a through lane, a shared through/right-turn lane (for vehicles destined for Congress Street or Devonshire Street) and an exclusive right-turn lane (vehicles destined for State Street only). State Street is one-way westbound through the intersection and provides a left-turn lane, a through lane and a shared through/right-turn lane. Devonshire Street provides a single, shared travel lane and is one-way southbound (departing the intersection). Crosswalks are provided across each leg at the intersection operating under concurrent and exclusive pedestrian phasing. Shared bike lanes are provided along the Congress Street northbound approach and southbound departure and the Devonshire Street departure.

**Congress Street/Water Street.** Congress Street intersects Water Street to form a five-legged, signalized intersection with Post Office Square. In the southbound travel direction, Congress Street provides a shared through/left-turn lane and a through lane approaching the intersection and three lanes departing the intersection. The Post Office Square northbound approach to the intersection provides a through lane (for vehicles destined for Congress Street northbound) and a shared through/right-turn lane (for vehicles destined for Congress Street northbound or Water Street eastbound). Dedicated bike lanes are provided along the Post Office Square northbound approach to the intersection and along the southbound Congress Street departure from the intersection. North of the intersection, Congress Street provides shared bike lanes in both travel directions. Crosswalks are provided across each leg at the intersection operating under concurrent pedestrian phasing.

**Congress Street/Milk Street.** Congress Street intersects Milk Street to form a four-legged, signalized intersection. Congress Street is one-way southbound through the intersection and provides an exclusive left-turn lane and three through lanes. Milk Street is one-way eastbound and provides two through lanes and an exclusive right-turn lane. Dedicated bike lanes are provided along Congress Street and along Milk Street departing the intersection. Shared bike lanes are provided along the Milk Street eastbound approach to the intersection. Crosswalks are provided across each leg to the intersection and operate under concurrent and exclusive pedestrian phasing.

**Congress Street/Parking Garage Drive In.** Congress Street meets the Post Office Square parking garage entrance to form a three-legged, unsignalized intersection. The Congress Street southbound approach provides a shared through/left-turn lane and two through lanes. The garage driveway provides a single travel lane departing the intersection. A dedicated bike lane is provided along Congress Street. A brick pedestrian crossing is provided across the garage driveway.

**Congress Street/Parking Garage Drive Out.** Congress Street meets the Post Office Square parking garage exit to form a three-legged, unsignalized intersection. The Congress Street southbound approach provides three through lanes. The garage driveway provides an exclusive left-turn lane under Stop-sign control. A dedicated bike lane is provided along Congress Street. A brick pedestrian crossing is provided across the garage driveway.

**Congress Street/Franklin Street.** Congress Street intersects Franklin Street to form a four-legged, signalized intersection. Congress Street is one-way southbound and provides two through lanes and a shared through/right-turn lane approaching the intersection. Franklin Street is one-way westbound and provides a shared through/left-turn lane and through lane approaching the intersection. Dedicated bike lanes are provided along Congress Street and Franklin Street through the intersection. Crosswalks are provided across each leg to the intersection and operate under concurrent and exclusive pedestrian phasing.

**Congress Street/High Street.** Congress Street intersects High Street to form a four-legged, signalized intersections. Congress Street is one-way southbound and provides a shared through/left-turn lane and two through lanes approaching the intersection and provides four lanes departing the intersection. High Street is one-way eastbound and provides a through lane and an exclusive right-turn lane approaching the intersection and a single lane departing the intersection. Dedicated bike lanes are provided along the north, east and west legs at the intersection. Shared bike lanes are provided along Congress Street departing the intersection. Crosswalks are provided across each leg at the intersection and operate under concurrent pedestrian phasing.

**Congress Street/Purchase Street/I-93 SB On-Ramp.** Congress Street intersects Purchase Street to form a five-legged, signalized intersection with the on-ramp to I-93 southbound. Congress Street is one-way eastbound and provides two through lanes, a right-turn lane for vehicles destined to the I-93 SB on-ramp and a right-turn lane for vehicles destined for Purchase Street only. Purchase Street is one-way southbound and provides an exclusive left-turn lane, a shared through/left-turn lane (for vehicles destined for Purchase Street, I-93 SB or Congress Street) and a through lane (for vehicles destined for Purchase Street only). The I-93 SB on-ramp provides a single lane departing the intersection. Shared and dedicated bike lanes are provided along Purchase Street and shared bike lanes are provided along Congress Street. Crosswalks are provided across each leg at the intersection and operate under concurrent and exclusive pedestrian phasing.

**Pearl Street/Milk Street.** Pearl Street intersects Milk Street to form a four-legged, signalized intersection. Pearl Street is one-way northbound and provides a through lane and a shared through/right-turn lane approaching the intersection. Milk Street is one-way eastbound and provides an exclusive left-turn lane and a through lane approaching the intersection. Dedicated bike lanes are provided along Pearl Street and Milk Street through the intersection. Crosswalks are provided across each leg at the intersection and operate under concurrent pedestrian phasing.

**Pearl Street/Parking Garage Drive Out.** Pearl Street meets the Post Office Square parking garage exit to form a three-legged, unsignalized intersection. Pearl Street is one-way northbound and provides two through lanes. The garage driveway is one-way eastbound and provides an exclusive left-turn lane operating under Stop-sign control. A dedicated bike lane is provided along Pearl Street. A brick pedestrian crossing is provided across the garage driveway.

**Pearl Street/Site Driveway.** Pearl Street meets the entrance driveway to the parking garage at One Post Office Square and the Langham Hotel to form a three-legged, unsignalized intersection. Pearl Street is one-way northbound and provides a through lane and a shared through/right-turn lane approaching the intersection. The driveway provides a single lane departing the intersection. A dedicated bike lane is provided along Pearl Street. A brick pedestrian crossing is provided across the site driveway way.

**Pearl Street/Parking Garage Drive In.** Pearl Street meets the Post Office Square parking garage entrance to form a three-legged, unsignalized intersection. Pearl Street is one-way northbound and provides a shared through/left-turn lane and a through lane approaching the intersection. The garage driveway provides a single lane departing the intersection. A dedicated bike lane is provided along Pearl Street. A brick pedestrian crossing is provided across the garage driveway.

**Pearl Street/Franklin Street.** Pearl Street intersects Franklin Street to form a four-legged, signalized intersection. Pearl Street is one-way northbound and provides a shared through/left-turn lane approaching the intersection and two lanes departing the intersection. Franklin Street is one-way westbound and provides a



shared through/right-turn lane approaching the intersection. Dedicated bike lanes are provided along Pearl Street and Franklin Street through the intersection. Crosswalks are provided across each leg at the intersection and operate under concurrent pedestrian phasing.

**Kilby Street/Water Street.** Kilby Street intersects Water Street to form a four-legged, unsignalized intersection. Kilby Street provides a shared through/right-turn lane approaching the intersection and is one-way northbound departing the intersection. Water Street is one-way eastbound approaching the intersection from the west and provides a single, general-purpose travel lane. The Water Street westbound approach provides an exclusive left-turn lane. A dedicated bike lane is provided along Kilby Street north of Water Street. Shared bike lanes are provided along the Kilby Street northbound and Water Street westbound approaches to the intersection. Crosswalks are provided across the north, south and west legs of the intersection.

**Kilby Street/Milk Street.** Kilby Street is a bi-directional roadway separated by a large, raised island forming two unsignalized intersections with Milk Street: Kilby Street Southbound (SB)/Milk Street and Kilby Street Northbound (NB)/Milk Street/Oliver Street. Kilby Street SB intersects Milk Street to form a three-legged, unsignalized intersection. Milk Street is one-way eastbound and provides a through lane approaching Kilby Street SB. Kilby Street SB provides an exclusive left-turn lane under Stop-sign control. A dedicated bike line is provided along Milk Street through the intersection. A crosswalk is provided across Kilby Street SB.

**Oliver Street/Milk Street.** Kilby Street is a bi-directional roadway separated by a large, raised island forming two unsignalized intersections with Milk Street: Kilby Street SB/Milk Street and Kilby Street NB/Milk Street/Oliver Street. Oliver Street and Kilby Street NB intersect Milk Street to form a four-legged, unsignalized intersection with Milk Street. Oliver Street is one-way northbound and provides a shared through/right-turn lane under Stop-sign control approaching Milk Street. Oliver Street turns into Kilby St NB departing the intersection. Milk Street is one-way eastbound and provides a general-purpose lane approaching the intersection. Dedicated bike lines are provided along Milk Street, Kilby Street and Oliver Street through the intersection. Crosswalks are provided across Kilby Street, Oliver Street and Milk Street east of Oliver Street.

**Oliver Street/Site Driveway.** Oliver Street meets the entrance driveway to the parking garage at One Post Office Square and the Langham Hotel to form a three-legged, unsignalized intersection. Oliver Street provides a northbound shared through/left-turn lane and a shared through/right-turn lane approaching the intersection. The driveway provides a shared left-turn/right-turn lane. A dedicated bike lane is provided along Oliver Street and a concrete pedestrian treatment is provided across the driveway.

**Oliver Street/Franklin Street.** Oliver Street intersects Franklin Street to form a four-legged, unsignalized intersection. The Oliver Street northbound approach provides an exclusive left-turn lane and a through lane. The Oliver Street southbound approach provides an exclusive right-turn lane. Franklin Street is one-way westbound and provides a shared through/right-turn lane approaching the intersection. A dedicated bike lane is provided along Franklin Street through the intersection. A shared bike lane is provided along the Oliver Street southbound approach to the intersection. Crosswalks are provided across each leg at the intersection.

**Site Driveway/Parking Garage Access.** The OPOS parking garage access intersects the site driveway (breezeway) between One Post Office Square and the Langham Hotel to form an unsignalized, three-legged intersection. The site driveway operates freely and movements into and out of the garage are controlled by electronic gates. The parking garage is a public garage and serves the general public, employees and visitors of One Post Office Square and guests of the Langham Hotel.

### 1.2.3 Existing Traffic Volumes

Peak period intersection turning movement and pedestrian crossing counts were collected at the study area intersections to establish existing traffic levels in the vicinity of the project site. The combined critical peak demand periods of site traffic and adjacent street traffic will occur during the weekday morning and weekday evening commuter peak hours. The intersection turning movement counts were collected on Thursday, March

30, 2017 during the typical weekday morning and weekday evening commuter “peak periods” (from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM). Generally, the peak hours in the study area occur between 8:00 AM to 9:00 AM during the weekday morning and between 4:45 PM to 5:45 PM during the weekday evening. The turning movement counts are provided in the Appendix.

Seasonal traffic volume data was reviewed to determine if seasonal adjustments were necessary for the traffic counts collected in March. Based on MassDOT’s 2013 Weekday Seasonal Factors, the traffic volume data collected in the month of March is approximately 1 percent below the average annual daily traffic volumes. Consequently, the traffic counts were adjusted upwardly by 1 percent to reflect the seasonal average traffic conditions. The MassDOT seasonal adjustment factors are provided in the Appendix.

The 2017 Existing conditions traffic volumes are presented in Figure 3 and Figure 4 for the weekday morning and weekday evening peak hours, respectively.

### **1.2.4 Parking**

On-street parking is available along designated roadway segments within the study area as shown in Figure 5 and is regulated to prevent long-term parking by commuters, while still providing parking for the nearby commercial businesses and government agencies. Elsewhere in the study area, on-street parking is restricted or limited to specific users such as taxis, handicap-accessible vehicles, City-issued vehicles, car-sharing vehicles (i.e., Zipcar), commercial vehicles and valet services. Off-street public parking in the study area primarily consists of numerous major parking garages as shown in Figure 6. Table 1 summarizes the off-street parking supply in the vicinity of the site.

**Table 1 Existing Area Off-Street Public Parking**

#	Address	Facility Name	Type of Facility	Total # Spaces
1	One Post Office Square (Site)	One Post Office Square Garage	Garage	371
2	Zero Post Office Square	Garage at Post Office Square	Garage	1,400
3	99 High Street	99 High Street Garage	Garage	163
4	100 High Street	100 High Street Garage	Garage	63
5	125 High Street	125 High Street Garage	Garage	850
6	One International Place	International Place Garage	Garage	827
7	470 Atlantic Avenue	Independence Wharf Garage	Garage	119
8	60 State Street	60 State Street Garage	Garage	305
9	75 State Street	75 State Street Garage	Garage	700
10	53/59 India Street <sup>1</sup>	India Street Garage	Lot	14
11	One Federal Street	One Federal Street Garage	Garage	170
12	225 Franklin Street	225 Franklin Street Garage	Garage	237
13	265 Franklin Street	Franklin Street Garage	Garage	128
14	275 Washington Street	Pi Alley Garage	Garage	600
15	33 Arch Street	33 Arch Street Garage	Garage	850
16	47 Broad Street	47 Broad Street Garage	Lot	21
17	490-510 Atlantic Avenue	Intercontinental Hotel Garage	Garage	375
18	83 Devonshire Street	One Devonshire	Garage	196
19	280 Congress Street	Atlantic Wharf Garage	Garage	77
20	75-101 Federal Street	75-101 Federal Street Garage	Garage	195
			<b>Total</b>	<b>7,661</b>

<sup>1</sup>Proposed to be removed as part of the proposed 55 India Street project.

As shown in Table 1, the site provides its own parking garage for a fee that is available to employees and visitors of the site’s tenants, guests of the adjacent Langham Hotel as well as to the general public. Under the existing parking system, motorists enter the gated parking area after obtaining a parking pass at the gate or swiping a monthly parking pass card and then park their vehicles in an available parking space. Some parking spaces are restricted to certain tenants or electric vehicles only.

### 1.2.5 Public Transportation

The project site has easy access to public transportation amenities operated by the MBTA, including bus and subway services which are supplemented by regional commuter rail services. The public transportation system in the site vicinity is shown in Figure 7. A more detailed description of the public transportation modes serving the project neighborhood is provided below.

### 1.2.5.1 Bus Service

Given the site's downtown location, convenient access is available to local bus service. The closest stop is provided within one block of the site near the Congress Street/Water Street intersection and offers access to six MBTA bus lines. The weekday peak period ridership and capacity information is summarized in Table 2. The schedule and map for each of these six bus routes are provided in the Appendix. Numerous other bus stops are also located near the site as shown in Figure 7.

**Table 2 MBTA Peak Period Bus Service Summary**

Route #	Weekday Morning Peak Period (7:00 AM – 9:00 AM)			Weekday Evening Peak Period (4:00 PM – 6:00 PM)		
	# Buses	Ridership	Crush Load Capacity	# Buses	Ridership	Crush Load Capacity
4	7	168	1,050	3	109	450
15	25	649	3,750	20	631	3,000
39	40	1,132	8,320	30	933	6,240
57	22	816	3,300	20	817	3,000
92	14	235	2,100	16	215	2,400
93	30	735	4,500	29	593	4,350

Source: MBTA

Note: All values represent peak period totals (inbound plus outbound)

### 1.2.5.2 Subway Service

The site also has convenient access to the MBTA's Orange and Blue subway lines. State Station is located approximately one-quarter mile to the north of the site and provides access to both subway lines. The Blue line service operates approximately every 5 minutes and the Orange line service operates approximately every 6 minutes during peak weekday commuting hours. The weekday peak period ridership and capacity information is summarized in Table 3. The Orange line provides service to North Station where passengers can transfer to the MBTA's Green subway line, MBTA Route #4 or commuter rail lines serving points north and west of the city. Additional rapid transit service is provided within a one-half mile walking distance of the site at Downtown Crossing and South Station. A subway map and schedules are provided in the Appendix.

**Table 3 MBTA Peak Period Subway Service Summary**

Line	Weekday Morning Peak Period (7:00 AM – 9:00 AM)			Weekday Evening Peak Period (4:00 PM – 6:00 PM)		
	Headway (minutes)	Ridership	Crush Load Capacity	Headway (minutes)	Ridership	Crush Load Capacity
Blue	5	2,044	41,760	5	7,254	41,760
Orange	6	22,024	53,760	6	20,259	53,760

Source: MBTA

Note: All values represent peak period totals (inbound plus outbound)

### 1.2.5.3 Commuter Rail Service

The Project site access is provided to the MBTA's commuter rail service at North Station by transferring to the Orange subway line and alighting/departing at State Station located approximately one-quarter mile from the site.

Commuter rail service at North Station includes the Fitchburg, Haverhill, Lowell and Newburyport/Rockport lines serving points north and west of the city. The Project site is also provided access to the MBTA's commuter rail service at South Station which is located less than one-half mile walking distance from the site. Commuter rail service at South Station includes the Framingham/ Worcester, Needham, Franklin, Providence/Stoughton, Fairmount, Plymouth/Kingston, Middleborough/Lakeville and Greenbush lines serving points south and west of the city. Commuter rail schedules are provided in the Appendix.

## 1.2.6 Pedestrian and Bicycle Conditions

The public streets in the vicinity of the site provide a comprehensive network of pedestrian and bicycle accommodations which are described below. Weekday morning and weekday evening peak hour pedestrian and bicycle volumes at the study intersections are shown in Figures 8 and 9, respectively.

### 1.2.6.1 Pedestrian Conditions

The public streets in the site vicinity have continuous sidewalks that are in generally fair condition and crosswalks are provided at major intersections. A large portion of Post Office Square/Norman B. Leventhal Park consists of brick walkways allowing for pedestrian activity through the park.

### 1.2.6.2 Bicycle Conditions

The public streets in the site vicinity provide a comprehensive network of bicycle accommodations that are in generally fair condition, except for some areas where pavement markings are faded. The majority of streets within the study area provide either dedicated or shared bike lanes.

## 1.2.7 Bicycle and Car Sharing Accommodations

Hubway, the local bicycle sharing service, provides four stations within the study area including a station adjacent to the site's building entrance along Pearl Street as shown in Figure 10. In total, the four nearby Hubway stations provide a total of 77 bicycles at State Street/Devonshire Street (20 bicycles), Pearl Street/Milk Street (19 bicycles), India Street/Surface Artery (19 bicycles) and Purchase Street/Pearl Street (19 bicycles). Available to Hubway members and non-members, bicycles can be accessed whenever available and returned to any designated Hubway Station with open docks. Hubway currently serves Boston, Brookline, Cambridge and Somerville.

Zipcar, a national car sharing company, provides seven car sharing stations in the site vicinity as shown in Figure 10. Each location provides access to one to four Zipcars for a total of 15 vehicles. Pre-approved users can reserve a specific vehicle and pick-up/drop-off the vehicle at any other available Zipcar location.

## 1.3 FUTURE CONDITIONS

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### 1.3.1 Future No-Build (Without Project) Conditions

The future No-Build (Without Project) condition establishes the basis for evaluating the transportation impacts associated with the proposed project. The No-Build condition includes the effects of general area growth, other planned development projects and planned transportation improvements expected to be completed by the Design Year of 2024.

In order to establish the future 2024 No-Build (Without Project) traffic volumes, the 2017 Existing condition traffic volumes were projected to the 2024 design year, by which time the project is expected to be built and occupied. Traffic growth is primarily a function of changes in motor vehicle use and expected land development in the region. In order to predict a rate at which traffic on the roadways in the vicinity of the site can be expected to grow during the seven-year forecast period (2017 to 2024), both historic traffic growth and planned area developments



were examined. A discussion of the development of the future No-Build (Without Project) condition is provided below.

### 1.3.1.1 General Background Traffic Growth

The historic traffic growth in the study area was determined based on input from the BTM. BTM suggests that area traffic growth is approximately 0.25 percent per year. An annualized growth rate of 0.25 percent per year compounded annually over the 7-year design horizon (total growth of 1.76 percent over 7 years) was applied to the 2017 Existing condition traffic volumes to reflect general area traffic growth.

### 1.3.1.2 Specific Development by Others

In addition to the general background traffic growth, planned development projects that could influence traffic volumes on the study area roadways were also considered. The BTM has identified four proposed development projects in the site vicinity to be considered in the development of the future 2024 No-Build conditions. A brief summary of each project is provided in Table 4. Traffic increases associated with each of these projects were based on the traffic studies prepared for each project and are documented in the traffic projection model provided in the Appendix.

**Table 4 Off-Site Developments**

Name	Location	Type	Size	Status	Traffic Source
55 India Street	55 India St.	Mixed-Use	44 Condominiums 4,000 s.f. Retail/Restaurant	Approved	<i>EPNF (June 16, 2014)</i>
110 Broad Street	102-112 Broad St.	Mixed-Use	52 Condominiums 3,500 s.f. Commercial	Under Construction	<i>EPNF (January 2, 2015)</i>
Congress Square	Congress Street/ Water Street/ Devonshire Street	Mixed-Use	284,600 sf Office 36,650 sf Retail/Restaurant 133-unit Hotel 35 Condominiums	Under Construction	<i>EPNF (March 25, 2015)</i>
100 Federal Street	100 Federal Street	Mixed-Use	21,000 sf Retail	Under Construction	<i>Traffic Assessment (February 10, 2016)<sup>1</sup></i>

<sup>1</sup>Project land use and size description provided by VHB (who prepared the Traffic Assessment) in an email to Tetra Tech on August 1, 2017.

### 1.3.1.3 Planned Transportation Improvements

Planned roadway and transportation infrastructure improvements can also affect area travel patterns and future traffic operations. Based on discussion with the BTM, no planned roadway or transportation infrastructure improvements were identified in the study area.

### 1.3.1.4 No-Build Traffic Volumes

The 2017 Existing condition peak hour traffic volumes were grown by 0.25 percent per year over the seven-year study horizon to establish the 2024 base traffic volumes. Traffic increases associated with the four background developments summarized in Table 4 were then added to the 2024 base volumes to establish the 2024 No-Build

(Without Project) traffic volumes. The 2024 No-Build weekday morning and weekday evening peak hour traffic volume networks are illustrated in Figure 11 and Figure 12, respectively.

### 1.3.2 Future Build (With Project) Conditions

To assess the project's transportation impacts, the overall travel demands were determined based on proposed site access modifications as well as the anticipated trip generation, travel mode split, trip distribution and trip assignment. The project's travel demand was then added to the future 2024 No-Build traffic volumes (without the proposed project) to develop the future 2024 Build condition traffic volumes (with the proposed project). Each step of the process in developing the future Build condition traffic volumes are described below.

#### 1.3.2.1 Site Access

As part of the project, the site's parking garage entrance on Pearl Street will be closed and all future vehicular traffic destined for the site is expected to enter and exit the site via the existing site driveway on Oliver Street. The proposed site access plan is shown in Figure 13.

#### 1.3.2.2 Project-Generated Trips

To assess the project's transportation impacts, the project's overall travel demand was determined in a four-step process including trip generation, travel mode share, trip distribution and trip assignment. The following sections describe the process of translating the proposed development program into the resulting trips in each mode of travel.

**Trip Generation.** Trip generation estimates for the project were developed based on data presented in the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 9<sup>th</sup> Edition* (2012). The project will consist of up to 370,000 sf of additional commercial space. Since the proposed building (existing plus expansion) will primarily consist of office use, any proposed retail and amenity space was assumed to be ancillary to the office uses. Therefore, trip estimates for the 370,000 sf expansion were based on the ITE trip rates for land use code (LUC) 710 (General Office Building). The project is proposing to renovate and expand the parking tower and modify a relatively small portion of the existing office building. As such, the existing trip generation is expected to remain under future Build conditions. Although industry-standard ITE trip rates were used to estimate the increase in site trips due to the proposed expansion and renovation project, the actual increase in trips is expected to be less as the parking supply at the OPOS parking garage is proposed to be reduced from existing conditions which is anticipated to encourage more transit-oriented and bike/walk trips. However, as a conservative measure, the number of new vehicle trips based on the proposed additional square footage was assumed for analysis purposes. The trip generation calculations are provided in the Appendix.

**Travel Mode Share.** The ITE trip estimates were then converted into person trips using the ITE vehicle occupancy rate (VOR) of 1.10 persons/vehicle trip for the most closely-related land use (LUC 715 – Single Tenant Office Building). The person-trips for the proposed project based on ITE trip rates are presented in Table 5.

**Table 5 Project-Generated Person-Trip Summary**

Time Period	Trips
<b>Weekday Daily</b>	2,352
<b>Weekday Morning Peak Hour</b>	
Enter	348
Exit	47
<i>Total</i>	395
<b>Weekday Evening Peak Hour</b>	
Enter	77
Exit	380
<i>Total</i>	457

The project is well-situated to take advantage of alternative modes and reduce automobile mode share. Blue line and Orange Line subway service is provided at the nearby State Station and local bus connections are available via numerous bus stops in the area (within a 5-minute walk). Additional subway and commuter rail services are also provided within a one-half mile walking distance at South Station. As a result, the use of public transportation and other alternative travel modes will continue to be a very attractive option for employees and visitors of One Post Office Square. This is supported by the recent travel mode survey of existing employees at One Post Office Square conducted in August/September 2016. The employee survey indicates that approximately 64 percent of current OPOS employees use public transit to travel to/from the site. These results are similar to the BTD mode split data for the critical morning entering traffic flow and the evening exiting traffic flow for downtown Boston (Zone 2) except the OPOS commute survey indicates a slightly lower portion of trips generated by automobile and a slightly higher portion that walk/bike/telecommute. For the purpose of this study, the observed travel modes obtained from the existing employee travel mode survey were used to estimate existing and future travel modes for the proposed project site. It is anticipated that the proposed reduction in on-site parking, coupled with an extensive TDM program will further reduced traffic increases associated with the proposed development. Table 6 summarizes the travel mode split assumptions for the site. The existing employee travel mode survey and vehicle occupancy data is provided in the Appendix.

**Table 6 Travel Mode Share Summary**

	Auto	Transit	Walk/Bicycle <sup>1</sup>
% Mode Share	21%	64%	15%

<sup>1</sup>Includes employees who telecommute, but assumed to be walk/bicycle to present a conservative analysis.

The mode splits summarized in Table 6 were then applied to the person-trips in Table 5 to obtain the person-trips by mode. The auto-person trips were then converted to number of auto trips using a VOR of 1.11 which is based on the August/September 2016 commuter survey data collected at OPOS. The resulting transit, bicycle/walking and auto trips are presented in Table 7.

**Table 7 Project Trip Generation Summary**

Time Period	Auto <sup>1</sup>	Transit	Bike/Walk <sup>2</sup>
<b>Weekday Daily</b>	446	1,506	352
<b>Weekday Morning Peak Hour</b>			
Enter	66	223	52
Exit	9	30	7
<i>Total</i>	<i>75</i>	<i>253</i>	<i>59</i>
<b>Weekday Evening Peak Hour</b>			
Enter	14	49	12
Exit	72	243	57
<i>Total</i>	<i>86</i>	<i>292</i>	<i>69</i>

<sup>1</sup>Represents vehicle trips. Person-trips can be estimated using a VOR of 1.11 persons/vehicle.

<sup>2</sup>Includes telecommuting trips, but assumed all are bike/walk trips for analysis purposes as a conservative measure.

### 1.3.2.3 Trip Distribution

The project-related traffic was distributed to the study roadway system based on a review of the BTD Geographical Distribution data and the efficiency of the roadway system serving the site. Due to the extensive network of one-way streets in the Downtown area, separate entering and exiting distribution patterns were developed. The resulting trip distribution patterns for the proposed project trips are presented in Figure 14 for entering (inbound) trips and Figure 15 for exiting (outbound) trips for the weekday morning and weekday evening commuter peak hours. The trip distribution calculations are provided in the Appendix.

### 1.3.2.4 Trip Assignment

In order to establish the 2024 Build (With Project) peak hour traffic volumes, the traffic associated with the existing office uses that will remain on-site were redistributed to the roadway network to account for the closing of the Pearl Street driveway. The reassignment of existing traffic that will remain on-site is documented in the Appendix.

The new project trips associated with the proposed expansion were then assigned to the surrounding roadway network based on the project distribution patterns presented in Figure 14 and Figure 15. The new traffic associated with the proposed expansion are presented in Figure 16 and 17.

**Build Traffic Volumes.** The project trips presented in Figure 16 and 17 were then added to the 2017 No-Build peak hour traffic volumes and the reassignment of existing traffic due to the closure of the Pearl Street site driveway to reflect the 2024 Build peak hour traffic volumes. The resulting 2024 Build weekday morning and weekday evening peak hour traffic volumes are presented in Figure 18 and Figure 19, respectively. The traffic projection model for the weekday morning and weekday evening peak hours are provided in the Appendix.

**Project-Related Traffic Increases at Study Intersections.** A summary of the project-related peak hour traffic volume increases at each of the study area intersections relative to the 2024 No-Build (Without Project) is presented in Table 8.

As shown in Table 8, the proposed project will result in only minor traffic increases at the study intersections (5 percent or less) at the majority of study intersections. Higher increases are expected at intersections along Pearl Street, Oliver Street and Kilby Street as these intersections are closer to the site driveway and experience relatively low existing traffic volumes (less than 1,000 vehicles per hour). The study intersections are expected to

experience an increase of 86 vehicles per hour (vph) or less in overall traffic volume, an amount equivalent to less than 2 additional vehicles per minute. A more detailed discussion of the potential traffic increases associated with the proposed project is presented in the operations analysis section of this report.

**Table 8 Project-Related Traffic Increases at Study Intersections**

Location	AM Peak Hour Volumes			PM Peak Hour Volumes		
	No-Build	Project Trips	% Increase	No-Build	Project Trips	% Increase
Congress Street/State Street/Devonshire Street	2,271	20	0.9%	2,588	24	0.9%
Congress Street/Water Street	1,233	20	1.6%	1,604	4	0.2%
Congress Street/Milk Street	1,316	19	1.4%	1,498	4	0.3%
Congress Street/Parking Garage Drive In	996	0	0%	996	0	0%
Congress Street/Parking Garage Drive Out	869	0	0%	1,109	0	0%
Congress Street/Franklin Street	1,253	5	0.4%	1,560	43	2.8%
Congress Street/High Street	1,296	14	1.1%	1,718	44	2.6%
Congress Street/Purchase Street/I-93 SB Ramp	2,125	5	0.2%	2,537	42	1.7%
Pearl Street/Milk Street	574	23	4%	939	5	0.5%
Pearl Street/Parking Garage Drive Out	254	4	1.6%	437	1	0.2%
Pearl Street/Site Driveway	274	4	1.5%	310	1	0.3%
Pearl Street/Parking Garage Drive In	460	4	0.9%	356	1	0.3%
Pearl Street/Franklin Street	844	9	1.1%	807	44	5.5%
Kilby Street/Water Street	305	9	3%	413	22	5.3%
Kilby Street/Milk Street	349	29	8.3%	400	6	1.5%
Oliver Street/Milk Street	606	33	5.4%	704	35	5.0%
Oliver Street/Site Driveway	386	75	19.4%	429	86	20.0%
Oliver Street/Franklin Street	723	42	5.8%	671	51	7.6%
Site Driveway/Garage Drive	77	75	97.4%	101	51	50.5%

## 1.4 OPERATIONS ANALYSIS

### 1.4.1 Intersection Capacity Analysis

In previous sections of this report, the quantity (volume) of traffic on the study area roadways was described. The following section describes the quality of traffic flow at the study area intersections for the given traffic demands. As a basis for this assessment, intersection capacity analyses were conducted at each study area intersection for the 2017 Existing, 2024 No-Build (without the project) and the 2024 Build (with the project) traffic conditions for the weekday morning and weekday evening peak hours using Synchro 9.0 Intersection Capacity and Traffic Simulation Software. A discussion of the evaluation criteria and a summary of the results of the intersection capacity analyses are presented below. The detailed capacity analysis worksheets are provided in the Appendix.



### 1.4.1.1 Methodology

Level-of-service (LOS) is a term used to describe the quality of traffic flow on roadway or intersection. It is an aggregate measure of travel delay, driver convenience and safety based on a comparison of a roadway facility's capacity relative to the traffic demands. Operating levels of service are reported on a scale of A to F, with A representing the best operating conditions (with little or no vehicle delay) and F representing the worst operating conditions (with long delays). The capacity analyses for the study intersections are based on the 2000 Highway Capacity Manual (HCM), which establishes separate level-of-service criteria for unsignalized and signalized intersections. The 2000 HCM was used since the 2010 HCM does not provide a methodology for signalized intersections with exclusive pedestrian phases, which are provided at some of the study intersections. The level-of-service criteria for signalized and unsignalized intersections are presented in Table 9.

**Table 9 Intersection Level-of-Service Criteria**

Level of Service <sup>1</sup>	Average Delay per Vehicle (Seconds)	
	Signalized Intersections	Unsignalized Intersections
A	≤10.0	≤10.0
B	10.1 to 20.0	10.1 to 15.0
C	20.1 to 35.0	15.1 to 25.0
D	35.1 to 55.0	25.1 to 35.0
E	55.1 to 80.0	35.1 to 50.0
F	>80.0	>50.0

Source: Transportation Research Board Highway Capacity Manual, HCM 2000/2010

<sup>1</sup>If the v/c is greater than 1.0, then the level-of-service designation is LOS F, regardless of delays (HCM 2010 only)

The results of the intersection capacity analyses for the weekday morning and weekday evening peak hours are summarized in Tables 10 and 11 for the signalized study intersections and in Tables 12 and 13 for the unsignalized study intersections, respectively. Detailed summary tables and intersection capacity analysis worksheets are provided in the Appendix of this report. A brief discussion of the results of the intersection capacity analyses is presented in the following sections of this report.

### 1.4.1.2 Signalized Intersection Capacity Analysis Results

As shown in Tables 10 and 11, the capacity analyses indicate that the majority of signalized study intersections currently operate with moderate delays (LOS D or better) during the weekday morning peak hour and will continue to maintain these operating levels through the projected 2024 Build (with Project) conditions. During the weekday evening peak hour, the signalized study intersections generally operate at LOS D or better (overall) conditions except for the Congress Street intersection with Purchase Street which experiences moderate to significant delays for vehicles destined for the I-93 on-ramp from Congress Street (LOS F operations) and Purchase Street (LOS E operations), independent of the project. Observations of existing operations indicates congestion along the I-93 on-ramp that appears to cause significant delays to the Congress Street corridor through the study area. As shown in Tables 10 and 11 under the 2024 Build (Mitigated) condition, minor signal timing modifications to the study area intersections can improve intersection operations compared to 2024 Build conditions. The BTD routinely conducts maintenance of their traffic signals to improve intersection and corridor operations. It is recommended that the Proponent work with the BTD during the Transportation Access Plan Agreement (TAPA) process to implement signal timing optimization at the study area intersections to enhance future traffic operations.

**Table 10 Signalized Intersection Capacity Analysis Summary – Weekday Morning Peak Hour**

Intersection	Movement	2017 Existing					2024 No-Build					2024 Build					2024 Build (Mitigated)				
		v/c <sup>1</sup>	Delay <sup>2</sup>	LOS <sup>3</sup>	50 <sup>th</sup> Q <sup>4</sup>	95 <sup>th</sup> Q <sup>5</sup>	v/c	Delay	LOS	50 <sup>th</sup> Q	95 <sup>th</sup> Q	v/c	Delay	LOS	50 <sup>th</sup> Q	95 <sup>th</sup> Q	v/c	Delay	LOS	50 <sup>th</sup> Q	95 <sup>th</sup> Q
Congress Street & High Street	EB T	0.34	23.2	C	96	155	0.34	23.2	C	97	158	0.36	23.5	C	103	165	0.36	23.5	C	103	165
	EB R	0.37	26.4	C	43	90	0.38	26.7	C	44	92	0.38	26.7	C	44	92	0.38	26.7	C	44	92
	SB LT	0.56	5.7	A	57	65	0.58	5.7	A	58	66	0.58	5.8	A	60	67	0.58	6.1	A	60	71
	<b>Intersection</b>	<b>0.48</b>	<b>9.7</b>	<b>A</b>			<b>0.49</b>	<b>9.7</b>	<b>A</b>			<b>0.49</b>	<b>9.8</b>	<b>A</b>			<b>0.49</b>	<b>10.1</b>	<b>B</b>		
Congress Street & Water Street	EB L	0.07	21.4	C	12	32	0.07	21.4	C	13	33	0.07	21.4	C	13	33	0.07	21.4	C	13	33
	EB T	0.12	21.9	C	13	52	0.13	22.0	C	14	55	0.14	22.1	C	16	57	0.14	22.1	C	16	57
	SB T	0.61	8.2	A	88	125	0.63	8.4	A	92	132	0.64	8.4	A	93	134	0.64	8.4	A	93	134
	NW RR2	0.24	15.3	B	68	84	0.24	15.5	B	71	86	0.25	15.6	B	71	88	0.25	15.6	B	71	88
	<b>Intersection</b>	<b>0.40</b>	<b>11.3</b>	<b>B</b>			<b>0.41</b>	<b>11.5</b>	<b>B</b>			<b>0.42</b>	<b>11.5</b>	<b>B</b>			<b>0.42</b>	<b>11.5</b>	<b>B</b>		
Congress Street & State Street	WB L2L	0.55	41.8	D	126	203	0.56	42.3	D	130	209	0.57	42.5	D	132	212	0.57	42.5	D	132	212
	WB TR	0.77	46.7	D	185	251	0.79	47.8	D	190	258	0.79	47.9	D	191	#260	0.79	47.9	D	191	#260
	NB T	0.29	12.8	B	37	45	0.31	12.9	B	39	47	0.31	13.3	B	41	48	0.31	13.3	B	41	48
	SB TR	0.79	34.2	C	302	391	0.82	35.7	D	318	410	0.83	36.2	D	324	418	0.83	36.2	D	324	418
	SB R2	0.78	39.6	D	267	#446	0.82	42.6	D	285	#480	0.83	43.5	D	290	#487	0.83	43.5	D	290	#487
	<b>Intersection</b>	<b>0.60</b>	<b>35.5</b>	<b>D</b>			<b>0.61</b>	<b>36.8</b>	<b>D</b>			<b>0.62</b>	<b>37.3</b>	<b>D</b>			<b>0.62</b>	<b>37.3</b>	<b>D</b>		
Pearl Street & Milk Street	EB L	0.10	5.0	A	0	14	0.10	5.4	A	0	16	0.1	5.2	A	0	15	0.10	5.2	A	0	15
	EB T	0.28	7.7	A	29	69	0.28	7.8	A	29	72	0.31	8.3	A	31	76	0.31	8.3	A	31	76
	NB TR	0.24	11.7	B	29	m37	0.25	11.7	B	30	m37	0.26	12	B	30	m41	0.26	12.0	B	30	m41
	<b>Intersection</b>	<b>0.26</b>	<b>9.0</b>	<b>A</b>			<b>0.27</b>	<b>9.1</b>	<b>A</b>			<b>0.29</b>	<b>9.4</b>	<b>A</b>			<b>0.29</b>	<b>9.4</b>	<b>A</b>		
Congress Street & Franklin Street	WB LT	0.27	24.5	C	40	62	0.28	24.4	C	40	m63	0.28	24.6	C	41	63	0.28	24.6	C	41	63
	SB TR	0.53	7.7	A	56	68	0.55	7.7	A	57	69	0.55	7.7	A	57	69	0.55	7.7	A	57	69
	<b>Intersection</b>	<b>0.33</b>	<b>13.1</b>	<b>B</b>			<b>0.35</b>	<b>13.0</b>	<b>B</b>			<b>0.35</b>	<b>13.1</b>	<b>B</b>			<b>0.35</b>	<b>13.1</b>	<b>B</b>		
Pearl Street & Franklin Street	WB TR	0.69	19.2	B	102	#208	0.70	19.6	B	105	#219	0.72	20.4	C	109	#247	0.72	20.4	C	109	#247
	NB LT	0.76	22.2	C	122	#240	0.78	23.3	C	127	#251	0.74	21.5	C	118	#212	0.74	21.5	C	118	#212
	<b>Intersection</b>	<b>0.72</b>	<b>20.8</b>	<b>C</b>			<b>0.74</b>	<b>21.5</b>	<b>C</b>			<b>0.73</b>	<b>20.9</b>	<b>C</b>			<b>0.73</b>	<b>20.9</b>	<b>C</b>		
Congress Street & Milk Street	EB T	0.22	26.0	C	60	92	0.22	26.0	C	62	93	0.23	26	C	63	94	0.23	26.0	C	63	94
	EB R	0.54	33.4	C	142	227	0.55	33.7	C	146	231	0.55	33.7	C	146	231	0.55	33.7	C	146	231
	SB L	0.21	7.8	A	27	54	0.21	7.8	A	28	m54	0.24	8.1	A	32	m61	0.24	8.1	A	32	m61
	SB T	0.52	9.1	A	75	115	0.55	9.3	A	78	124	0.55	9.3	A	78	123	0.55	9.3	A	78	123
	<b>Intersection</b>	<b>0.42</b>	<b>16.1</b>	<b>B</b>			<b>0.44</b>	<b>16.1</b>	<b>B</b>			<b>0.44</b>	<b>16.1</b>	<b>B</b>			<b>0.44</b>	<b>16.1</b>	<b>B</b>		
Congress/Purchase/I-93 Ramp	EB T	0.50	11.5	B	70	92	0.52	11.5	B	72	93	0.52	11.5	B	71	93	0.55	12.3	B	38	48
	EB RR2	0.63	16.1	B	82	124	0.65	16.5	B	84	132	0.66	16.7	B	85	142	0.69	18.2	B	45	96
	EB R2	0.40	11.8	B	38	71	0.42	11.9	B	39	72	0.42	11.9	B	39	73	0.44	12.8	B	27	39
	SB L2	0.63	32.9	C	227	343	0.65	33.4	C	234	352	0.65	33.4	C	234	352	0.62	30.9	C	226	341
	SB LT	0.73	33.4	C	254	333	0.75	34.4	C	267	348	0.75	34.4	C	267	348	0.72	31.7	C	258	336
<b>Intersection</b>	<b>0.57</b>	<b>23.8</b>	<b>C</b>			<b>0.59</b>	<b>24.3</b>	<b>C</b>			<b>0.59</b>	<b>24.3</b>	<b>C</b>			<b>0.59</b>	<b>23.4</b>	<b>C</b>			

<sup>1</sup>Delay = Average delay per vehicle (seconds) <sup>2</sup>v/c = Volume to capacity ratio <sup>3</sup>LOS = Level of Service <sup>4</sup>50<sup>th</sup> percentile queue (feet) <sup>5</sup>95<sup>th</sup> percentile queue (feet)

**Table 11 Signalized Intersection Capacity Analysis Summary – Weekday Evening Peak Hour**

Intersection	Movement	2017 Existing					2024 No-Build					2024 Build					2024 Build (Mitigated)				
		v/c <sup>1</sup>	Delay <sup>2</sup>	LOS <sup>3</sup>	50 <sup>th</sup> Q <sup>4</sup>	95 <sup>th</sup> Q <sup>5</sup>	v/c	Delay	LOS	50 <sup>th</sup> Q	95 <sup>th</sup> Q	v/c	Delay	LOS	50 <sup>th</sup> Q	95 <sup>th</sup> Q	v/c	Delay	LOS	50 <sup>th</sup> Q	95 <sup>th</sup> Q
Congress Street & High Street	EB T	0.33	25.0	C	95	155	0.34	25.1	C	97	157	0.34	25.2	C	98	159	0.29	20.0	B	87	141
	EB R	0.36	27.6	C	45	93	0.38	28.2	C	47	96	0.38	28.2	C	47	96	0.32	22.1	C	42	85
	SB LT	0.75	8.5	A	95	100	0.78	9.4	A	102	107	0.81	10.8	B	117	121	0.92	20.1	C	365	329
	Intersection	0.58	11.0	B			0.61	11.8	B			0.63	13	B			0.63	20.2	C		
Congress Street & Water Street	EB L	0.25	27.4	C	45	87	0.26	27.6	C	47	91	0.26	27.6	C	47	91	0.26	27.6	C	47	91
	EB T	0.31	27.8	C	71	136	0.32	28.1	C	77	144	0.33	28.1	C	78	145	0.33	28.1	C	78	145
	SB T	0.47	4.8	A	60	74	0.48	4.8	A	62	76	0.48	4.8	A	62	76	0.48	6.0	A	75	78
	NW RR2	0.56	10.8	B	146	171	0.58	11.2	B	152	184	0.58	11.2	B	152	185	0.58	13.0	B	156	203
	Intersection	0.46	11.0	B			0.48	11.3	B			0.48	11.3	B			0.48	12.5	B		
Congress Street & State Street	WB L2L	0.37	35.6	D	88	149	0.39	36.0	D	93	156	0.39	36	D	93	156	0.39	36.0	D	93	156
	WB TR	0.94	60.8	E	265	#391	0.97	64.9	E	274	#405	0.99	71	E	284	#421	0.99	71.0	E	284	#421
	NB T	0.65	26.2	C	147	184	0.68	27.0	C	155	205	0.68	27	C	156	206	0.68	20.5	C	174	200
	SB TR	0.67	30.7	C	233	304	0.69	31.4	C	243	318	0.69	31.5	C	245	320	0.69	31.5	C	245	320
	SB R2	0.61	32.2	C	181	286	0.64	33.5	C	194	305	0.64	33.5	C	194	305	0.64	33.5	C	194	305
	Intersection	0.59	38.3	D			0.61	39.9	D			0.62	41.9	D			0.62	40.0	D		
Pearl Street & Milk Street	EB L	0.16	18.1	B	2	9	0.16	18.0	B	2	9	0.16	17.9	B	2	10	0.16	4.4	A	0	5
	EB T	0.31	6.4	A	45	60	0.31	6.4	A	45	60	0.32	6.5	A	46	61	0.32	4.4	A	40	56
	NB TR	0.36	10.3	B	27	m52	0.38	10.3	B	28	m55	0.38	10.2	B	29	m55	0.38	13.0	B	38	m67
	Intersection	0.33	11.3	B			0.34	11.2	B			0.34	11.1	B			0.34	8.3	A		
Congress Street & Franklin Street	WB LT	0.32	32.9	C	44	65	0.34	32.8	C	45	66	0.4	31.3	C	55	77	0.40	28.9	C	55	77
	SB TR	0.64	9.2	A	104	110	0.66	9.2	A	107	112	0.66	9.2	A	107	112	0.66	9.6	A	109	118
	Intersection	0.43	15.7	B			0.44	15.6	B			0.46	15.6	B			0.46	15.2	B		
Pearl Street & Franklin Street	WB TR	0.70	20.3	C	112	#195	0.67	18.8	B	111	190	0.74	21.4	C	130	#235	0.74	21.4	C	130	#235
	NB LT	0.75	22.7	C	92	#233	0.73	21.3	C	97	#237	0.73	21.2	C	96	#236	0.73	21.2	C	96	#236
	Intersection	0.73	21.4	C			0.70	20.0	C			0.74	21.3	C			0.74	21.3	C		
Congress Street & Milk Street	EB T	0.38	29.5	C	114	157	0.39	29.6	C	116	160	0.39	29.6	C	116	161	0.39	29.6	C	116	161
	EB R	0.54	34.6	C	143	227	0.55	35.0	C	148	233	0.55	35	C	148	233	0.55	35.0	C	148	233
	SB L	0.29	13.3	B	33	66	0.30	13.3	B	33	67	0.31	13.5	B	35	69	0.31	13.4	B	35	59
	SB T	0.76	21.8	C	196	226	0.79	22.8	C	205	236	0.79	22.8	C	206	236	0.79	19.9	B	101	147
	Intersection	0.52	25.1	C			0.54	25.7	C			0.54	25.7	C			0.54	24.2	C		
Congress/Purchase/I-93 Ramp	EB T	0.58	12.3	B	46	95	0.61	12.9	B	52	112	0.62	13.1	B	51	127	0.61	5.5	A	58	m64
	EB RR2	1.15	96.6	F	-534	#727	1.21	119.8	F	-584	#766	1.26	142.5	F	-632	#813	1.24	122.2	F	-640	m#715
	EB R2	0.45	12.4	B	30	m61	0.46	12.9	B	33	m65	0.47	13.2	B	33	m71	0.46	5.2	A	29	m33
	SB L2	0.64	36.7	D	215	296	0.66	37.6	D	225	308	0.66	37.6	D	225	308	0.68	39.2	D	228	313
	SB LT	1.07dl	52.0	D	336	#414	1.13dl	58.3	E	356	#442	1.13dl	58.3	E	356	#442	1.16dl	65.5	E	361	#452
Intersection	0.87	47.2	D			0.91	55.0	D			0.94	60.9	E			0.94	55.9	E			

<sup>1</sup>Delay = Average delay per vehicle (seconds) <sup>2</sup>v/c = Volume to capacity ratio <sup>3</sup>LOS = Level of Service <sup>4</sup>50<sup>th</sup> percentile queue (feet) <sup>5</sup>95<sup>th</sup> percentile queue (feet)

### 1.4.1.3 Unsignalized Intersection Capacity Analysis Results

As shown in Tables 12 and 13, the capacity analyses indicate that all movements at the unsignalized study intersections generally operate with only moderate delays (LOS C or better) during the weekday morning and weekday evening peak hours with or without the project. The exceptions are the Water Street westbound left-turn at Kilby Street which operates near capacity at LOS E operations during both peak hours and the Oliver Street northbound shared through/right-turn lane at Milk Street and Kilby Street which operates above-capacity at LOS F operations during both peak hours with or without the project.

To address existing and projected vehicle delays at this intersection, it is recommended that a new Stop sign be installed on the Milk Street eastbound approach to the Oliver Street/Milk Street/Kilby Street intersection to provide all-way stop control at the intersection. As shown in Tables 12 and 13, the implementation of all-way stop control dramatically improves the operations of the Oliver Street northbound approach. It is recommended that the Proponent work with the BTD through the TAPA process to install the additional Stop sign if desired by the BTD.

**Table 12 Unsignalized Intersection Capacity Analysis Summary – Weekday Morning Peak Hour**

Intersection	Movement	2017 Existing				2024 No-Build				2024 Build				2024 Build (Mitigated)			
		v/c <sup>1</sup>	Delay <sup>2</sup>	LOS <sup>3</sup>	95 <sup>th</sup> Q <sup>4</sup>	v/c	Delay	LOS	95 <sup>th</sup> Q	v/c	Delay	LOS	95 <sup>th</sup> Q	v/c	Delay	LOS	95 <sup>th</sup> Q
Congress Street & POSG Drive IN	SB L	0.10	3.8	A	8	0.10	3.8	A	8	0.10	3.8	A	8	--	--	--	--
Congress Street & POSG Drive OUT	WB L	0.01	9.0	A	0	0.01	9.0	A	0	0.01	9.0	A	0	--	--	--	--
Pearl Street & Site Driveway	NB T	0.11	0	A	0	0.12	0	A	0	-	-	-	-	-	-	-	-
	NB TR	0.07	0	A	0	0.08	0	A	0	-	-	-	-	-	-	-	-
Pearl Street & POSG Drive OUT	EB L	0.01	9.3	A	0	0.01	9.3	A	0	0.01	9.3	A	0	--	--	--	--
Pearl Street & POSG Drive IN	NB L	0.14	5.6	A	12	0.14	5.6	A	12	0.14	5.7	A	12	--	--	--	--
Water Street & Kilby Street	EB LTR	0.24	15.8	C	23	0.25	15.9	C	24	0.26	16.0	C	25	--	--	--	--
	WB L	0.19	42.8	E	16	0.20	44.2	E	18	0.23	46.5	E	21	--	--	--	--
Milk Street & Kilby St. SB	SB L	0.07	10.9	B	6	0.08	10.9	B	6	0.09	11.3	B	8	--	--	--	--
Oliver Street/Kilby Street NB <sup>5</sup>	EB L	0.05	1.7	A	4	0.05	1.7	A	4	0.05	1.6	A	4	--	13.2	B	--
	NB TR	2.37	704.7	F	589	2.63	819.4	F	668	2.72	862.0	F	676	--	10.7	B	--
Oliver Street & Site Driveway	EB LR	0.04	14.6	B	3	0.04	14.8	B	3	0.04	16.1	C	3	--	--	--	--
	NB L	0.04	1.5	A	3	0.04	1.4	A	3	0.09	3.0	A	8	--	--	--	--
Oliver Street & Franklin Street	WB TR	--	10.3	B	--	--	10.4	B	--	--	10.7	B	--	--	--	--	--
	NB L	--	10.8	B	--	--	10.9	B	--	--	11.2	B	--	--	--	--	--
	NB T	--	9.8	A	--	--	10.3	B	--	--	11.5	B	--	--	--	--	--
	SB R	--	8.1	A	--	--	8.2	A	--	--	8.3	A	--	--	--	--	--
Site Driveway & Garage Drive	EB L	0.02	5.3	A	1	0.02	5.3	A	1	-	-	-	-	-	-	-	-
	SB L	0.01	11.1	B	1	0.01	11.1	B	1	-	-	-	-	-	-	-	-

<sup>1</sup>Delay = Average delay per vehicle (seconds) <sup>2</sup>v/c = Volume to capacity ratio <sup>3</sup>LOS = Level of Service <sup>4</sup>95<sup>th</sup> percentile queue (feet) <sup>5</sup>HCM 2010 results reported for the Build (Mitigated) condition since HCM 2000 does not provide methodology for 95<sup>th</sup> percentile queues for all-way stop intersections

<sup>6</sup>To be eliminated as part of the proposed project.



**Table 13 Unsignalized Intersection Capacity Analysis Summary – Weekday Evening Peak Hour**

Intersection	Movement	2017 Existing				2024 No-Build				2024 Build				2024 Build (Mitigated)			
		v/c <sup>1</sup>	Delay <sup>2</sup>	LOS <sup>3</sup>	95 <sup>th</sup> Q <sup>5</sup>	v/c	Delay	LOS	95 <sup>th</sup> Q	v/c	Delay	LOS	95 <sup>th</sup> Q	v/c	Delay	LOS	95 <sup>th</sup> Q
Congress Street & POSG Drive IN	SB L	0.03	1.5	A	2	0.03	1.5	A	2	0.03	1.5	A	2	--	--	--	--
Congress Street & POSG Drive OUT	WB L	0.30	13.4	B	31	0.31	13.7	B	33	0.31	13.7	B	33	--	--	--	--
Pearl Street & Site Driveway	NB T	0.12	0	A	0	0.13	0	A	0	-	-	-	-	-	-	-	-
	NB TR	0.06	0	A	0	0.07	0	A	0	-	-	-	-	-	-	-	-
Pearl Street & POSG Drive OUT	EB L	0.16	10.1	B	14	0.20	11.4	B	18	0.20	11.4	B	18	--	--	--	--
Pearl Street & POSG Drive IN	NB L	0.04	2.8	A	3	0.04	2.7	A	3	0.04	2.8	A	3	--	--	--	--
Water Street & Kilby Street	EB LTR	0.35	17.6	C	38	0.37	18.2	C	42	0.38	18.8	C	43	--	--	--	--
	WB L	0.09	43.0	E	7	0.09	45.3	E	7	0.10	47.3	E	8	--	--	--	--
Milk Street & Kilby St. SB	SB L	0.08	11.6	B	6	0.09	11.7	B	7	0.09	11.7	B	7	--	--	--	--
Oliver Street/Kilby Street NB	EB L	0.05	1.8	A	4	0.05	1.8	A	4	0.05	1.8	A	4	--	13.8	B	--
	NB TR	2.03	538.6	F	586	2.66	826.8	F	727	2.94	951.3	F	824	--	12.0	B	--
Oliver Street & Site Driveway	EB LR	0.20	16.0	C	18	0.20	16.2	C	18	0.39	20.0	C	46	--	--	--	--
	NB L	0.01	0.4	A	1	0.01	0.4	A	1	0.02	0.8	A	2	--	--	--	--
Oliver Street & Franklin Street	WB TR	--	10.1	B	--	--	10.3	B	--	--	10.6	B	--	--	--	--	--
	NB L	--	9.2	A	--	--	9.3	A	--	--	9.4	A	--	--	--	--	--
	NB T	--	9.8	A	--	--	10.3	B	--	--	10.7	B	--	--	--	--	--
	SB R	--	8.3	A	--	--	8.4	A	--	--	8.9	A	--	--	--	--	--
Site Driveway & Garage Drive <sup>6</sup>	EB L	0.00	7.9	A	0	0.00	8.0	A	0	-	-	-	-	-	-	-	-
	SB L	0.12	10.6	B	10	0.12	10.8	B	10	-	-	-	-	-	-	-	-

<sup>1</sup>Delay = Average delay per vehicle (seconds) <sup>2</sup>v/c = Volume to capacity ratio <sup>3</sup>LOS = Level of Service <sup>4</sup>95<sup>th</sup> percentile queue (feet) <sup>5</sup>HCM 2010 results reported for the Build (Mitigated) condition since HCM 2000 does not provide methodology for 95<sup>th</sup> percentile queues for all-way stop intersections

<sup>6</sup>To be eliminated as part of the proposed project.

## 1.4.2 Parking Analysis

As part of the project, the existing (traditional, self-park) site parking garage will be replaced with a fully-automated parking system. Parking demand data provided by the site's parking garage management company for a one-week period in March/April 2017 indicates that the peak parking demand falls well below the existing parking supply of 371 spaces. As a result, the parking supply is proposed to be reduced from 371 spaces to 280-300 spaces. The parking demand data is provided in the Appendix.

Four elevators (or lifts) are proposed that will be accessed by the existing site driveway along Oliver Street. Motorists will drive their vehicles into the lifts, turn off their vehicles and exit to the sidewalk along Oliver Street or into the OPOS building by a pedestrian access within the parking garage. The lifts will then transport the vehicles to empty stalls and retrieve them upon electronic requests by the motorists.

This automated system will increase the parking efficiency by allowing more vehicles parked per square foot and will eliminate emissions caused by vehicles circulating the parking garage since the vehicles are turned off while they are mechanically transported to the parking storage area. The site's parking garage will remain as a public garage, but will continue to primarily serve the site's tenants. Parking fees will continue to be charged to encourage employees and visitors to take public transportation, walk or bicycle to the site.

## 1.4.3 Public Transportation Analysis

The project site is expected to add approximately 1,506 transit trips per day, with 253 new trips (223 entering and 30 exiting) during the weekday morning commuter peak hour and 292 new trips (49 entering and 243 exiting) during the weekday evening commuter peak hour. As described under *Section 1.2.5 Public Transportation*, ample capacity is available on the existing MBTA bus and subway service lines to accommodate the peak hour traffic. The project's downtown location benefits from access to a significant number of transit services thereby reducing the project's impacts to any one bus route, station or rapid transit line.

## 1.4.4 Pedestrian and Bicycle Impact Analysis

In order to ensure that the proposed project does not impact the quality of existing pedestrian accommodations in the vicinity of the project site, the projected pedestrian and bicycle trips generated by the project were estimated as shown in Table 7. The project is expected to generate an additional 59 trips (52 entering and 7 exiting) during the weekday morning peak hour and 69 trips (12 entering and 57 exiting) during the weekday evening peak hour. This amounts to approximately 1 additional pedestrian or bicycle trip per minute in the study, an amount that is imperceptible to the average pedestrian or bicyclist. Additionally, given the extensive network of pedestrian and bicycle accommodations currently provided in the study area, it is expected that the pedestrian and bicycle trips will be distributed among a variety of different travel routes, reducing the project's impact to any single sidewalk or bicycle route.

Currently, several bicycle racks are provided throughout the existing parking garage. The existing bicycle storage will be removed with the implementation of the fully-automated parking system proposed for the site. It is recommended that a bike repair room with fix-it station continue to be offered as part of the proposed project and that bicycle storage be provided in accordance with BTZ zoning guidelines subject to the TAPA process.

## 1.4.5 Future Loading and Service Conditions

The site currently shares service and loading facilities with the adjacent Langham Hotel. Ten loading/delivery bays are provided – two for the Langham Hotel and eight for OPOS. This loading and service area is located beneath the Langham Hotel, with an access ramp located immediately south of the existing site driveway on Oliver Street. Access to the loading and service area is restricted to delivery and service vehicles only and is controlled by a security team. The existing loading and service accommodations will remain.

## 1.5 MITIGATION

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### 1.5.1 Project Site Access

The site access will be modified to accommodate the proposed expansion and renovation project. The existing enter-only driveway and breezeway connecting Pearl Street and Oliver Street to the site parking garage are proposed to be eliminated to accommodate proposed commercial space. The Langham Hotel currently has a curbside pick-up/drop-off area along Franklin Street in front of the hotel lobby that is not impacted by the proposed project.

The proposed closure of the existing site driveway along Pearl Street will provide the potential for additional on-site amenities which may include:

- Installation of a second Hubway station
- Additional on-street parking

It is recommended that the Proponent work with the BTM to identify the best use of the additional curb space created by the closure.

### 1.5.2 Intersection Operations

As described in Section 1.4.1.2, congestion observed along Congress Street (independent of the project) could benefit from signal timing optimization. The BTM routinely conducts maintenance of their traffic signals to improve intersection and corridor operations. Additionally, as described in Section 1.4.1.3, the capacity analyses indicate potentially significant delays at the unsignalized Oliver Street/Kilby Street/Milk Street intersection with or without the project. The capacity analysis indicates that this intersection may benefit from implementation of Stop-sign control along the Milk Street eastbound approach to Oliver Street (currently, this approach operates freely). It is recommended that the Proponent work with the BTM during the TAPA process to implement signal timing optimization at the study area intersections and review the feasibility of implementing additional Stop-sign control at the Oliver Street/Kilby Street/Milk Street intersections to enhance future traffic operations at the study area intersections.

### 1.5.3 Transportation Demand Management (TDM) Program

The project proponent will implement a Transportation Demand Management (TDM) program to be formalized during the TAPA process with BTM to reduce automobile travel and traffic impacts associated with the proposed project. Many of these TDM measures, listed below, have already been implemented at the existing site use and will be expanded to include the proposed project.

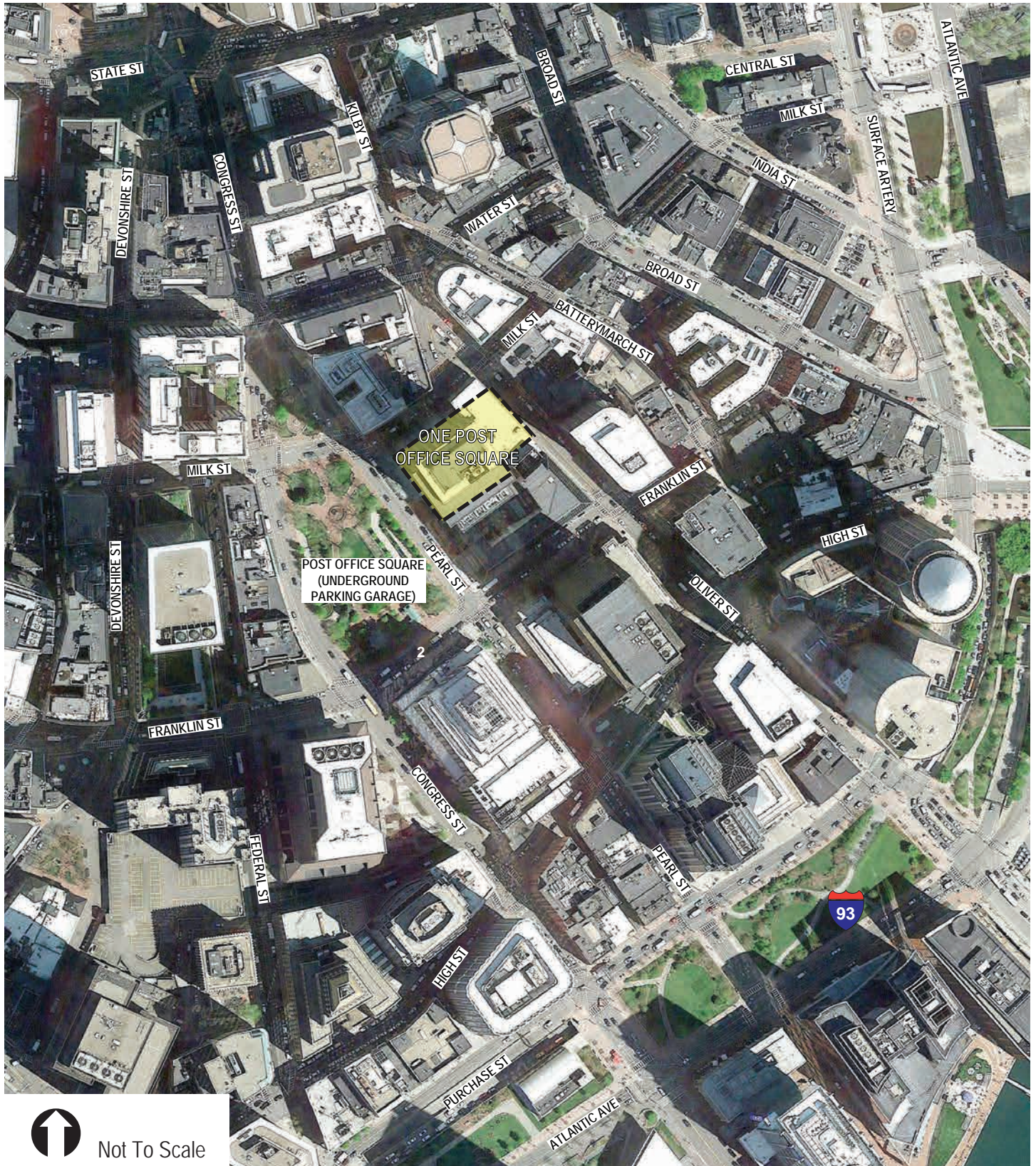
- **TMA Membership:** Through current membership in the local transportation management association (TMA), A Better City (ABC) TMA, employees of the building's tenants access to benefits including the following services:
  - Emergency ride home program
  - Assistance with ridesharing
  - Promotional events on-site several times a year to advertise ABC TMA services

- Non-auto incentives (i.e., raffle prizes) for walking and transit and bicycle use
  - Subsidies for carpooling/vanpooling
  - Commuter surveys
  - ABC TMA operates a website with information on the services they provide
- **Bicycle Storage:** The site currently provides a number of bicycle racks throughout the existing parking garage. As currently proposed, new indoor bicycle storage and showering facilities will be provided on the ground floor of the new automated parking garage.
  - **Bicycle Repair:** The site currently provides a bicycle repair room with a bike fix-it station. It is recommended that this room continue to be provided under the proposed site plan.
  - **Electric Vehicle Charging Stations:** The site currently provides several electric vehicle charging stations in the parking garage. It is recommended that this amenity continue to be provided as part of the proposed fully-automated parking system.
  - **Market Rate Parking:** Monthly and daily parking fees will continue to be set at market rates to prevent a subsidy from encouraging a higher level of auto usage among employees.
  - **On-Site Amenities:** The site will continue to provide on-site amenities that will encourage employees and visitors to reduce the number of trips they make to and from the site including a cafeteria. Additionally, the first floor retail includes numerous ATMs and a barber shop.

#### 1.5.4 Construction Management Plan (CMP)

A Construction Management Plan (CMP) will be submitted to the BTM in accordance with the City's requirements. This document will detail construction-time traffic needs to ensure the safety of all users (vehicles, pedestrians and bicyclists) including any necessary detours, lane and/or roadway closures and parking restrictions.





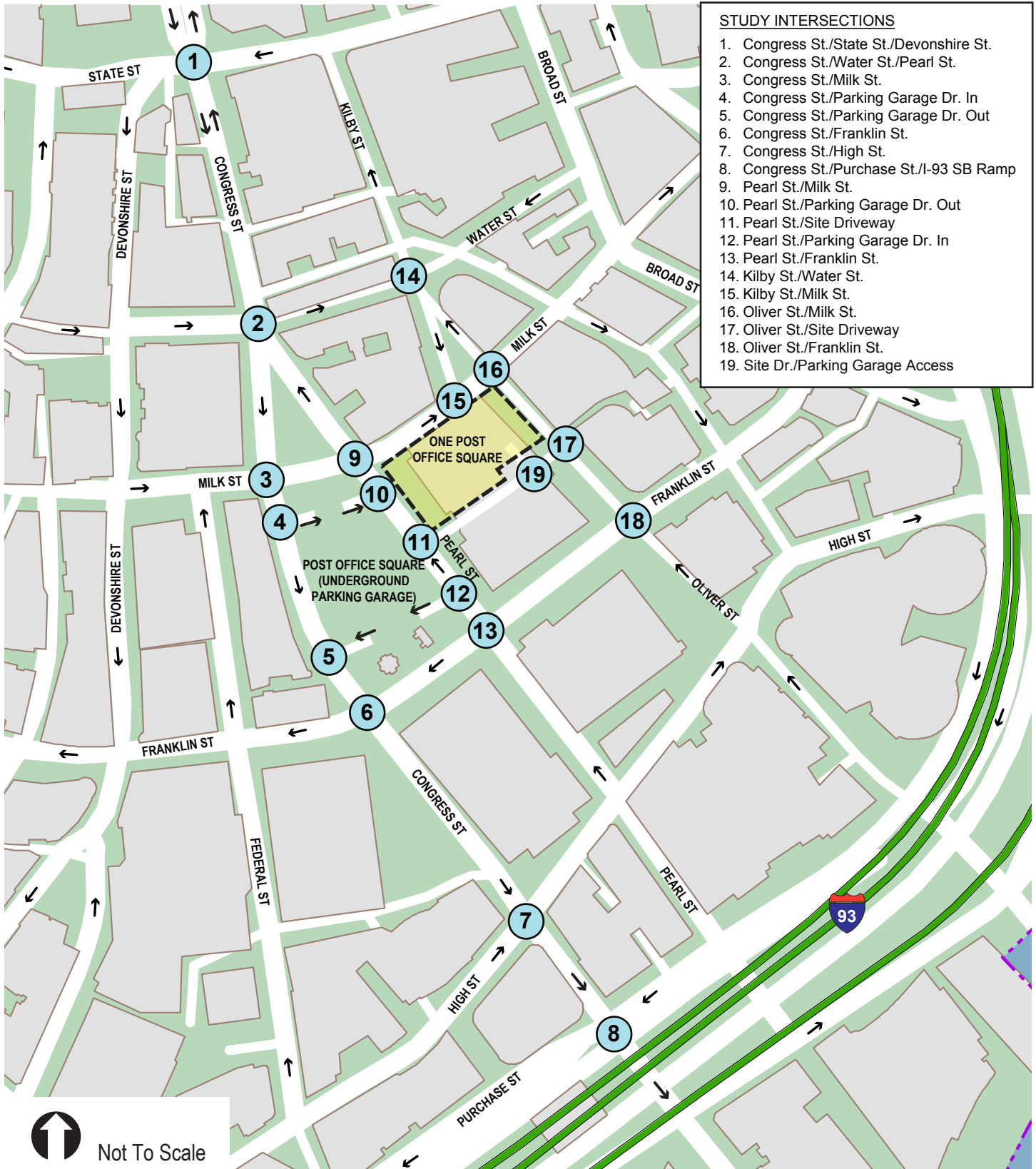
One Post Office Square  
Boston, Massachusetts

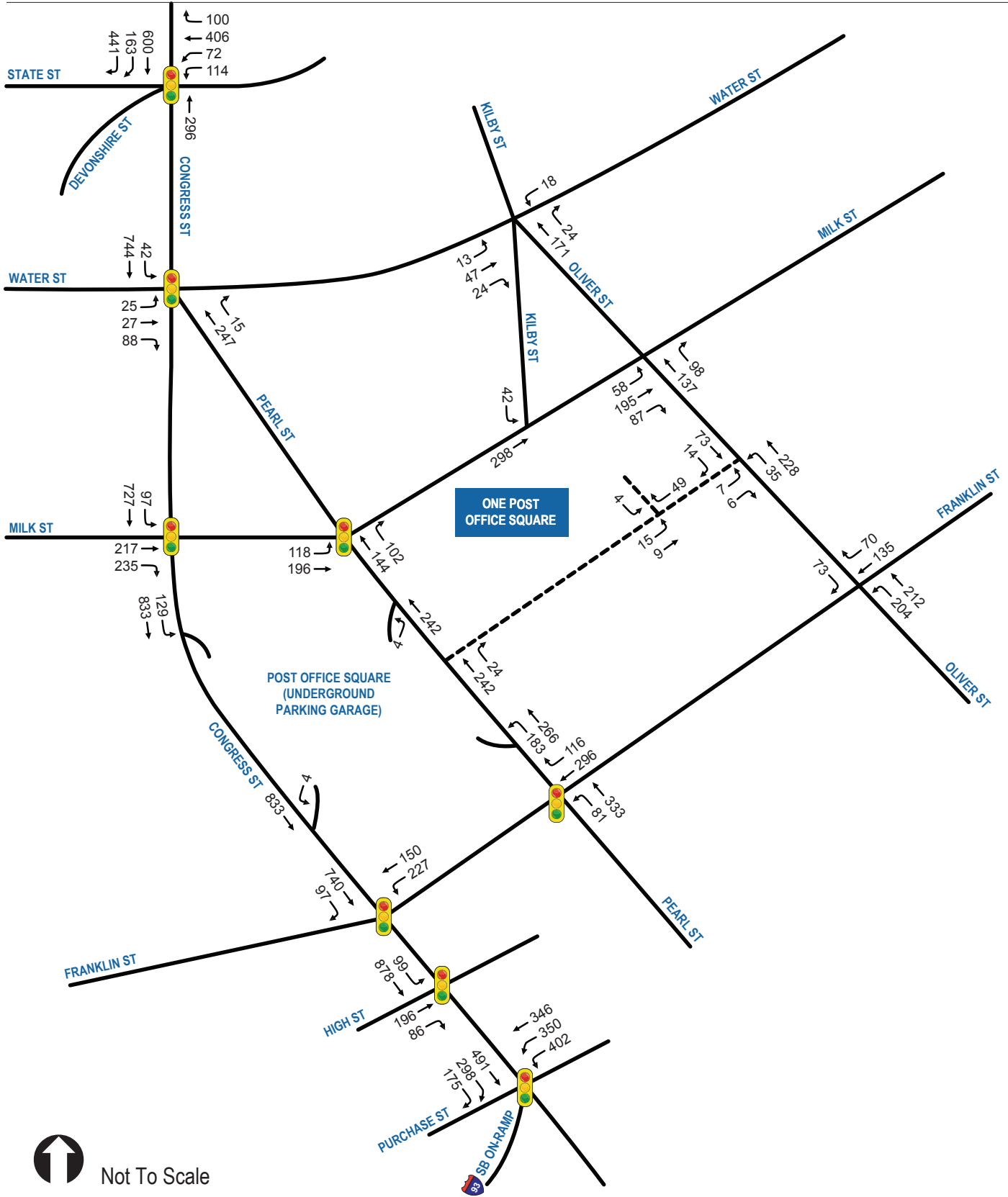


100 Nickerson Road  
Marlborough, MA 01752  
508.786.2200  
www.tetrattech.com

Site Location Map








 Not To Scale



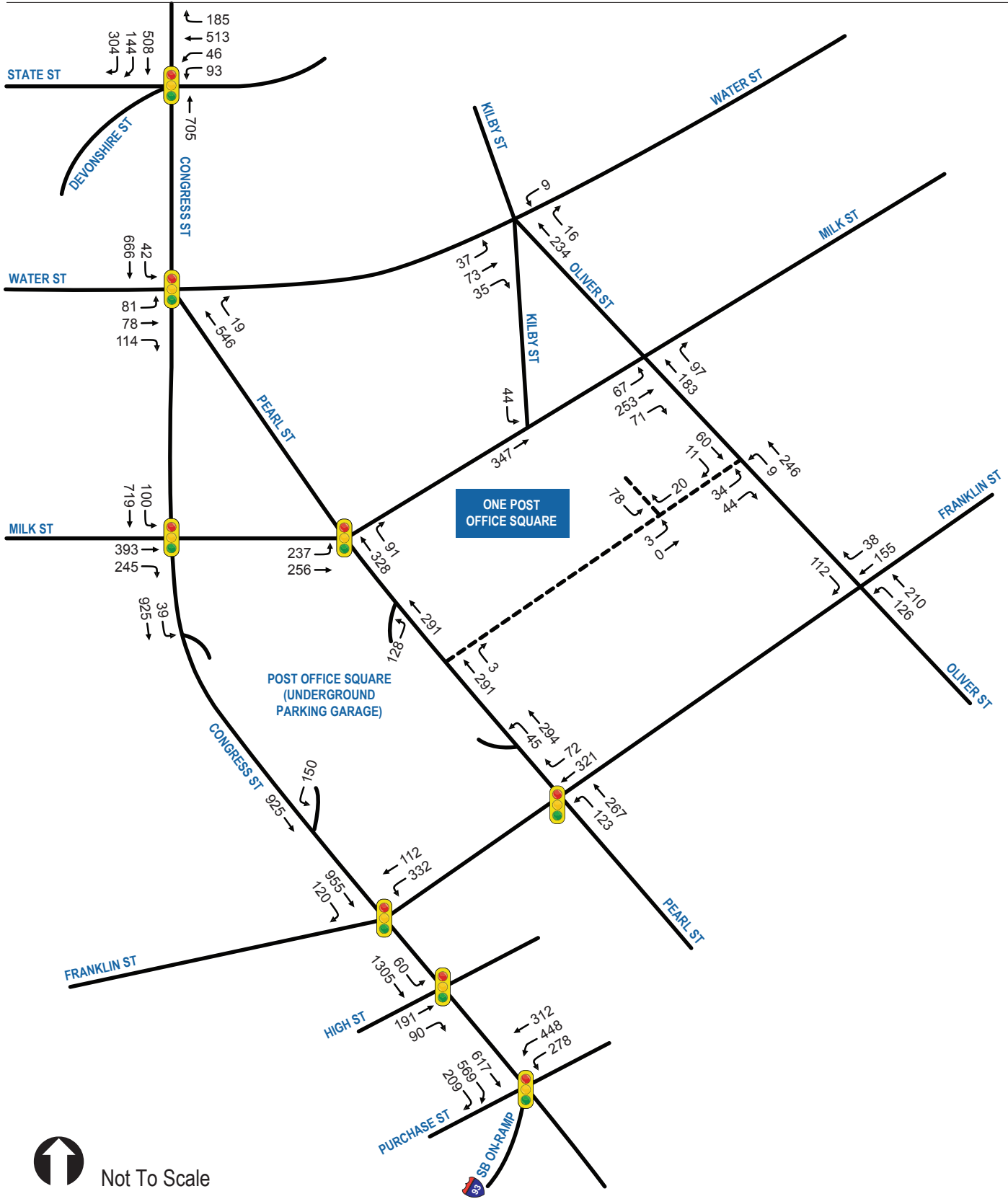
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**LEGEND**


 Existing Traffic Signal

One Post Office Square  
Boston, Massachusetts

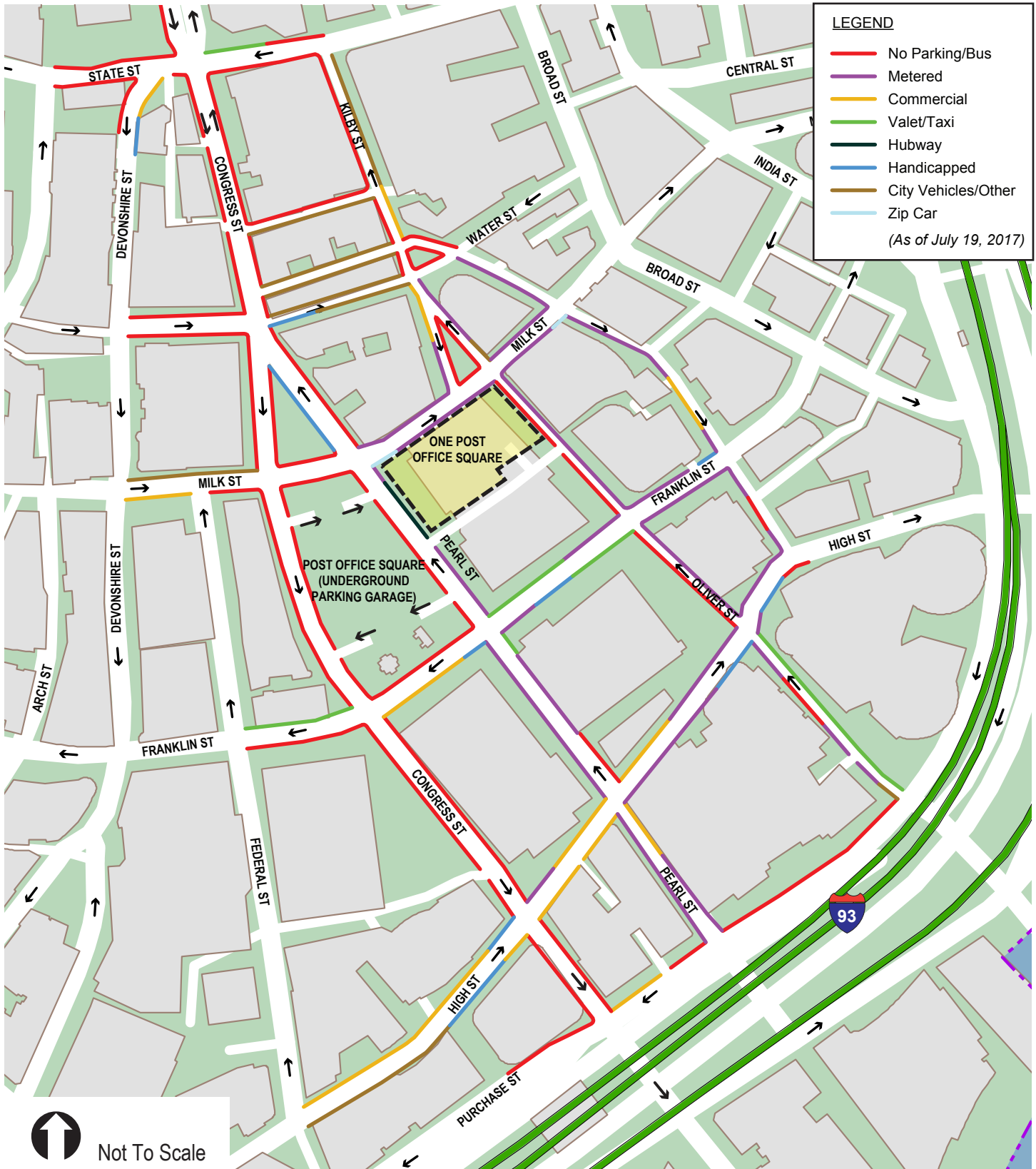
2017 Existing  
Weekday AM Peak Hour  
Traffic Volumes



**LEGEND**

 Existing Traffic Signal

One Post Office Square  
 Boston, Massachusetts  
 2017 Existing  
 Weekday PM Peak Hour  
 Traffic Volumes

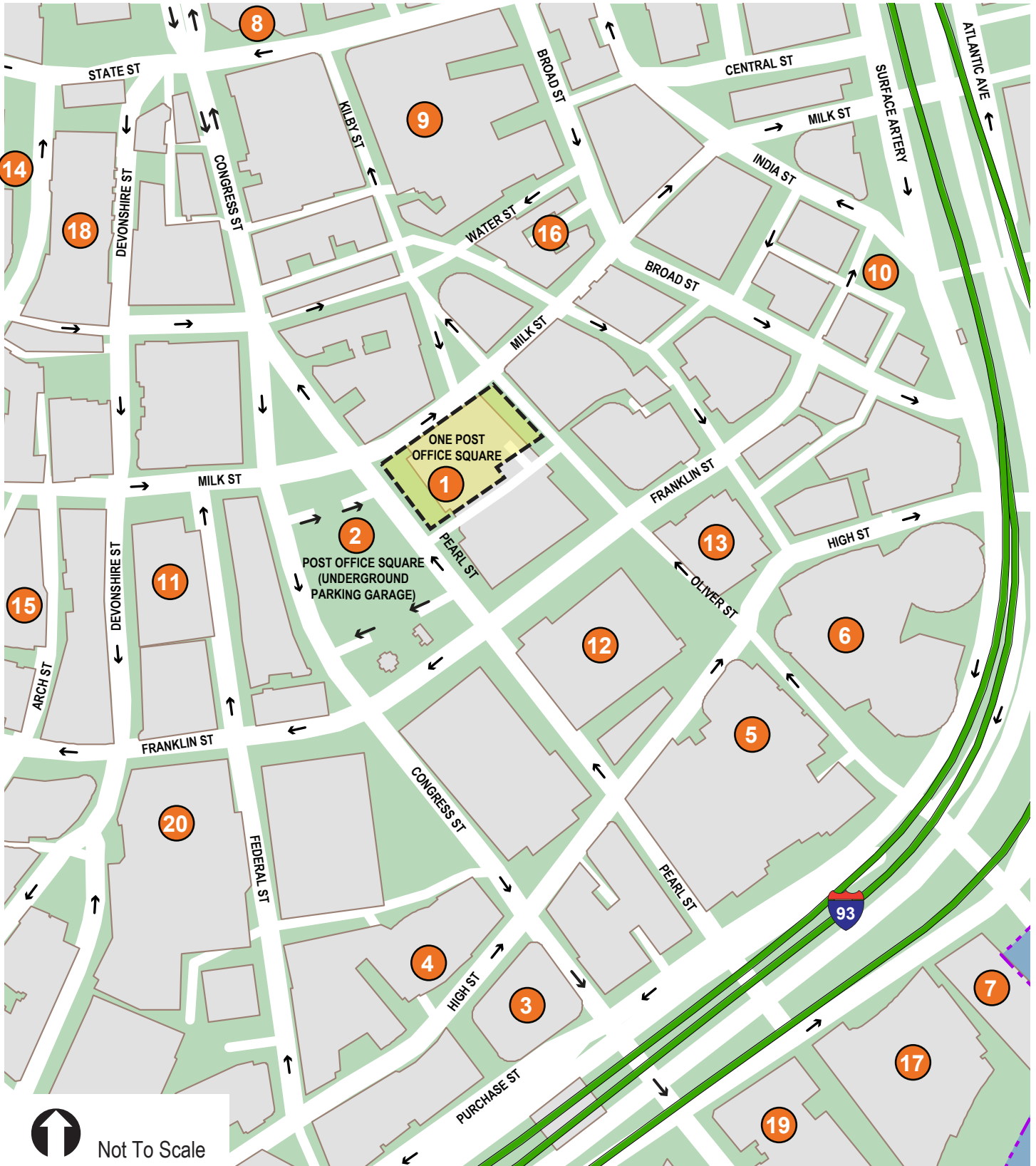


One Post Office Square  
Boston, Massachusetts



100 Nickerson Road  
Marlborough, MA 01752  
508.786.2200  
www.tetratech.com

On-Street Parking



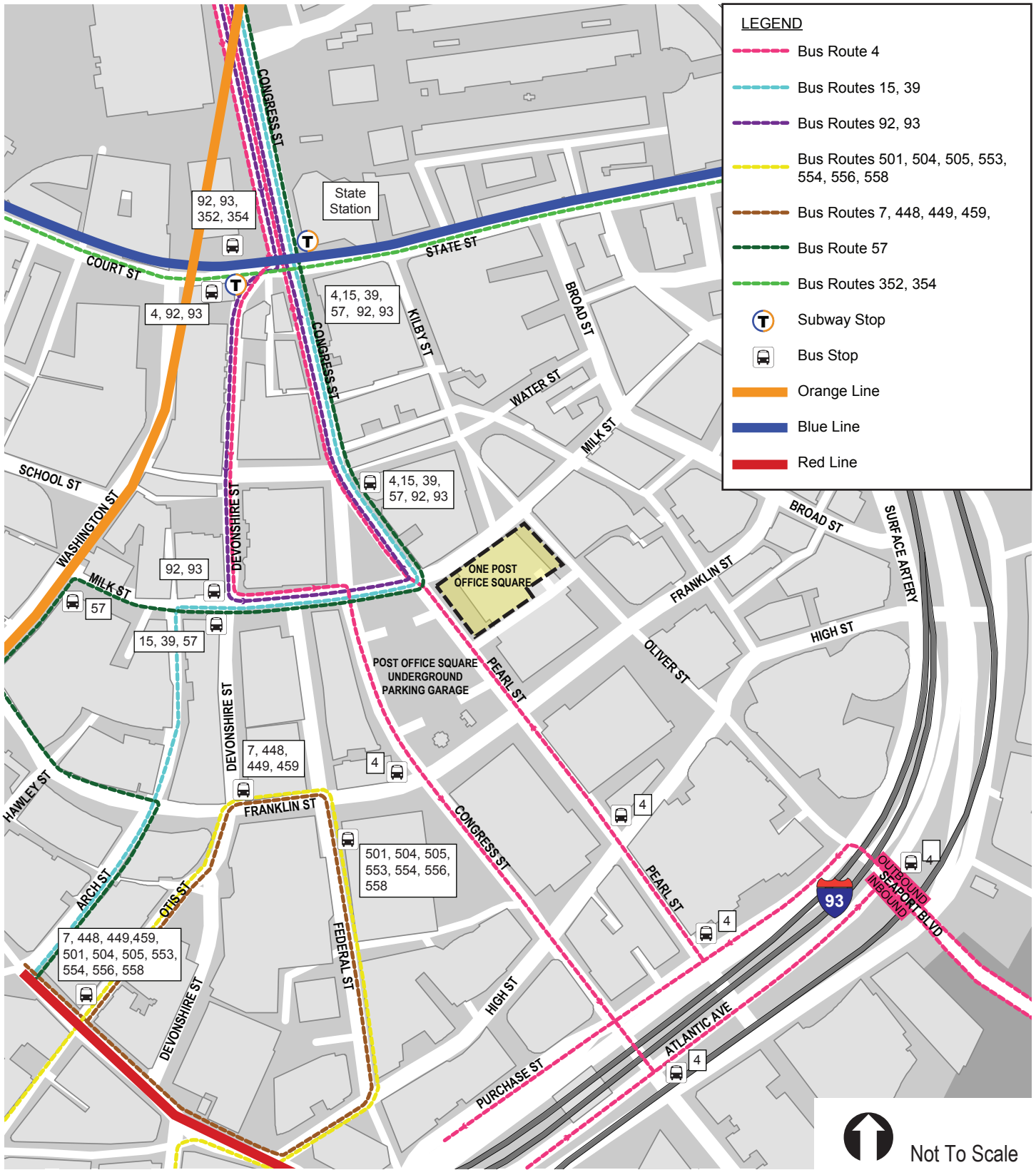
One Post Office Square  
Boston, Massachusetts



100 Nickerson Road  
Marlborough, MA 01752  
508.786.2200  
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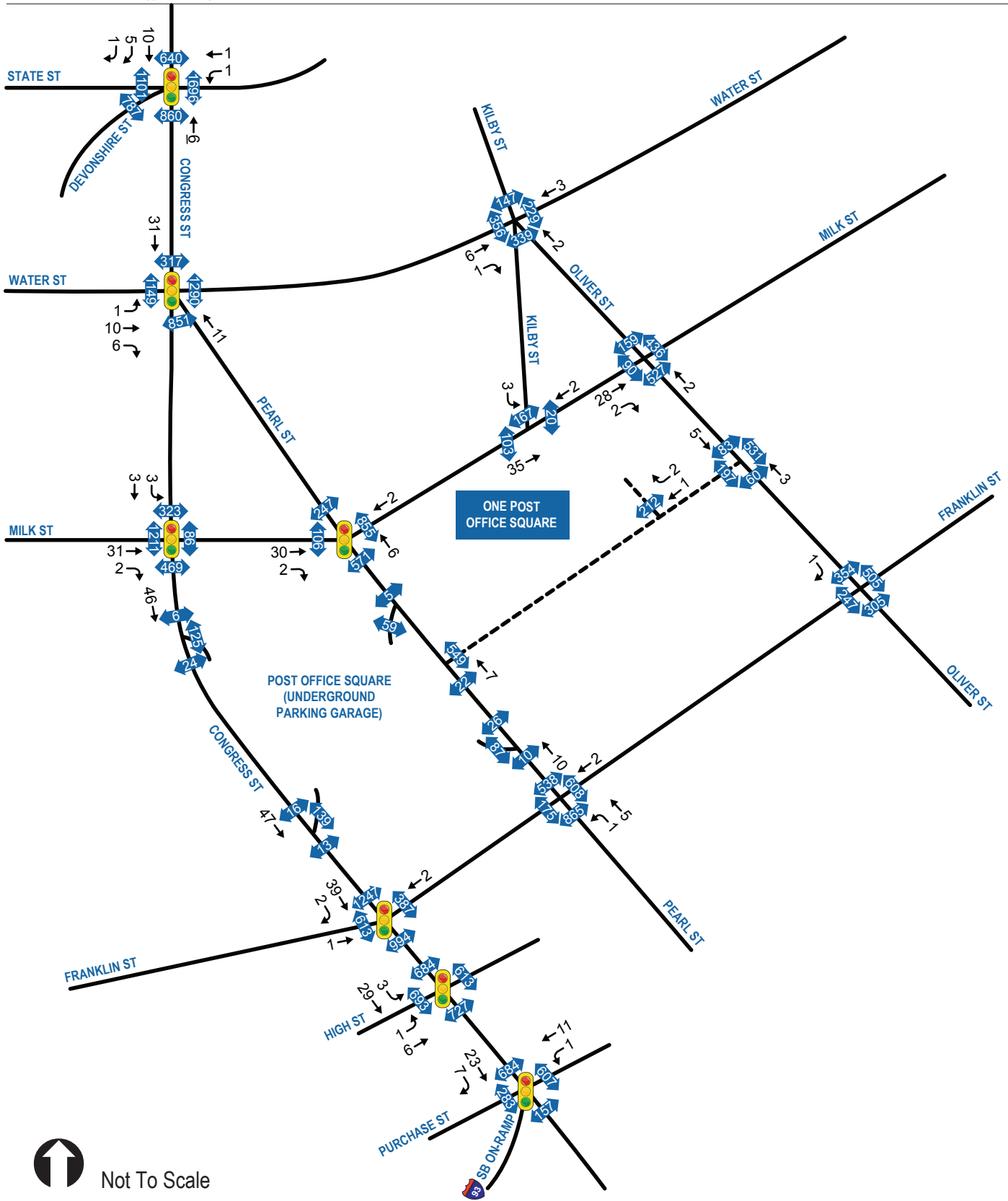
## Off-Street Parking





100 Nickerson Road  
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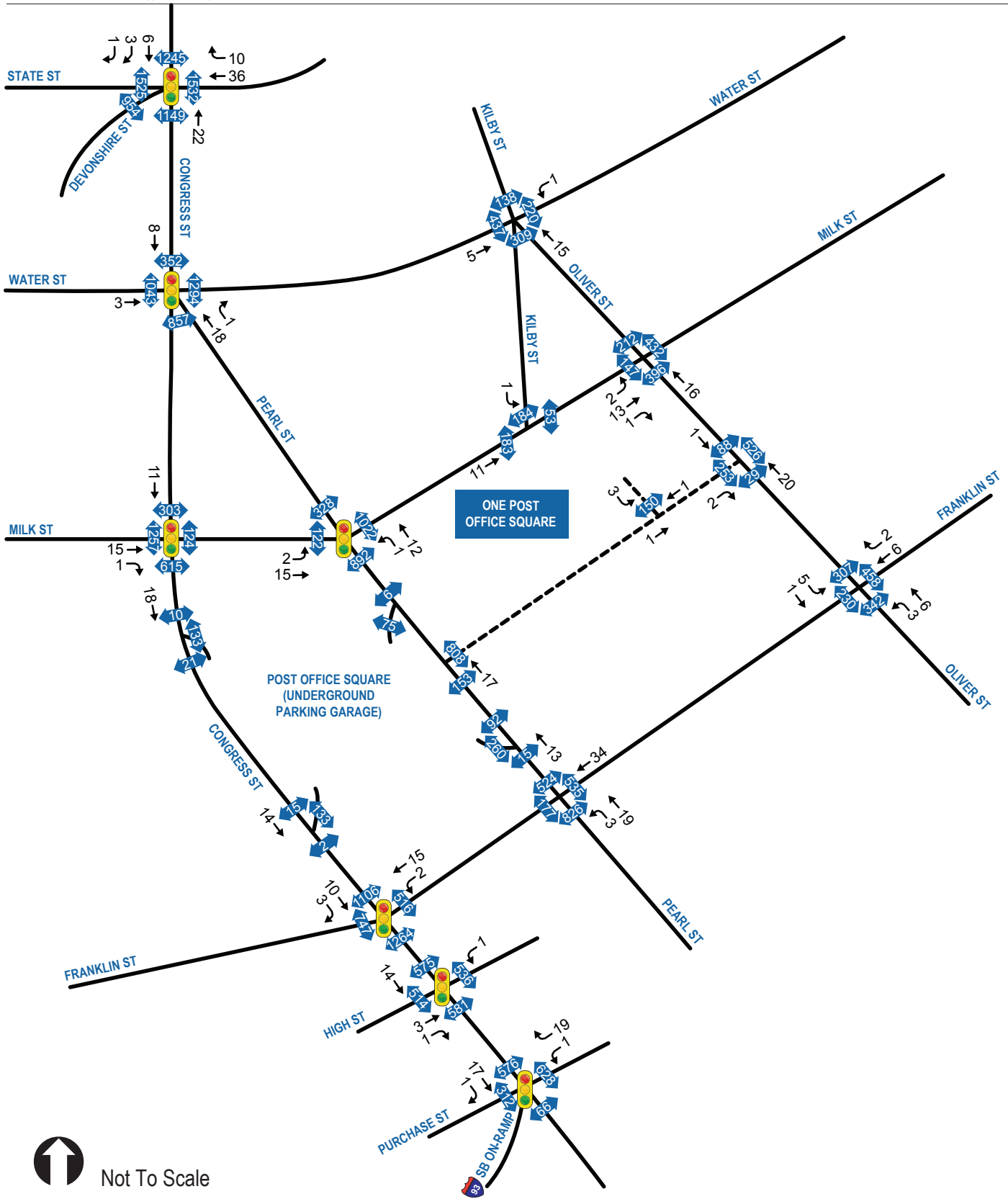
One Post Office Square  
 Boston, Massachusetts



LEGEND	
	Pedestrian Volumes
	Bicycle Volumes

One Post Office Square  
 Boston, Massachusetts

2017 Existing Weekday AM  
 Peak Hour Bicycle &  
 Pedestrian Volumes



LEGEND	
	Pedestrian Volumes
	Bicycle Volumes

One Post Office Square  
 Boston, Massachusetts

2017 Existing Weekday PM  
 Peak Hour Bicycle &  
 Pedestrian Volumes



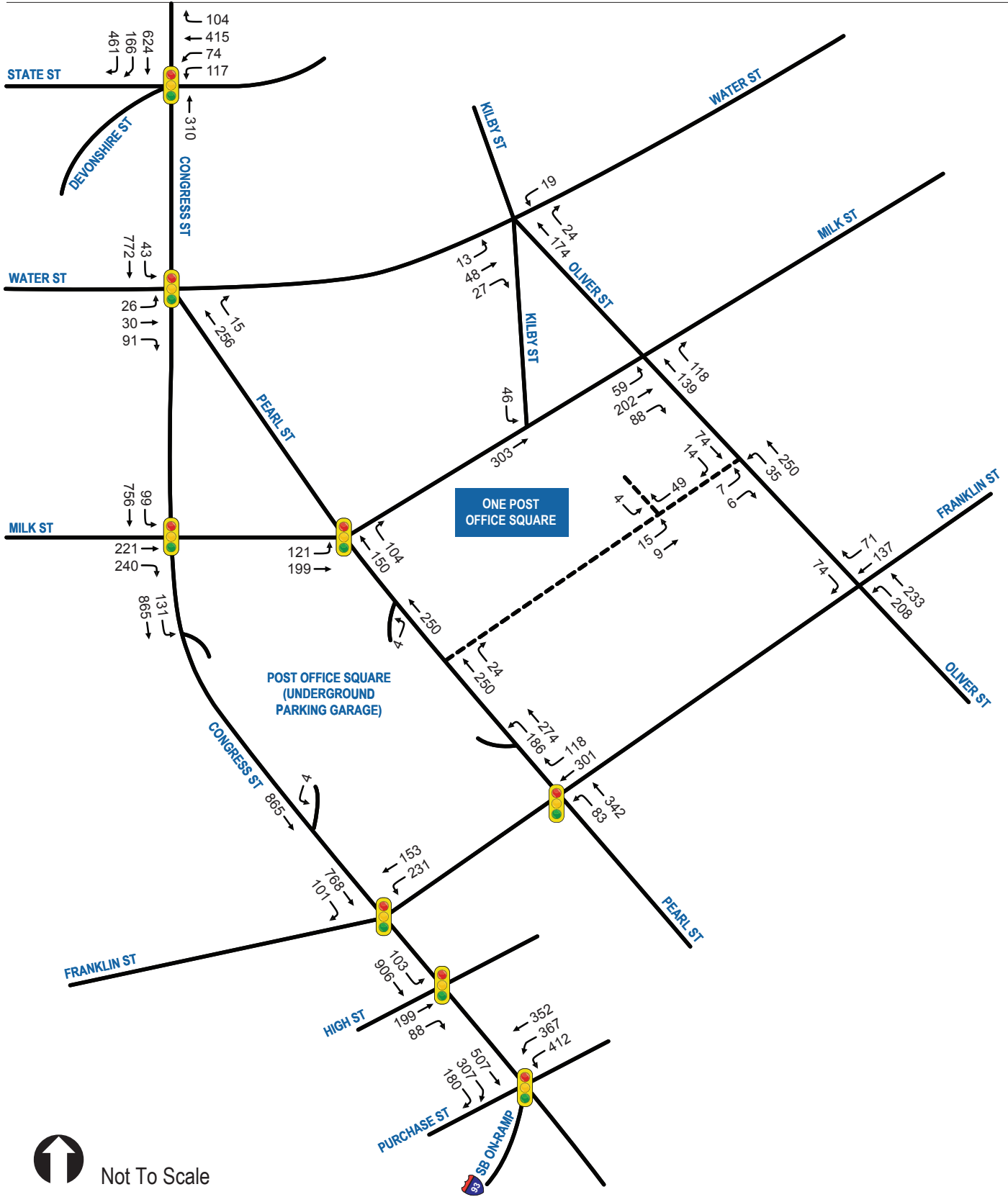
**Tt TETRATECH**  
 100 Nickerson Road  
 Marlborough, MA 01752  
 508.786.2200  
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LEGEND	
	Zipcar Locations and Maximum Supply
	Hubway Locations and Maximum Supply (As of July 19, 2017)

One Post Office Square  
 Boston, Massachusetts

Bicycle & Car  
 Sharing Locations

Figure  
**10**




 Not To Scale



100 Nickerson Road  
Marlborough, MA 01752  
508.786.2200  
www.tetratech.com

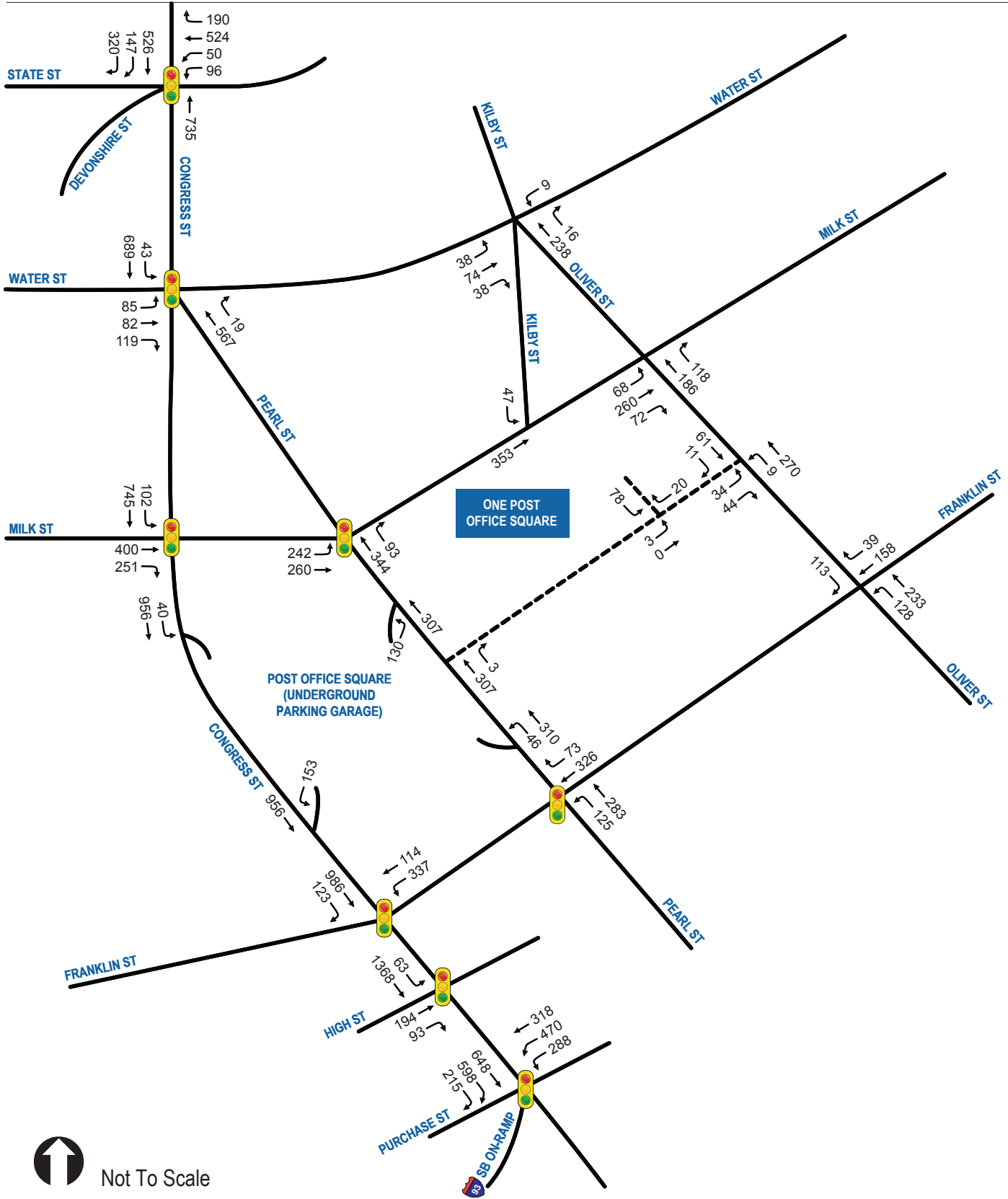
**LEGEND**


 Existing Traffic Signal

One Post Office Square  
Boston, Massachusetts

# 2024 No-Build Weekday AM Peak Hour Traffic Volumes

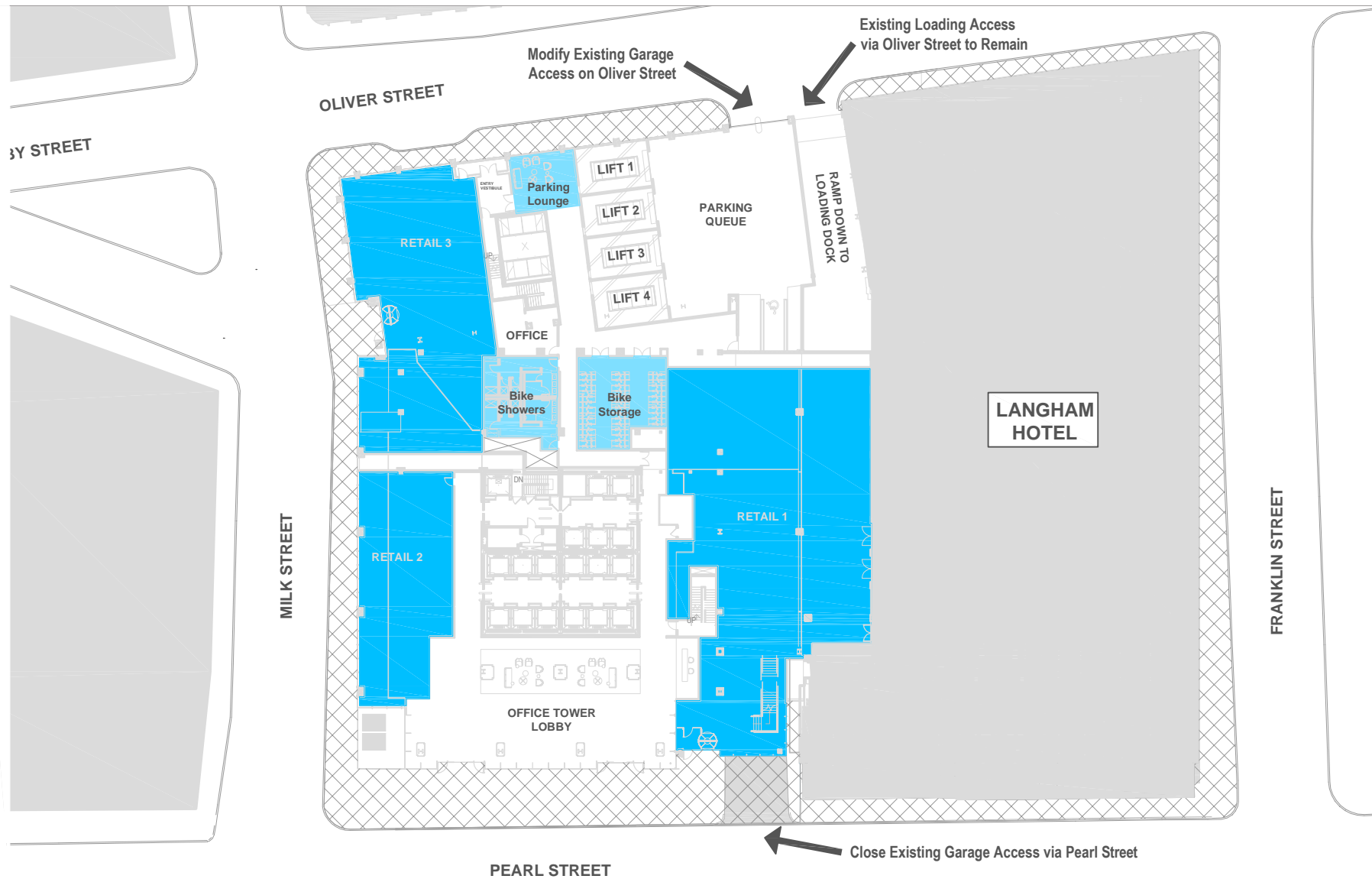




LEGEND	
	Existing Traffic Signal

One Post Office Square  
 Boston, Massachusetts

2024 No-Build  
 Weekday PM Peak Hour  
 Traffic Volumes



100 Nickerson Road  
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One Post Office Square  
 Boston, Massachusetts

Site Access Plan

Figure  
 13



One Post Office Square  
Boston, Massachusetts



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508.786.2200  
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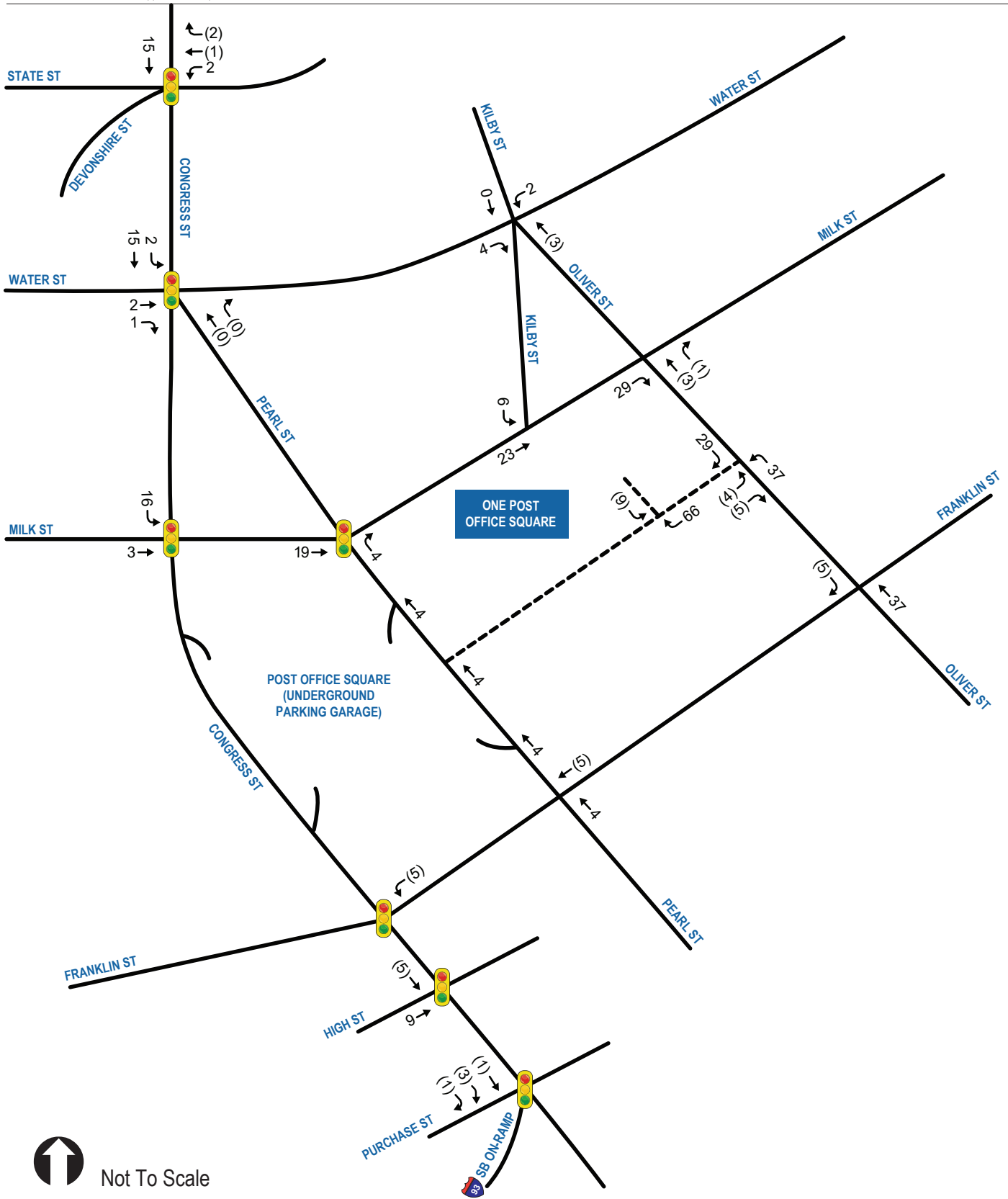
## Vehicle Trip Inbound Distribution



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One Post Office Square  
 Boston, Massachusetts

## Vehicle Trip Outbound Distribution




 Not To Scale



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508.786.2200  
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**LEGEND**

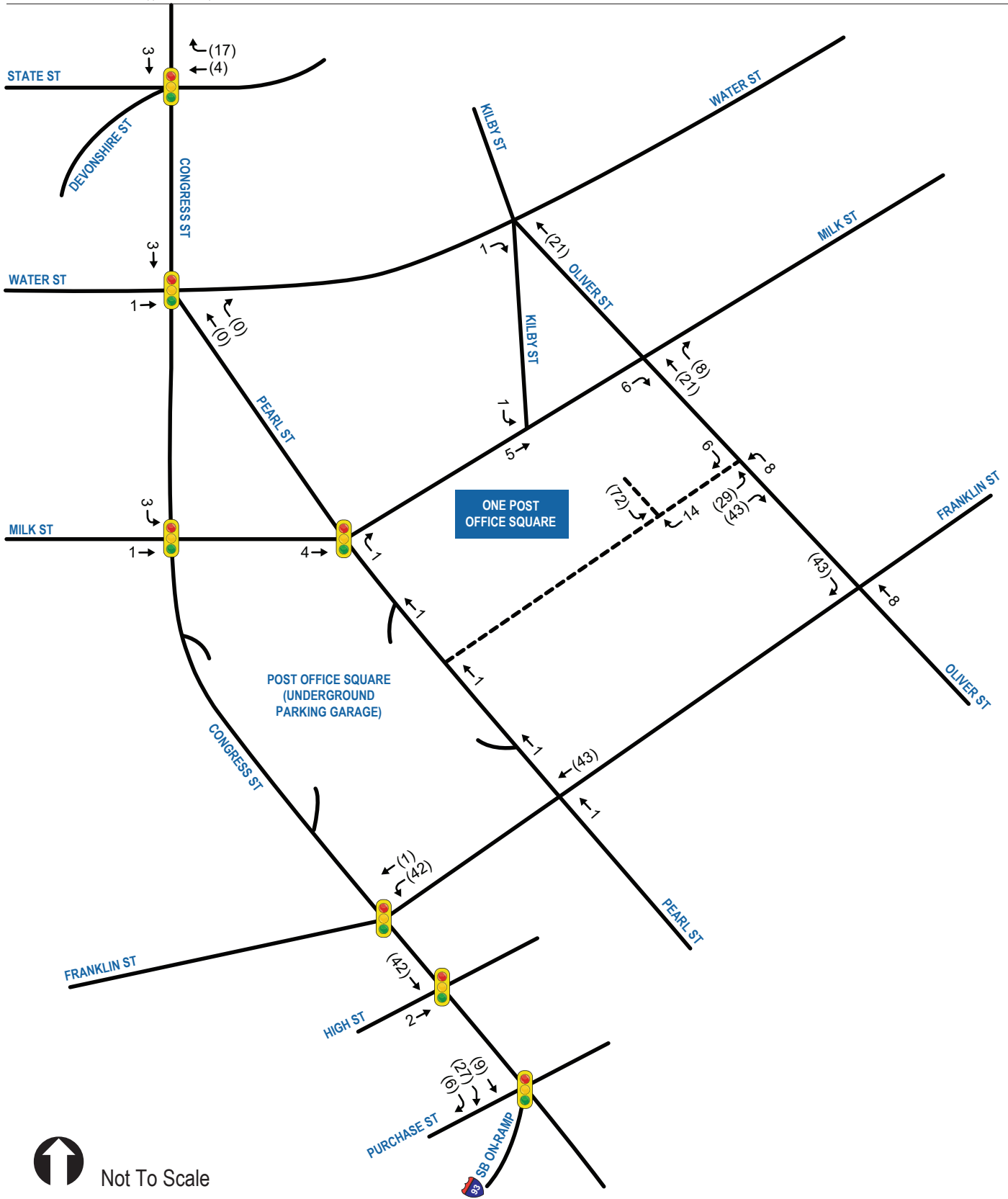
-  Existing Traffic Signal
- # Entering Trips
- (#) Exiting Trips

One Post Office Square  
Boston, Massachusetts

New Project Vehicle Trips  
Weekday AM Peak Hour

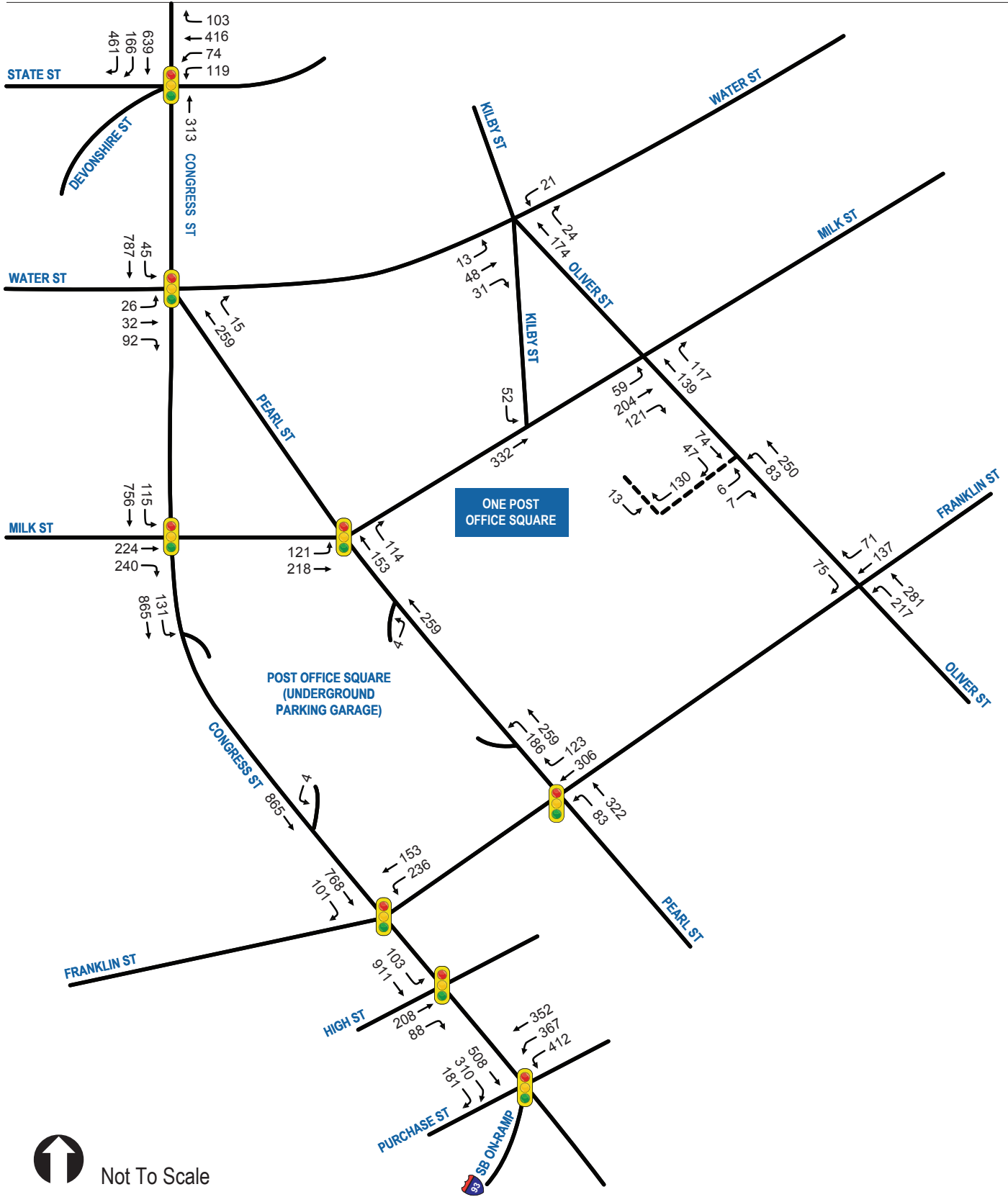
Figure  
**16**





One Post Office Square  
Boston, Massachusetts

## New Project Vehicle Trips Weekday PM Peak Hour




Not To Scale



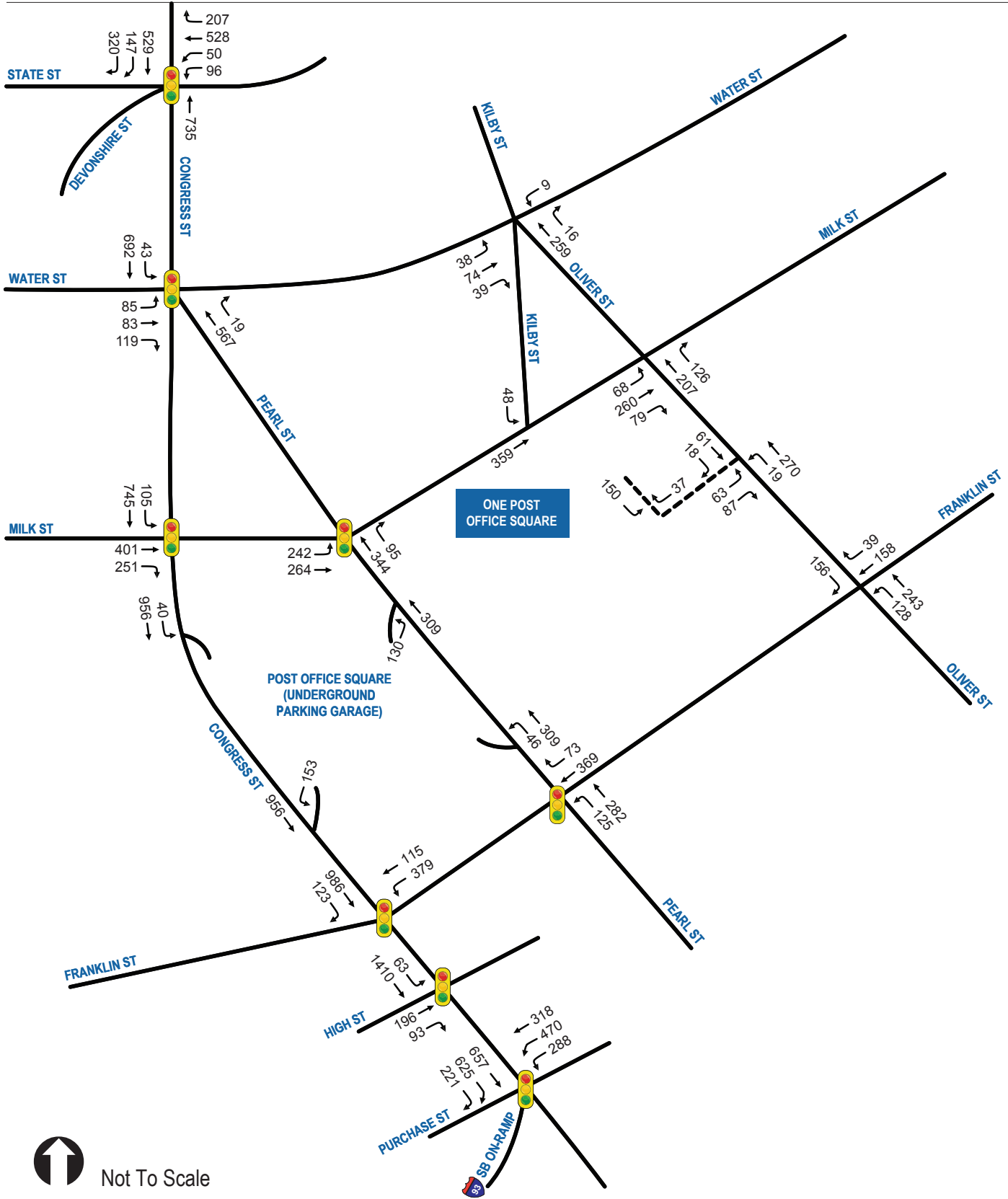
100 Nickerson Road  
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**LEGEND**

 Existing Traffic Signal

One Post Office Square  
Boston, Massachusetts

2024 Build  
Weekday AM Peak Hour  
Traffic Volumes




 Not To Scale



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**LEGEND**

 Existing Traffic Signal

One Post Office Square  
Boston, Massachusetts

2024 Build  
Weekday PM Peak Hour  
Traffic Volumes

*Appendix F*

# Solar Study

# DRAFT FINAL REPORT

# ONE POST OFFICE SQUARE



## DETAILED SOLAR REFLECTION ANALYSIS

PROJECT #: 1701641

JULY 20, 2017

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# EXECUTIVE SUMMARY



RWDI was retained to investigate the impact that solar reflections emanating from the proposed One Post Office Square renovation will have on the surrounding urban realm.

## **Thermal Impacts on Pedestrians, Drivers, and Facades**

The planar facades of the proposed One Post Office Square redevelopment ensure that reflected sunlight will not focus (multiply) in any particular area. Therefore, RWDI does not expect any significant thermal impacts (i.e. risks to human safety or property damage) to occur either on the site of the development or in the surrounding neighborhood.

## **Visual Glare Impact on Drivers**

Drivers travelling in the vicinity of the development are expected to experience an increased level of visual glare impact. These impacts are expected to alter a driver's current experience since the glare occurs at times when the sun would not ordinarily be within a driver's field-of-view. In particular, a driver's experience could be altered when:

- a) Travelling northwest on Pearl St. at the intersection of High St. (receptor D3) during some mornings in January and November;
- b) Travelling northwest on Oliver St. at the intersection of High St. (receptor D4) during mornings of January, November, and December.

That being said, the impacts on receptor D3 are predicted to be very short in duration and occur infrequently (25 days per year at most). The morning reflections on receptor D4 are predicted to occur 69 days per year at most, and last up to 11 minutes in duration. These impacts are expected to occur only between 8:30 am and 9:30 am EST. Also, once the drivers have travelled slightly further north, the potential for high impacts is eliminated. Completely eliminating the impacts would require significant alterations to the facade.

For drivers travelling south on Congress St. and east on Milk St. (driver receptors D1 and D2), visual glare impacts are moderate at worst, and are not expected to pose a safety concern to drivers. For further details refer to the visual impact diagram for driver receptors D1-D5 illustrated in Appendix A.

## **Visual Glare Impact on Pedestrians and Facades – Off-Site**

Moderate levels of visual impact are predicted to fall on the pedestrian and facade receptors in the surrounding neighborhood (receptors P6-P9, and F13-F19). Many of these reflections are frequent and long in duration. That said, these types of reflections would occur for any glazed surface and represent at worst a visual nuisance, as viewers can easily look away or close blinds.

# OBSERVATIONS AND CONCLUSIONS



The vertical fins on the current facade design are a positive design feature and aid in reducing the frequency and intensity of some reflections, particularly to the north and east of the development. The lack of similar fins on the west and southwest facades is partially why reflection impacts occur more frequently to the west and southwest of the tower.

## **Visual Glare Impacts - On-site**

Moderate levels of visual impact fall on the pedestrian receptors located on the podium roofs. Within these areas (e.g., receptor P12), the reflections have the potential to be frequent and long in duration throughout the majority of the year. While not posing any risk to safety, the reflections may be a nuisance for people in these areas, making mitigation advisable if these spaces are to be used as amenity areas.

## **Overall Impact of Reflections**

The impacts of this development on its surrounds are typical of any modern building of this size. If mitigation is desired, particularly for the drivers and amenity spaces, we have provided several strategies to minimize the reflection impacts. For further details, refer to the Mitigation Strategies section on page 29.

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# Report

# ONE POST OFFICE SQUARE



## ARTICLE 80 SHADOW ANALYSIS- DRAFT

PROJECT #: 1701641

NOVEMBER 16, 2017

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# INTRODUCTION

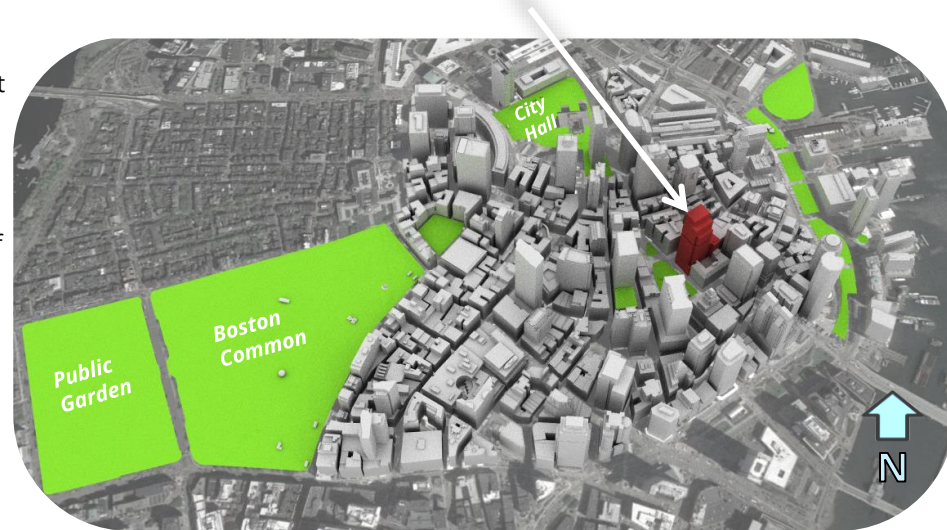


RWDI was retained to provide an analysis of the shadows cast by the One Post Office Square redevelopment onto the surrounding urban realm. The existing building is a 41 story tower located adjacent to the Financial District of Boston, MA (Figure 1). This building is proposed to undergo facade modifications which will include slight changes to the shape and massing of the building (see Figure 2 for comparison of the existing and proposed towers). As a result, the present shadow analysis was carried out in order to understand when and where new shadow may occur after the planned renovation of the tower.

RWDI's analysis included predictions of shadows within the general area of the development at specific times of day for the vernal equinox, summer solstice, autumnal equinox, and winter solstice as per Article 80 of the Boston Zoning Code. The shadow impacts were simulated using a 3D surrounds model which represented the current existing urban context corrected to high-resolution topographic information.

The following pages outline the methodology used for this analysis as well as the key findings of the shadow simulations.

**Proposed One Post Office Square Building**



**Figure 1: Location of Proposed One Post Office Square Building in Boston, MA**



# INTRODUCTION (CONT'D)

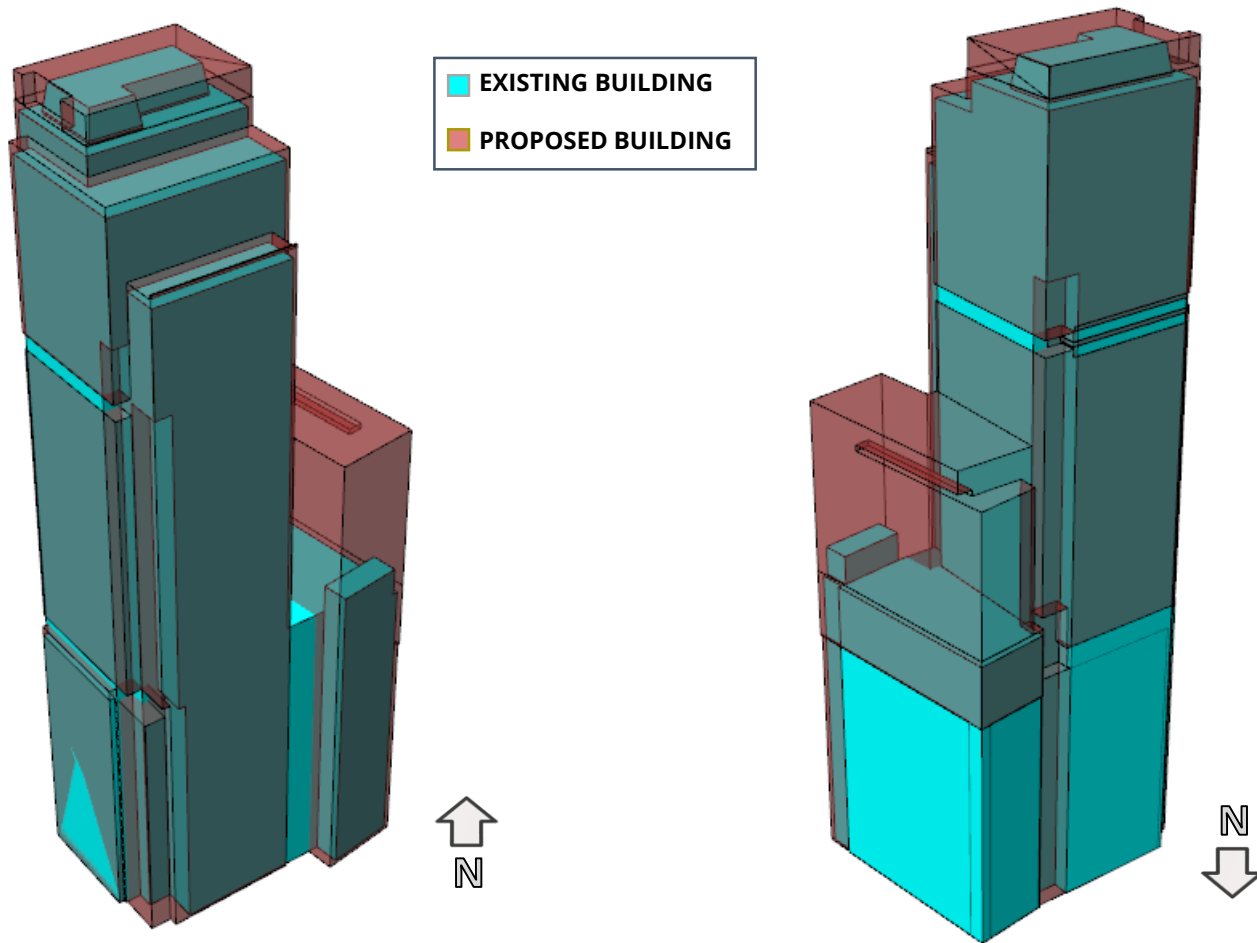


Figure 2: Comparison Between the Existing and the Proposed One Post Office Square Buildings

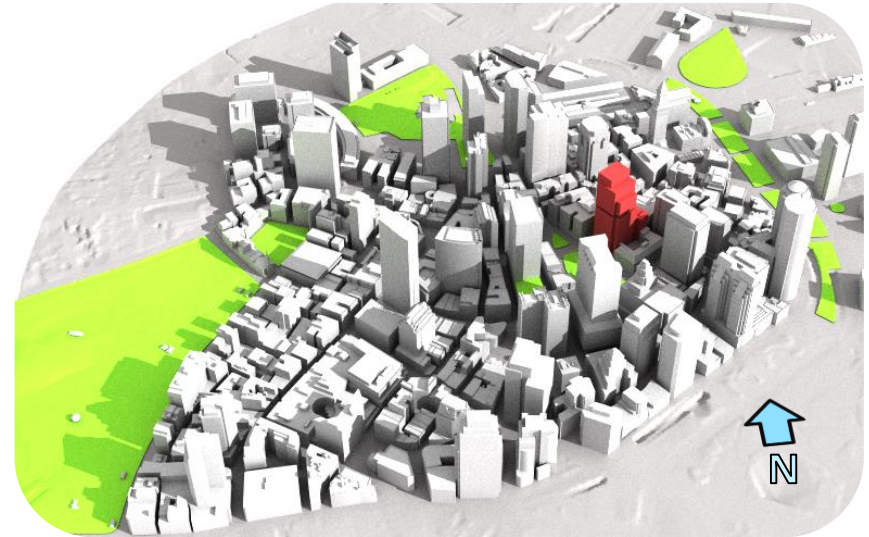
# BACKGROUND AND APPROACH



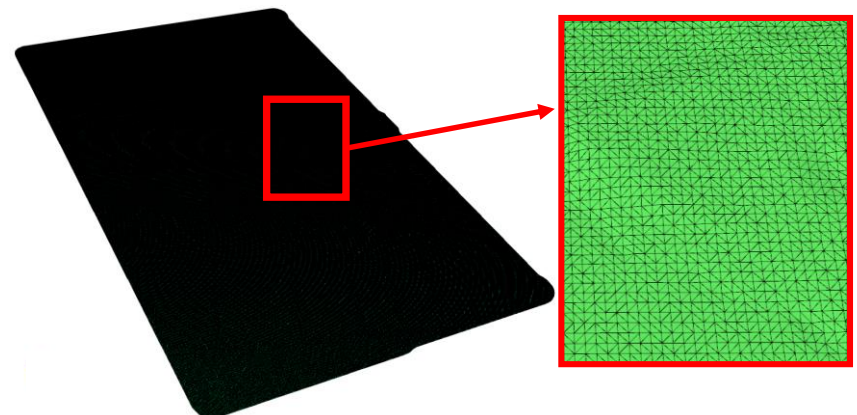
## Methodology

RWDI assessed the potential shadow impacts using RWDI's proprietary *Eclipse* software, as per the steps outlined below:

- A 3D model of the area of interest was developed. The model incorporated the topographical elevation of the ground as well as the surrounding buildings (Figure 3).
- Surfaces representing the ground where shadows from the building could fall were created and subdivided into approximately 650,000 test areas, each representing approximately 30 square feet (Figure 4).
- For each minute in a year, the expected solar position was determined, and “virtual rays” were drawn from the sun to each of the test surfaces. These rays were tested for intersections with the surrounding buildings, and thus if they are currently in shadow.
- The above process was conducted for configurations with and without the proposed tower to compute the net-new shadow falling on the selected areas caused by the proposed tower alone.
- A statistical analysis was then performed to compute the frequency of new shadow impacts on each of the subdivided surfaces.



**Figure 3: 3D Computer Model of the Proposed Building with the Surrounding Neighborhood**



**Figure 4: Close-up View of a Sample Test Surface, Showing Surface Subdivisions**

# BACKGROUND AND APPROACH



## Shadow In Boston

Boston, like many major cities around the world, has regulations in place designed to prevent excessive shadows from buildings impacting public spaces. Article 80 of the Boston Zoning Code outlines the basic requirements for any tall building in Boston with respect to shadowing. Specifically, plots must be created which illustrate existing and new shadows caused by a proposed building for specific times on the solstices and equinoxes (summarized in Table 1).

**Table 1: Time, Day, and the Sun Position for the Article 80 Shadow Analysis**

	Altitude	Azimuth	Time Zone
<b><u>21 March</u></b>			<i>Standard</i>
9:00 a.m.	33.0	125.7	
12:00 Noon	48.0	-176.9	
3:00 p.m.	30.5	-121.8	
<b><u>21 June</u></b>			<i>Daylight Saving</i>
9:00 a.m.	39.9	93.5	
12:00 Noon	68.8	149.4	
3:00 p.m.	56.5	-113.7	
6:00 p.m.	23.9	-79.3	
<b><u>21 September</u></b>			<i>Daylight Saving</i>
9:00 a.m.	25.9	115.3	
12:00 Noon	47.4	166.0	
3:00 p.m.	37.4	-132.9	
6:00 p.m.	7.3	-96.0	
<b><u>21 December</u></b>			<i>Standard</i>
9:00 a.m.	14.2	141.9	
12:00 Noon	24.1	-175.6	
3:00 p.m.	10.0	-135.1	

## Assumptions and Limitations

### Meteorological Data

This analysis was conducted using a “clear-sky” methodology, i.e. cloud cover was not included and the sun was assumed to always be fully exposed. The sun’s location was referenced to the approximate latitude and longitude of the proposed tower: (42.356851, -71.055089)

### Spatial and Temporal Fidelity

The spaces of interest were divided into 5 square foot test areas (or smaller) and tested for shadow at one minute increments. Thus, the expected accuracy of this modeling is no less than  $\pm 5$  square feet and no less than  $\pm 1$  minute for all spatial and temporal predictions made in this report.

### Study Building and Surrounds Models

The analysis was conducted based on a model of the proposed tower provided by Gensler to RWDI on June 2, 2017. The surroundings model was developed based on data made available by the City of Boston. The ground surface and the surrounding buildings were topographically corrected based on a high-resolution LiDAR survey conducted by the National Oceanic and Atmospheric Administration (NOAA) in 2013-2014. According to NOAA, the horizontal accuracy of this data set is stated as 16.5 inches at a 95% confidence level. Its vertical accuracy is stated as 4.8 inches at a 95% confidence level.

### Applicability of Results

The results presented in this report are highly dependent on the form of the proposed building. Should there be any design changes, RWDI should be contacted and requested to review their potential impact on the findings and conclusions of this report.

# RESULTS



## Article 80 Analysis

The full set of shadow extent plots required by Article 80 can be found in Appendix A, but a representative image showing shadow impacts at 3:00 p.m. on December 21 is included as Figure 5 at right.

Generally the new shadows created by the proposed tower (colored magenta in the figure) occur in the area west to east of the proposed tower, while the most significant impacts are predicted to occur in the area from north to the east of the tower.

The most distant new shadows predicted reach up to 3000 ft from the center of the development and occur on September 21 at 6:00 p.m., and December 21 at 3:00 p.m. The longest new shadows are also observed during the same events. That said, the majority of the new shadows that occur fall on the channel rather than on land.

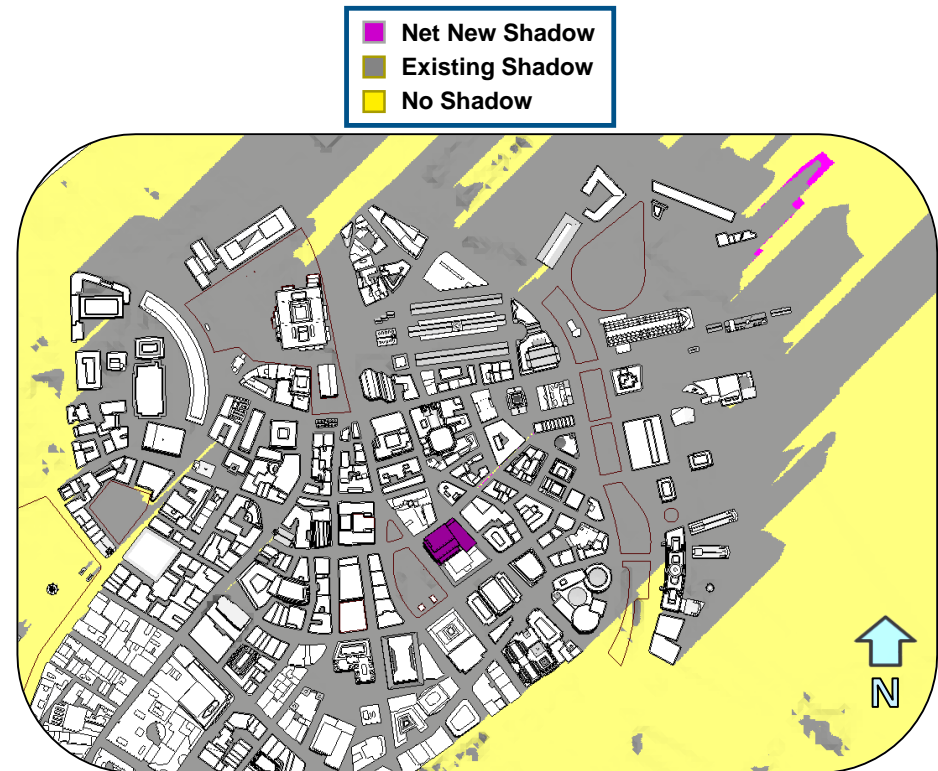


Figure 5: Representative Article 80 plot for December 21 at 3:00 p.m.



# OBSERVATIONS AND CONCLUSIONS



## Article 80 Analysis

1. Generally the new shadows created by the proposed tower (as shown in Appendix A) occur in the area west to east of the proposed tower, while the most significant impacts are predicted to occur in the area from north to the east of the tower.
2. The most distant new shadows predicted reach as far as 3000 ft from the center of the development and occur on September 21 at 6:00 p.m., and December 21 at 3:00 p.m. The longest new shadows are also observed during the same occasions. That said, most of these shadows do not fall on land.
3. The spaces on the ground which experience the largest shadow impacts tend to be roadways and parking spaces which will minimize the impact that the shadows have on people.



# APPENDIX A

**EXISTING AND NET NEW SHADOWS AT REQUIRED TIMES AND  
DAYS AS PER ARTICLE 80 OF BOSTON ZONING CODE**

# EXISTING AND NET NEW SHADOWS



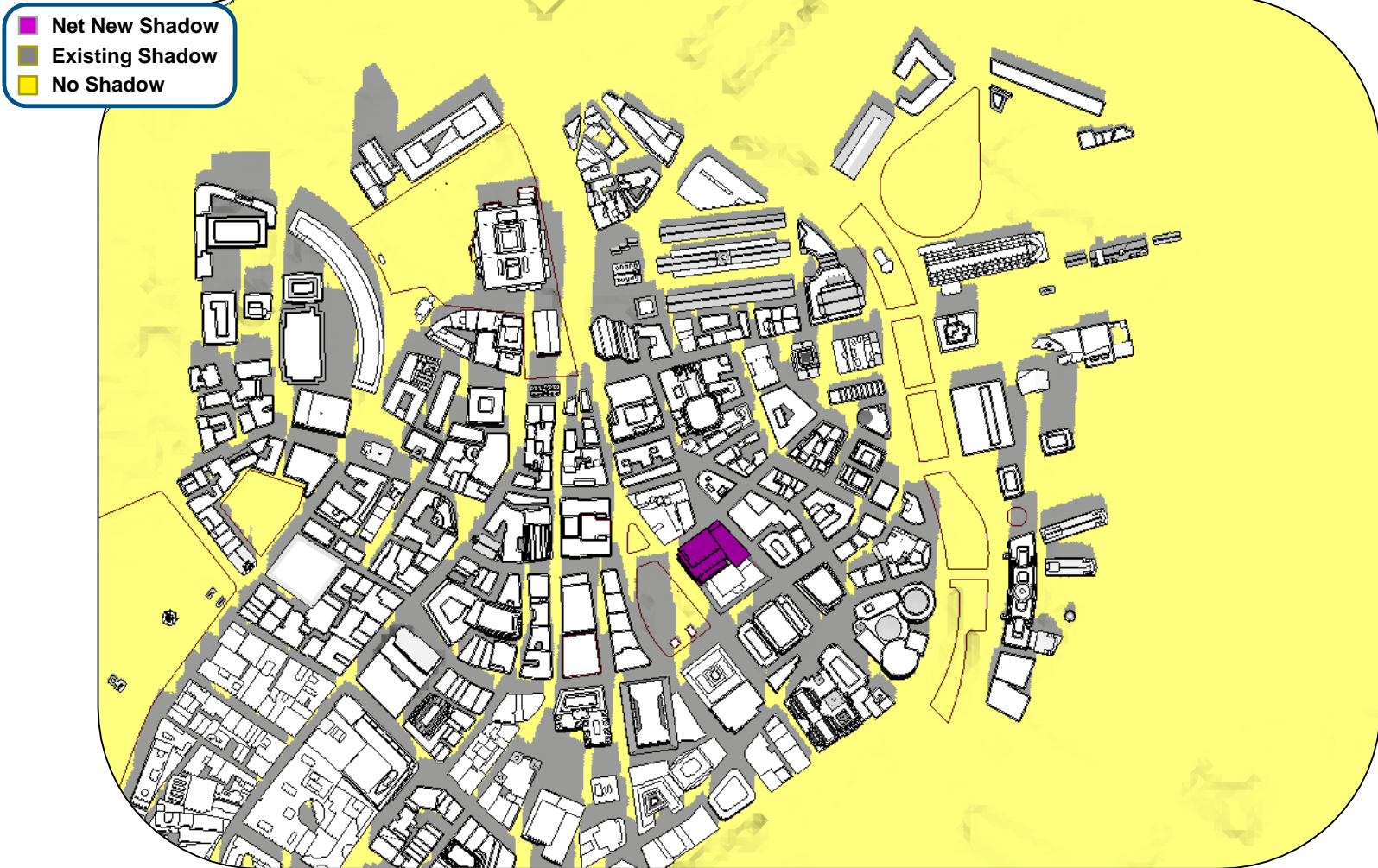
March 21<sup>st</sup> - 9:00 a.m. (Standard Time)



# EXISTING AND NET NEW SHADOWS



March 21<sup>st</sup> - 12:00 p.m. (Standard Time)



# EXISTING AND NET NEW SHADOWS



March 21<sup>st</sup> - 3:00 p.m. (Standard Time)

- Net New Shadow
- Existing Shadow
- No Shadow



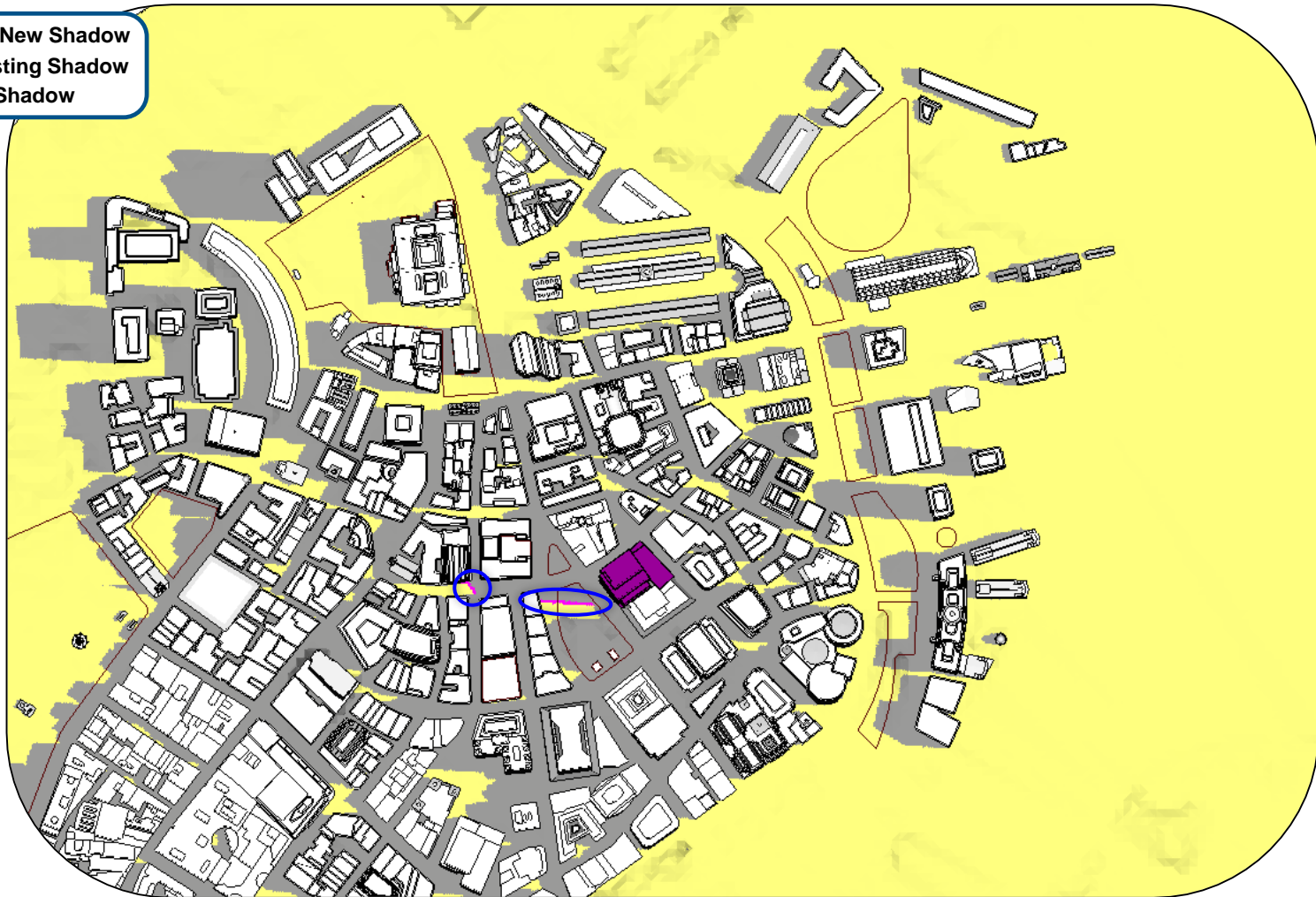


# EXISTING AND NET NEW SHADOWS



June 21<sup>st</sup> - 9:00 a.m. (Daylight Saving Time)

- Net New Shadow
- Existing Shadow
- No Shadow



# EXISTING AND NET NEW SHADOWS



June 21<sup>st</sup> - 12:00 p.m. (Daylight Saving Time)

- Net New Shadow
- Existing Shadow
- No Shadow



# EXISTING AND NET NEW SHADOWS



June 21<sup>st</sup> - 3:00 p.m. (Daylight Saving Time)

- Net New Shadow
- Existing Shadow
- No Shadow

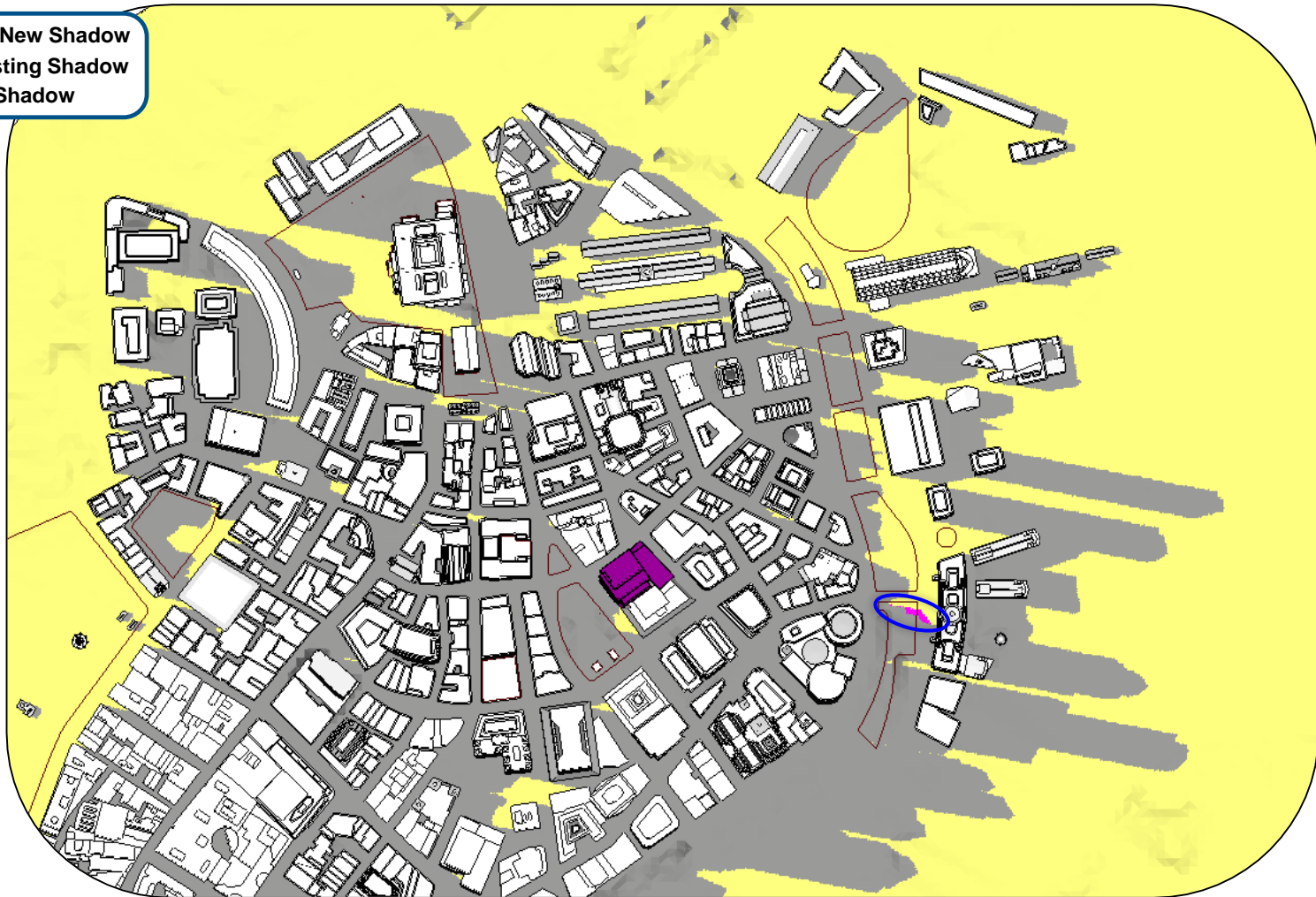


# EXISTING AND NET NEW SHADOWS



June 21<sup>st</sup> - 6:00 p.m. (Daylight Saving Time)

- Net New Shadow
- Existing Shadow
- No Shadow





# EXISTING AND NET NEW SHADOWS



September 21<sup>st</sup> - 9:00 a.m. (Daylight Saving Time)

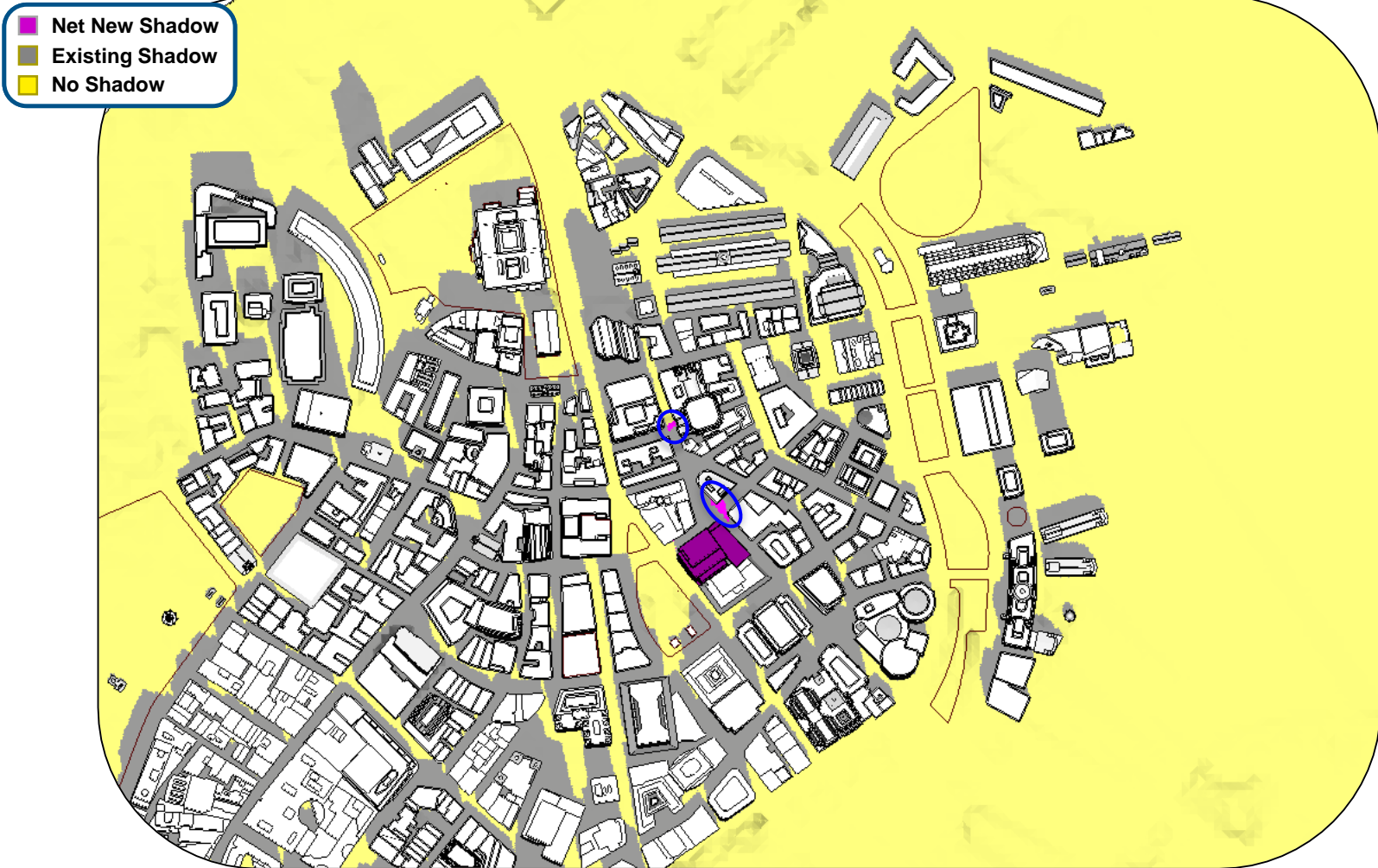




# EXISTING AND NET NEW SHADOWS



September 21<sup>st</sup> - 12:00 p.m. (Daylight Saving Time)



# EXISTING AND NET NEW SHADOWS



September 21<sup>st</sup> - 3:00 p.m. (Daylight Saving Time)

- Net New Shadow
- Existing Shadow
- No Shadow



# EXISTING AND NET NEW SHADOWS



September 21<sup>st</sup> - 6:00 p.m. (Daylight Saving Time)



# EXISTING AND NET NEW SHADOWS



December 21<sup>st</sup> - 9:00 a.m. (Standard Time)





# EXISTING AND NET NEW SHADOWS



December 21<sup>st</sup> - 12:00 p.m. (Standard Time)



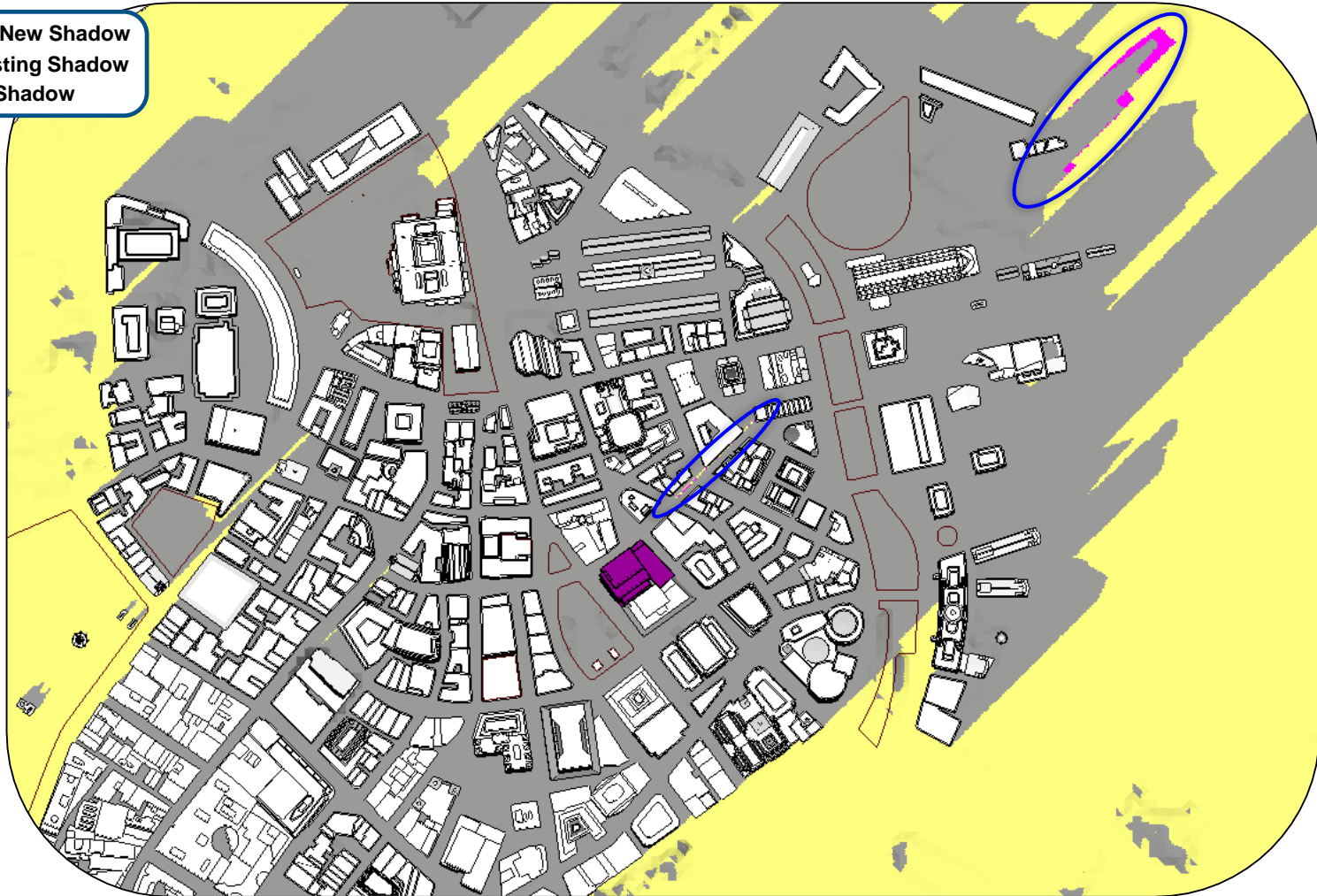


# EXISTING AND NET NEW SHADOWS



December 21<sup>st</sup> - 3:00 p.m. (Standard Time)

- Net New Shadow
- Existing Shadow
- No Shadow



# INTRODUCTION

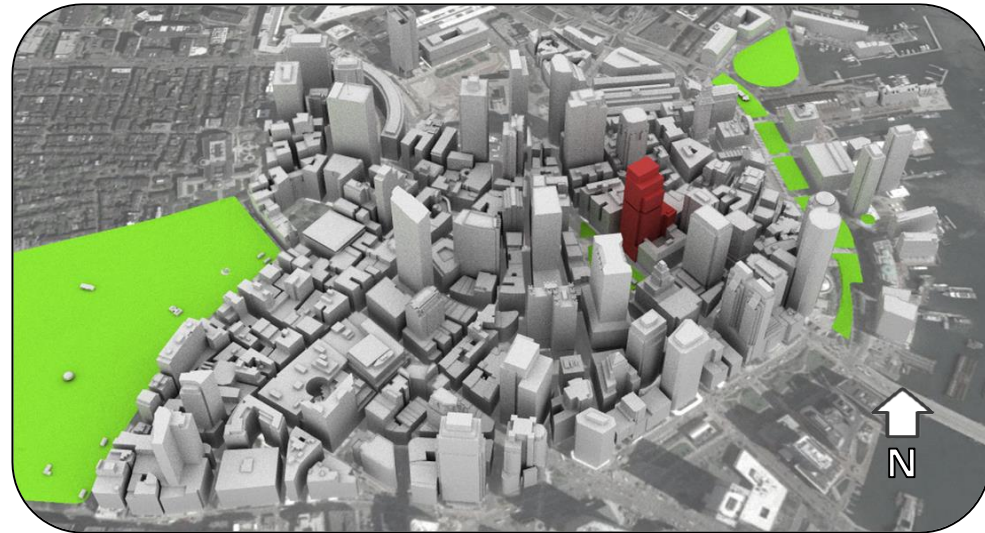


This report provides the computer modeling results of reflected sunlight from the proposed One Post Office Square redevelopment in Boston, MA. The existing building is a 41 story tower which is proposed to undergo extensive facade modifications which will significantly increase the glazed area of the facade.

RWDI was retained to investigate the impact that solar reflections emanating from the proposed redevelopment will have on the surrounding urban terrain which includes typical urban spaces such as busy roadways, public parks, and other buildings (Figure 1).

A preliminary set of simulations was conducted to determine peak reflection intensities and the frequency of occurrence of reflections for a broad area around the development. This served to identify areas which may experience high intensity or very frequent reflections. This information informed the selection of 19 points for a more detailed analysis.

These receptor points represent drivers, pedestrians, and building facades and the detailed results allow us to quantify the frequency, intensity and duration of glare events at the receptors as well as the sources of those reflections.



**Figure 1: Location of proposed development**

## Urban Reflections

While a common occurrence, solar reflections from buildings can lead to numerous visual and thermal issues.

**Visual glare** can:

- Impair the vision of motorists and others who cannot easily look away from the source;
- Cause nuisance to pedestrians or occupants of nearby buildings; and,
- Create undesirable patterns of light throughout the urban fabric.

**Heat gain** can:

- Affect human thermal comfort;
- Be a safety concern for people and materials, particularly if multiple reflections are focused in the same area; and
- Create increased cooling needs in conditioned spaces affected by the reflections.

The most significant safety concerns with solar reflections occur with concave facades (Figure 2) which act to focus the reflected light in a single area. RWDI does not expect issues with solar focusing to be present in the One Post Office Square redevelopment as all surfaces on the tower are planar.

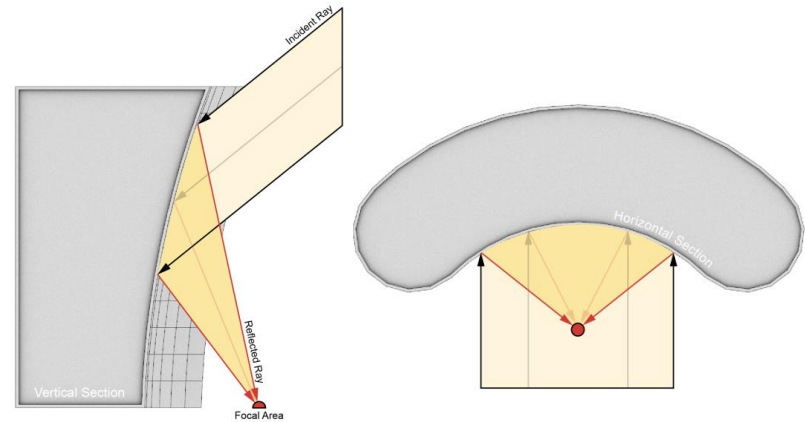


Figure 2: Illustration of reflection focusing due to a concave facade shape

# BACKGROUND AND APPROACH



## Methodology

RWDI assessed the potential reflection issues using RWDI's in-house proprietary *Eclipse* software, in two phases as per the steps outlined below:

- The Phase 1 “Screening” assessment began with the development of a 3D model of the area of interest (as shown in Figure 3). This was then subdivided into many smaller triangular patches (see Figure 4).
- For each hour in a year, the expected solar position was determined, and “virtual rays” were drawn from the sun to each triangular patch of the 3D model. Each ray that was considered to be “unobstructed” was reflected from the building surface and tracked through the surrounding area. The study domain included the entire pedestrian realm within 1500 feet of the proposed building.
- The total reflected energy at that hour from all of the patches was computed and its potential for visual and thermal impacts was assessed.
- Finally, a statistical analysis was performed to assess the frequency, and intensity of the glare events occurring throughout the year within the nearby airspace. The criteria used to assess the level of impact can be found in Appendix B of this report.

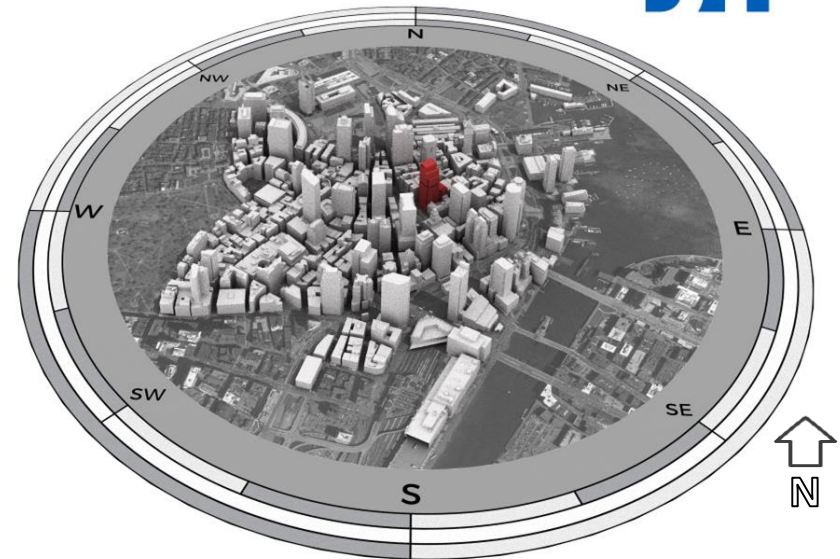


Figure 3: 3D computer model of the proposed development with the surrounding neighborhood

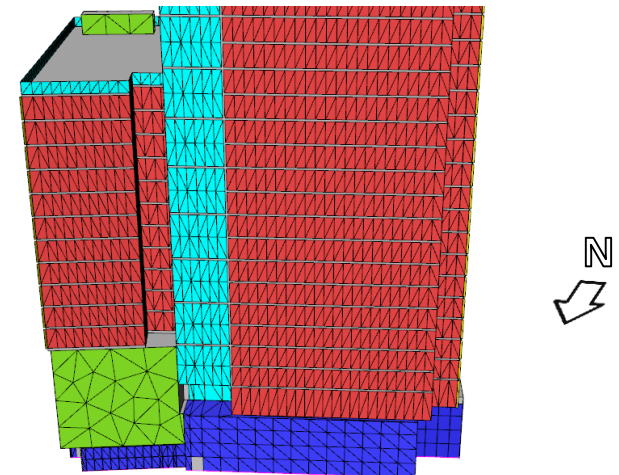


Figure 4: Close-up view of the model, showing surface subdivisions

# BACKGROUND AND APPROACH



## Methodology (cont'd)

- Based on the findings of the Screening analysis, 19 representative 'receptor points' were selected to undergo the more detailed, Phase 2 analysis.
- The points were chosen to understand in greater detail how reflections from the building will impact drivers, pedestrians and other buildings.
- The analysis process is similar in the detailed phase of work, except reflections are analyzed at 1 minute increments for the entire year.
- In addition to the frequency and duration of reflection impacts, the more detailed analysis allows for the prediction of when those impacts will occur, how long they occur for and which building element is the cause.
- These points are illustrated on the following page. For points that represent people undertaking tasks with a defined direction of view (i.e. motorists who must maintain forward visual contact) the assumed direction of view is indicated with an arrow.



# BACKGROUND AND APPROACH



## Proposed Receptor locations

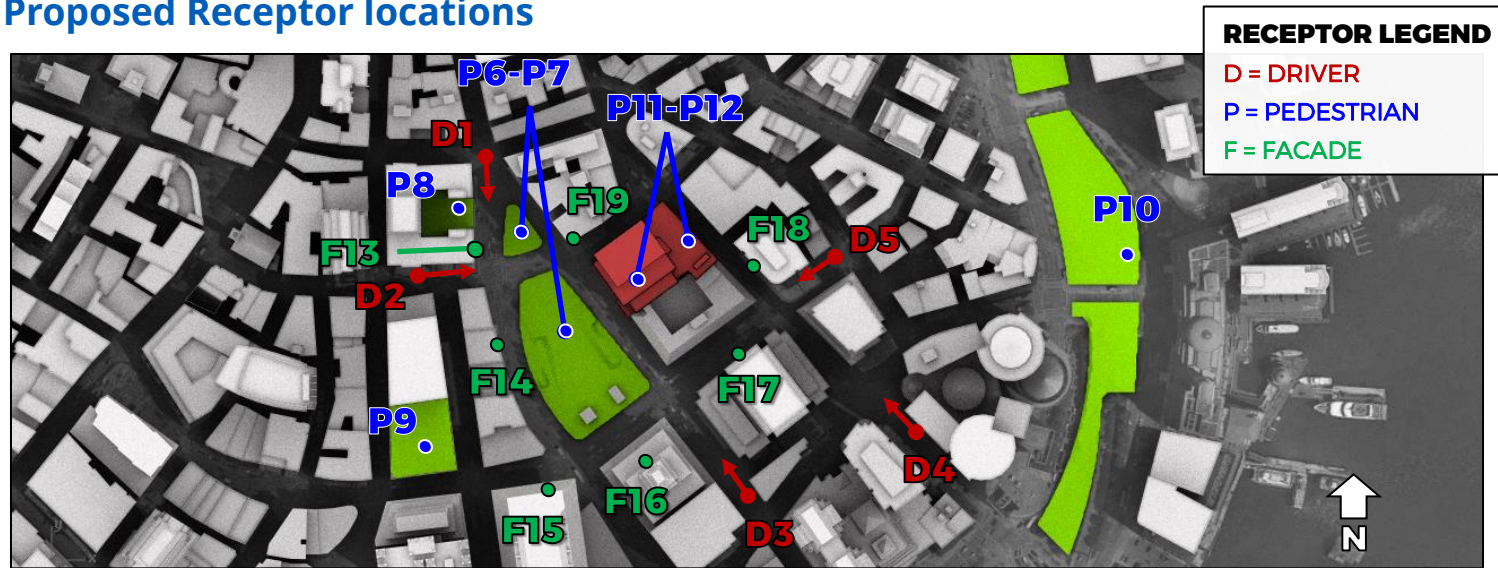


Table 1: Proposed receptor descriptions

Receptor Number	Receptor Description	Receptor Number	Receptor Description
D1	Drivers traveling south on Congress St.	P10	Pedestrians at Wharf District Parks
D2	Drivers traveling east on Milk St.	P11-P12	Pedestrians on podium/rooftop of the development
D3	Drivers traveling northwest on Pearl St.	F13	Facade of a building to the west of the development
D4	Drivers traveling northwest on Oliver St.	F14-F15	Facade of buildings to the southwest of the development
D5	Drivers traveling southwest on Franklin St.	F16	Facade of a building to the south of the development
P6-P7	Pedestrians at Norman Leventhal Park	F17	Facade of a building to the southeast of the development
P8	Pedestrians on rooftop/podium of a building to the west of the development	F18	Facade of a building to the east of the development
P9	Pedestrians on rooftop/podium of a building to the southwest	F19	Facade of a building to the northwest of the development



## Assumptions and Limitations

### Meteorological Data

This analysis used “clear sky” solar data at the location of Boston Logan International Airport. This approach uses mathematical algorithms to derive solar intensity values for a given location, ignoring local effects such as cloud cover. This provides a “worst case” scenario showing the full extent of when and where glare could ever occur.

### Radiation Model

RWDI’s analysis is only applicable to the thermal and visual impacts of solar radiation (i.e. ultraviolet, visible and infrared wavelengths) on people and property in the vicinity of the development. It does not consider the impact of the building related to any other forms of radiation, such as cellular telephone signals, RADAR arrays, etc.

### Study Building and Surrounds Models

The analysis was conducted based on the geometry provided by Gensler to RWDI on June 2, 2017. It should be noted that this study is highly dependent on building geometry, and any significant changes to the building’s geometry will likely require a new analysis.

Potential reductions of solar reflections due to the presence of Vegetation or other non-architectural obstructions were not included, nor are reflections from other buildings. Only a single reflection from the development was included in the analysis. As such, light that has reflected off several surfaces is assumed to have a negligible impact.

## Assumptions and Limitations (cont'd)

### Facade Material Reflectance

The reflective properties of the glazing units located on the proposed tower facade were determined based on the glazing make-up information provided by Gensler on June 22, 2017.

According to the design documents provided by Gensler on June 16, 2017, the parking garage walls, referred to "GL-06", are planned to be covered by dense louvers which are not expected to create significant specular reflections. Therefore, the corresponding area of the facade is considered to be non-reflective in the simulations.

The reflectance properties of the glazing units are summarized in Table 2. Figure 5 shows the location of the reflective materials on the facades.

### Applicability of Results

The results presented in this report are highly dependent on both the form and materiality of the facade. Should there be any design changes to the design, it is recommended that RWDI be contacted and requested to review their potential effects on solar reflection.

# BACKGROUND AND APPROACH



## Assumptions and Limitations (cont'd)

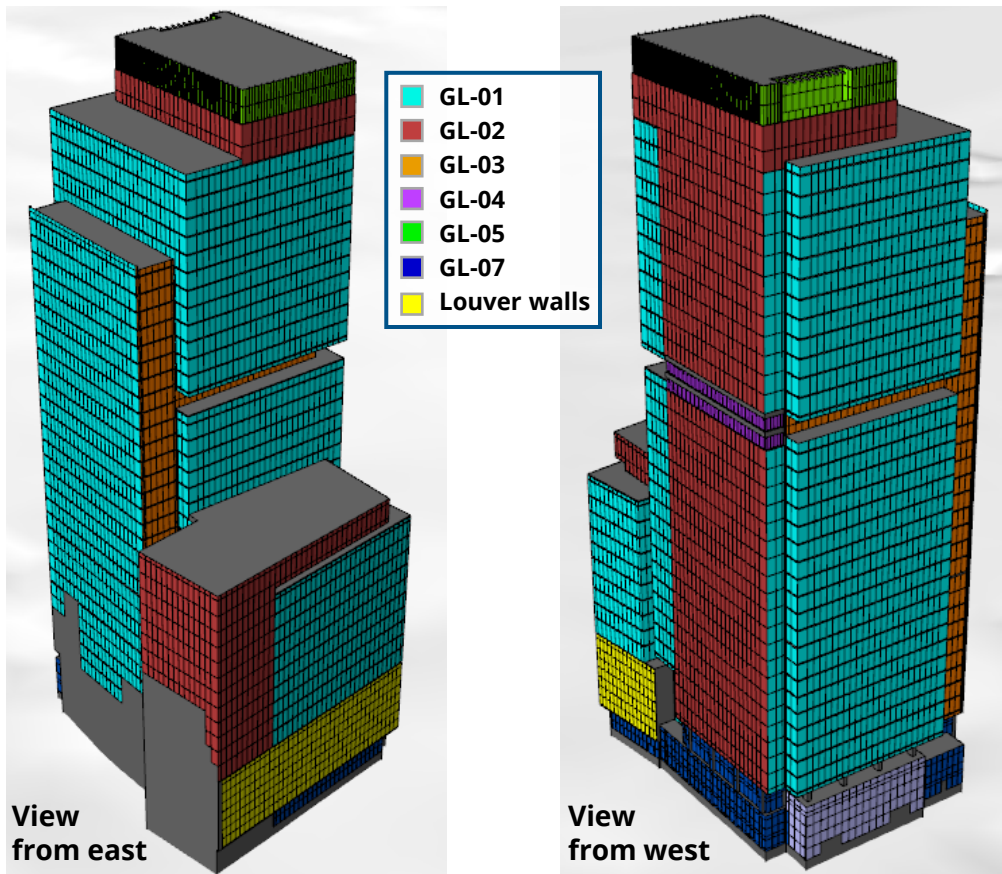


Figure 5: Glazing locations on the building facade.

Table 2: Nominal visible and full spectrum reflectance values of the facade glazing

Glazing Location	Glazing Unit	Visible Reflectance	Full Spectrum Reflectance
GL-01	3/8" Low-iron VRE 1-54 [2] - 1/2" Argon - 1/4" clear- 1/2" Argon - 1/4" clear	35%	34%
GL-02	3/8" Low-iron VRE 1-46 [2] - 1/2" Argon - 1/4" clear- 1/2" Argon - 1/4" clear	34%	33%
GL-03	3/8" Low-iron VNE 1-63 [2] - 1/2" Argon - 1/4" clear- 1/2" Argon - 1/4" clear	14%	30%
GL-04	3/8" Low-iron VNE 1-63 [2] - 1/2" Argon - 1/4" clear	11%	29%
GL-05	3/8" Low-iron VNE 1-63 [2] - 1/2" Argon - 3/8" clear	11%	29%
GL-07	3/8" Low-iron VE 24-2M with V-175 White Silkscreen 50% [2] - 1/2" Argon - 1/4" clear- 0.060" Clear pvb- 1/4" clear	23%	37%

# RESULTS – SCREENING ANALYSIS



## Presentation of Results

The following plots are presented in this section:

### Peak Annual Reflected Irradiance

This plot displays the annual peak intensity of all reflections emanating from the development at a typical pedestrian height (5 ft.) above local grade over an entire year. In order to attain a better understanding of the impact of the solar reflections from the development, other factors must be considered such as the frequency and duration of the reflections. These factors are analyzed in detail in the next stage of the study.

Two versions of this plot are included:

- **Visible Reflectance (Visual Glare):** These plots display the intensity of reflected visible light only. Depending on the ambient conditions, reflection intensities as low as  $150 \text{ W/m}^2$  could be visible to people.
- **Full Spectrum Reflectance (Heat Gain):** These plots present the total intensity of a reflection, including both visible light and thermal energy which relates to the overall heat gain. For full spectrum reflectance, RWDI considers  $1500 \text{ W/m}^2$  as a short term thermal comfort threshold and reflections above  $2500 \text{ W/m}^2$  as a human safety threshold (refer to Appendix B).

### Percentage of Daylit Hours (or Frequency) of Reflected Light

This plot identifies the locations of the most frequent significant reflections emanating from the facades. In this context a 'significant' reflection is one that is at least 50% as intense as one that would cause after imaging on a viewer (refer to Appendix B).

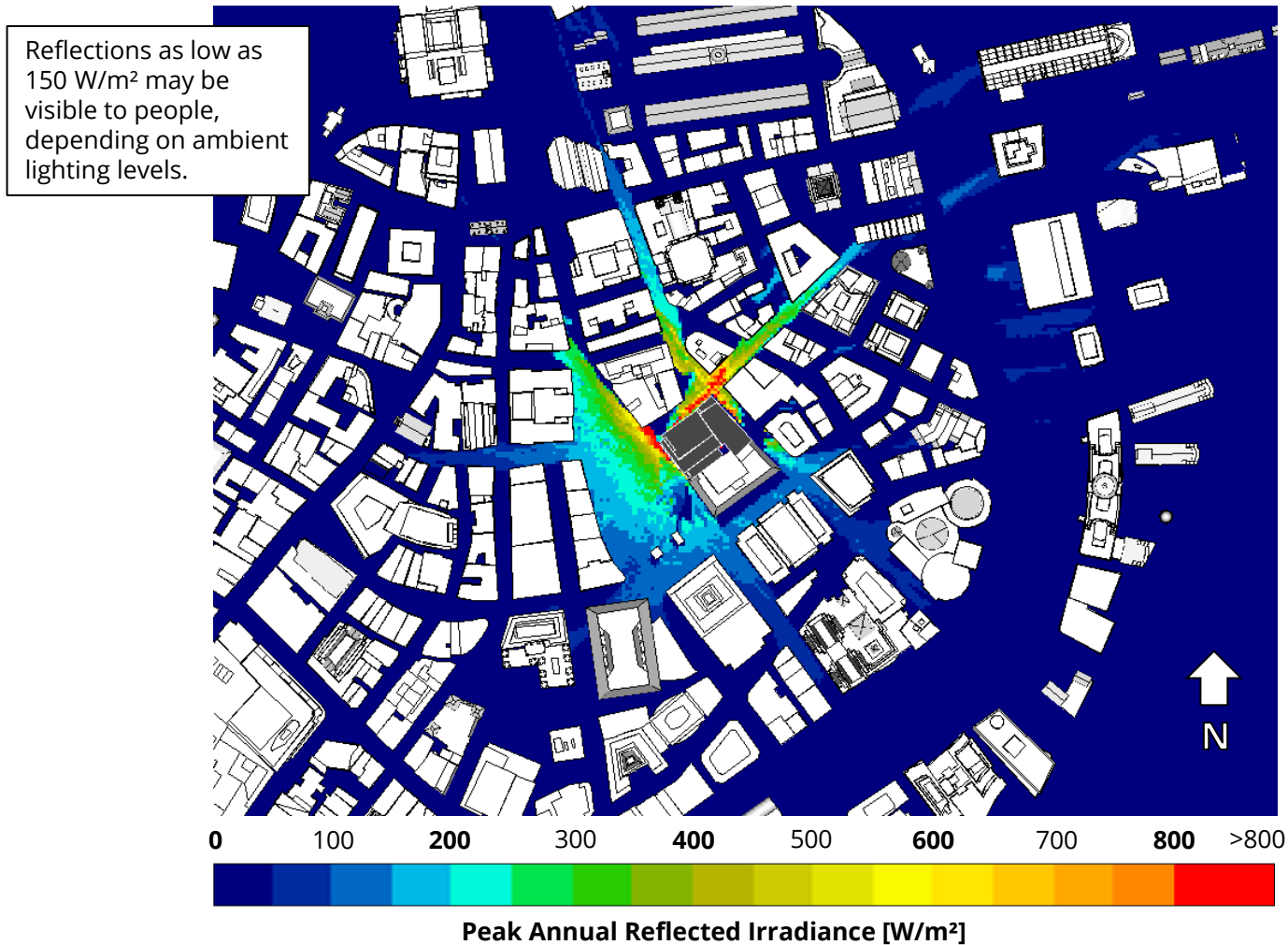
As this criteria is visually based, the visible light reflectance of the facades was used.



# RESULTS – SURROUNDING URBAN TERRAIN



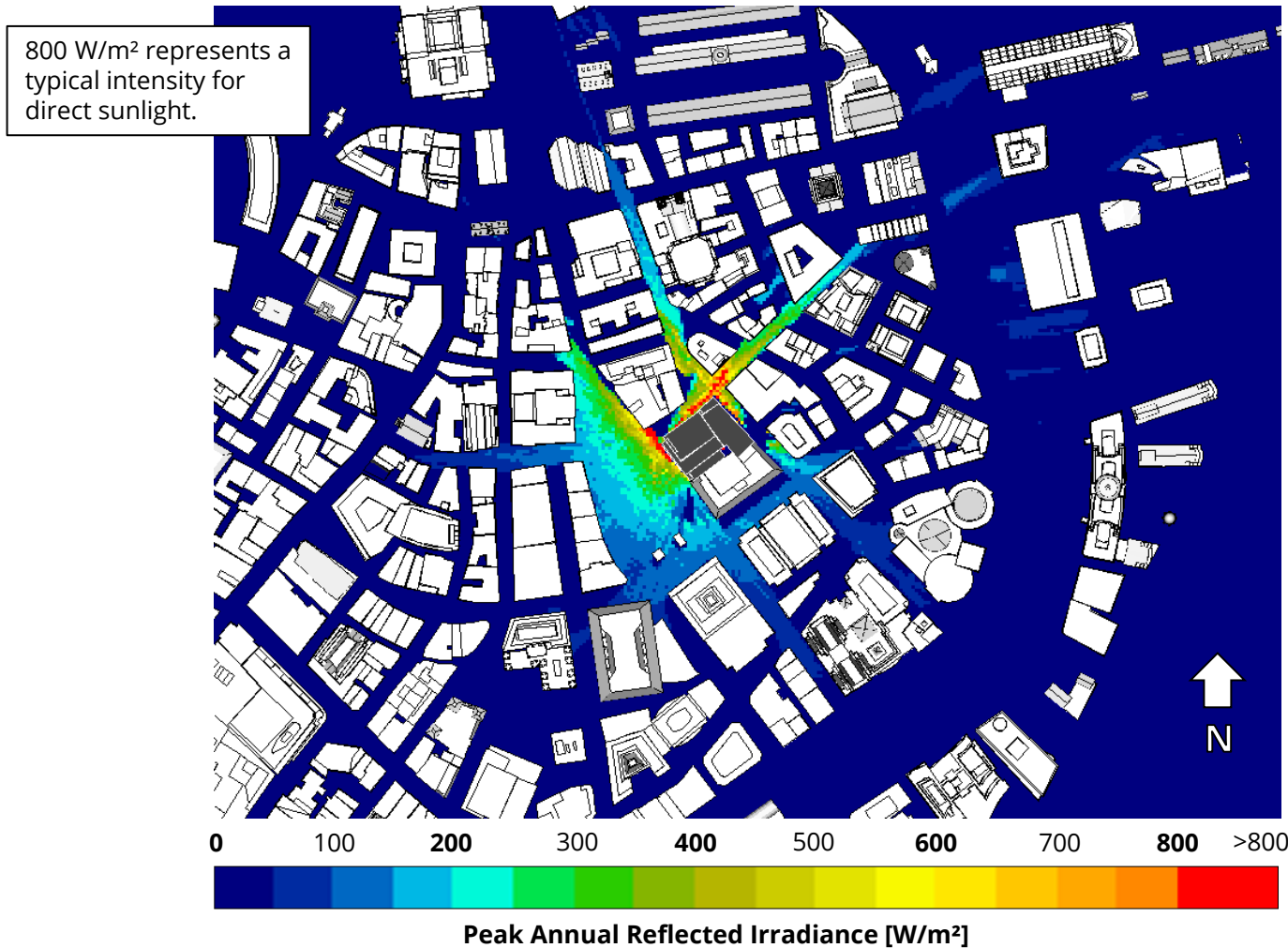
## Peak Annual Reflected Irradiance - Visible Reflectance (Visual Glare)



# RESULTS – SURROUNDING URBAN TERRAIN



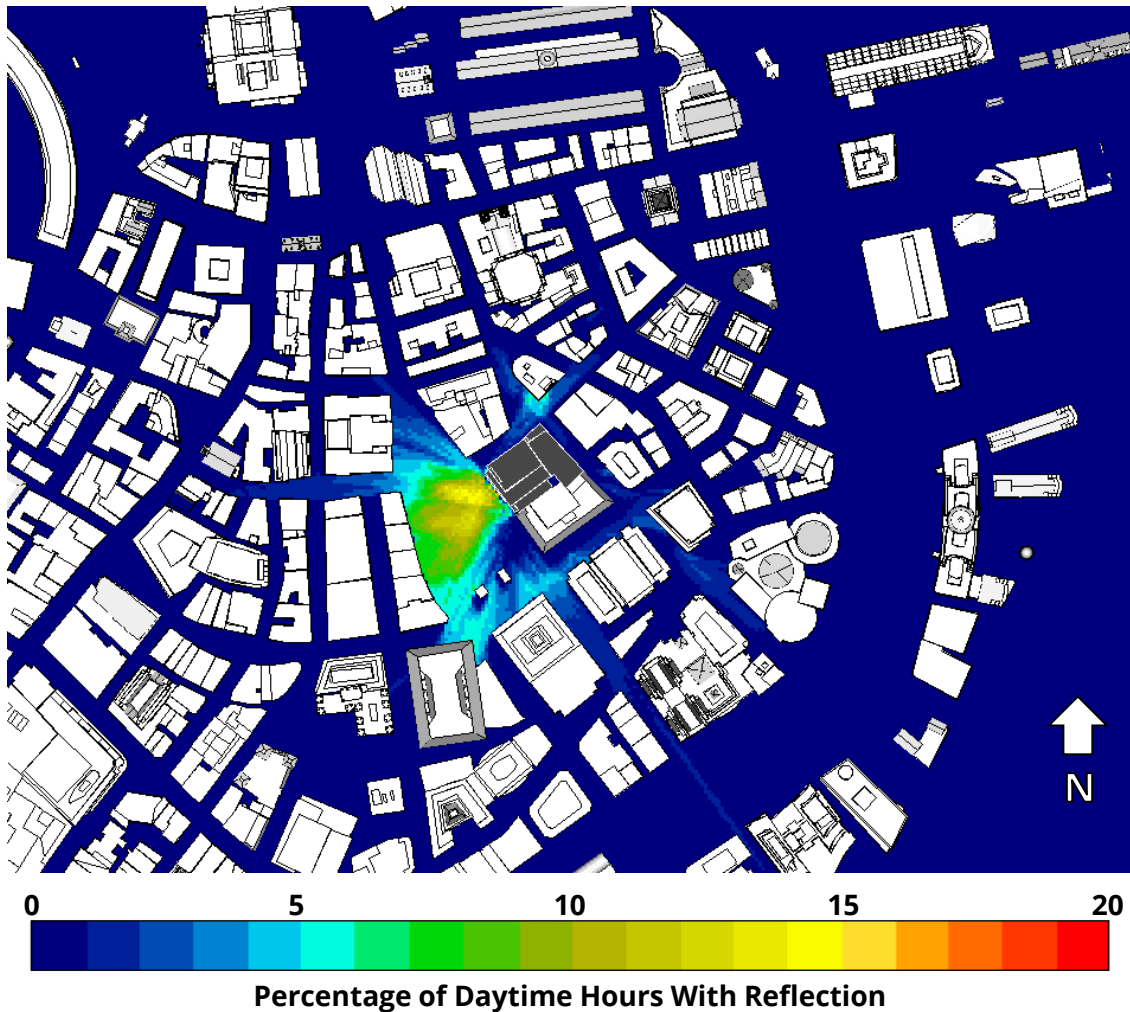
## Peak Annual Reflected Irradiance - Full Spectrum Reflectance (Heat Gain)



# RESULTS – SURROUNDING URBAN TERRAIN



## Percentage of Daylit Hours (Frequency) of Reflected Light - Visible Reflectance



# SCREENING ANALYSIS OBSERVATIONS



1. Like any contemporary building, the reflective surfaces of the proposed One Post Office Square development are naturally causing solar reflections in the surrounding neighborhood.
2. The planar nature of the facades of the proposed tower prevents reflections emanating from the development from focusing (concentrating) in any particular area. Thus, RWDI does not anticipate any heat gain issues on people or property.
3. At pedestrian level, reflections are predicted to fall most frequently onto the areas immediately west and southwest of the development, in particular Norman Leventhal Park. The maximum frequency of glare occurrence found at pedestrian level is approximately 20% of daytime hours.
4. Reflections emanating from the west and north facades are expected to fall onto Milk Street. The reflections from the west facade may impact drivers travelling east on Milk Street as they approach the Congress Street intersection. Given that Milk Street is a one way, eastbound street, the impacts of north facade reflections will be minimal as they would impact a driver from behind. Similarly, drivers traveling north on Pearl St. and south on Congress St. may experience reflections. The impact of these reflections are analyzed in detail in the next stage of this study.
6. The occupants of the buildings located in the vicinity of the tower are expected to experience visible reflections from the development. That being said, they do not pose a risk to safety, and are likely a nuisance at worst, as the occupants can easily look away or close blinds.
7. The vertical fins on the current facade design are a positive design feature and aid in reducing the frequency and intensity of some glancing reflections, particularly to the east and north of the development. Expanding the area where the fins are employed, and also adding fins to the west facade would likely further decrease impacts at grade.
8. Frequent reflections are expected to impact the podium area located at the east section of the development during the morning hours. The reflections impacting these areas have the potential to occur frequently and for long durations. If the podium area is planned to be used as an amenity space, where people may linger, then mitigation measures are advisable. The potential for this type of impact are studied in the detailed phase of work.

# RESULTS – DETAILED ANALYSIS



## Presentation of Results

The frequency, duration, and intensity of glare events throughout the year is illustrated using “annual glare impact diagrams” (see Figure 6 below for the general layout of these plots). The color of the plot for a given combination of date and time indicates the relative impact of any glare sources found. The horizontal axis of the diagram indicates the date, and the vertical axis indicates the hour of the day.

We note that the referenced times are in local standard time, so in jurisdictions where Daylight Savings Time is used, the time should be shifted by an hour when appropriate.

The following pages present the impact categories for three types of Annual Impact Diagrams: Visual Impact, Thermal Impact on People, and Thermal Impact on Property. More information on RWDI’s criteria is available in Appendix B.

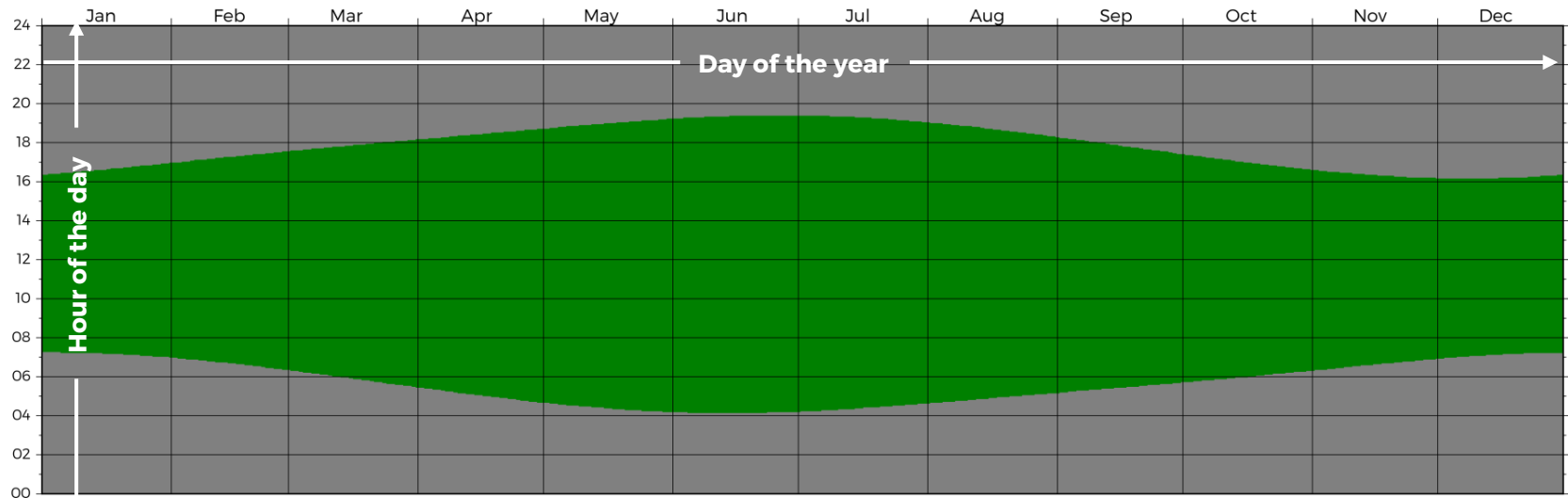


Figure 6: Layout of sample annual glare impact diagram



# RESULTS – DETAILED ANALYSIS



## Visual Impact Categories

**Low:** Either no significant reflections occur or the reflections will have a minimal effect on a viewer, even when looking directly at the source.

**Moderate:** The reflections can cause some visual nuisance only to viewers looking directly at the source.

**High:** The reflections can reduce visual acuity for viewers operating vehicles or performing other high-risk tasks who are unable to look away from the source, posing a significant risk of distraction.

**Damaging:** The brightest glare source is bright enough to permanently damage the eye for a viewer looking directly at the source.

Hatched areas indicate times and dates when the sun would also be in a driver's field of view.

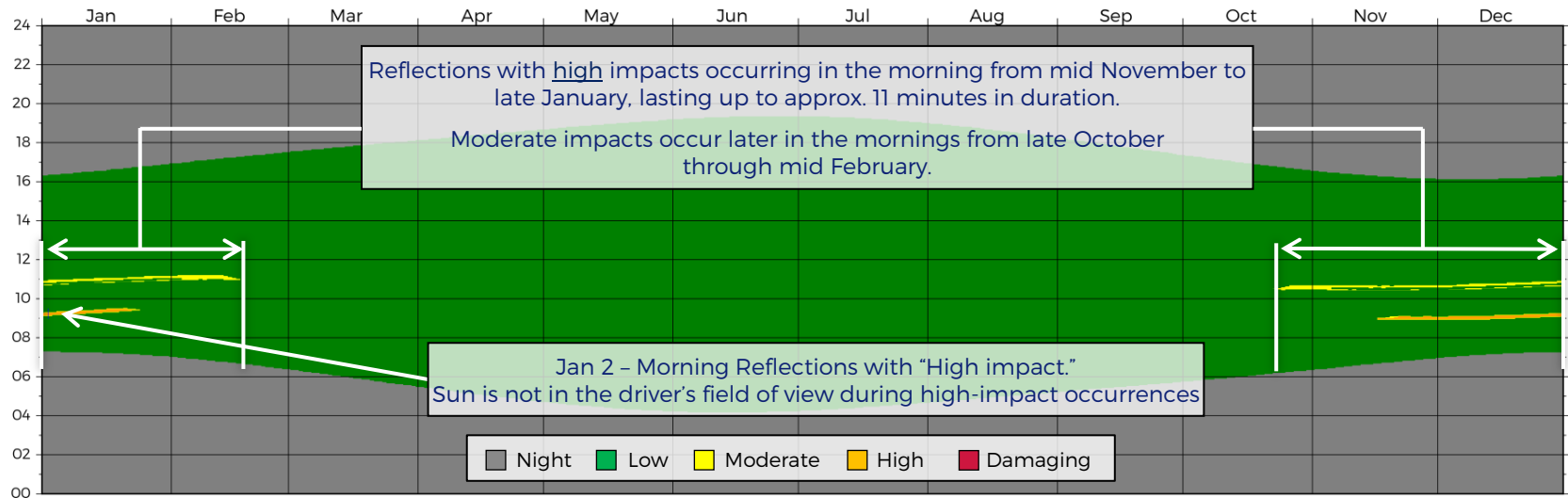


Figure 7: Example of annual visual glare impact diagram – Receptor D4

# RESULTS – DETAILED ANALYSIS



## Thermal Impact Categories for People

**Low:** Either no significant reflections occur or the reflection intensity is below the short-term exposure threshold of 1500 W/m<sup>2</sup>.

**Moderate:** The reflection intensity is above the short-term exposure threshold of 1500 W/m<sup>2</sup> but below the safety threshold of 2500 W/m<sup>2</sup>. Such reflections would quickly cause thermal discomfort in people.

**High:** The reflection intensity is above the safety threshold of 2500 W/m<sup>2</sup> but below 3500 W/m<sup>2</sup>. This level of exposure to bare skin would lead to the onset of pain within 30 seconds.

**Very High:** Reflection intensity exceeds 3500 W/m<sup>2</sup>. This level of exposure leads to second degree burns on bare skin within 1 minute.

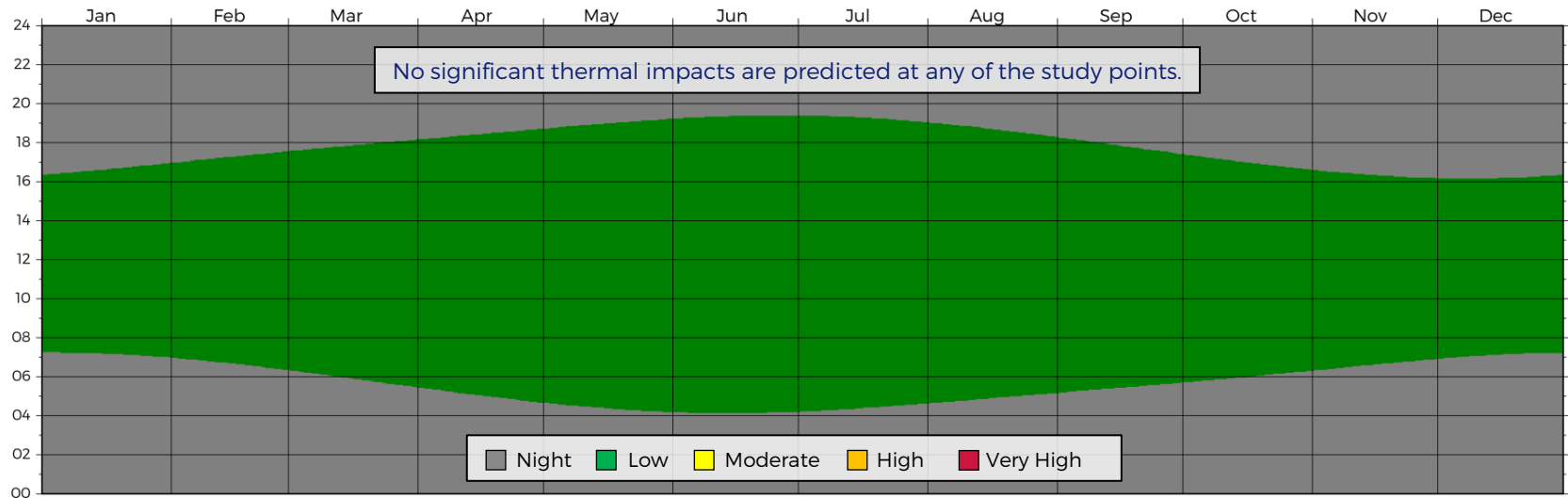


Figure 8: Example of annual pedestrian thermal impact diagram – Receptor P12

## Thermal Impact Categories for Property

A different scale is used to illustrate the reflected thermal energy on facades in order to provide further clarity on the potential for heat gain issues (Figure 9). The diagrams illustrate the irradiance levels of all predicted reflection events along with their frequency and duration.

The format of the diagram is similar to the diagrams described in the previous pages. The color of the plot for a given combination of date and time indicates the intensity of the reflected light at that point in time.

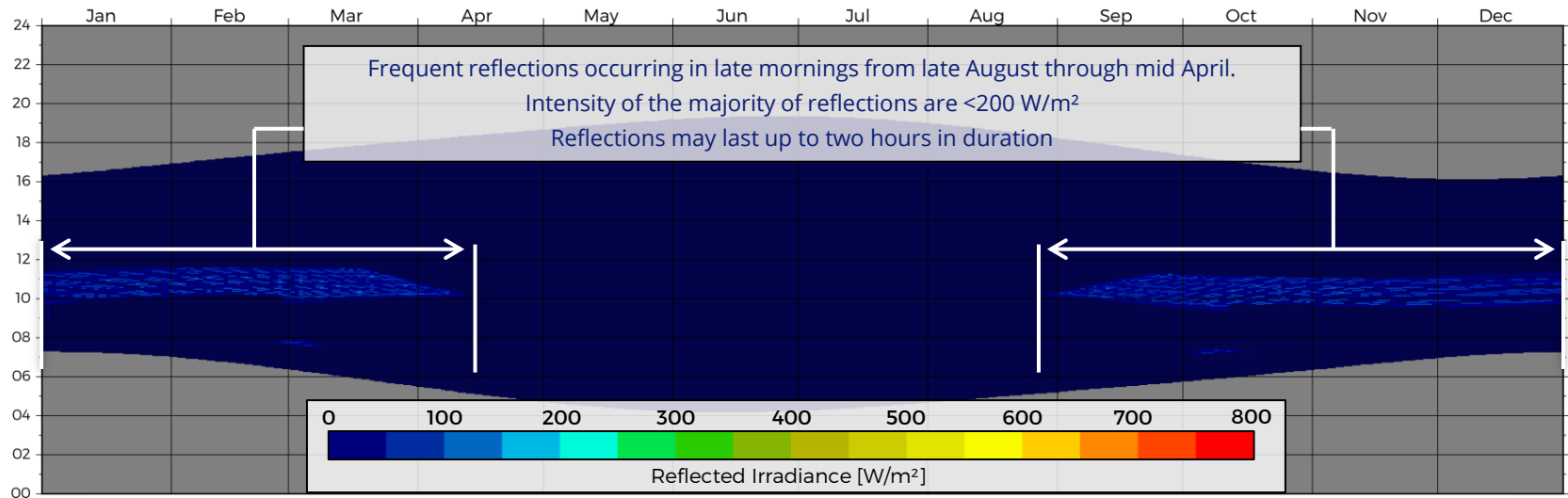


Figure 9: Example of annual property thermal impact diagram – Receptor F17

# DETAILED ANALYSIS OBSERVATIONS



Table 3 on the following page summarizes the level of visual and thermal impacts around the proposed One Post Office Square development at the selected receptor locations. Visual and thermal impact diagrams for each of the receptor points are provided in Appendix A.

Figures 10 to 12 illustrate the sources of glare from the development on selected points at selected times. This is not an exhaustive list of all potential glare impacts, but rather serves to illustrate important results and observations.

# DETAILED ANALYSIS OBSERVATIONS



**Table 3: Summary of Overall Predicted Impacts on Receptors**

Receptor Number	Receptor Type	Assumed Activity Risk Level	Assumed Ability to Self-Mitigate	Peak Reflected Light Visual Impact	Sun in Field of View During High Impact Reflection (Y/N)	Duration / Number of Days with High Impact Reflection	Peak Reflected Solar Thermal Impact on People	Peak Reflected Solar Thermal Impact on Facade
D1	Driver	High	Low	<i>Moderate</i>	N/A	N/A	<i>Low</i>	N/A
D2	Driver	High	Low	<i>Moderate</i>	N/A	N/A	<i>Low</i>	N/A
D3	Driver	High	Low	<i>High*</i>	<i>No</i>	Longest Duration: <b>5 minutes</b> Average Duration: <b>3 minutes</b> No. of days: <b>25</b>	<i>Low</i>	N/A
D4	Driver	High	Low	<i>High**</i>	<i>No</i>	Longest Duration: <b>11 minutes</b> Average Duration: <b>10 minutes</b> No. of days: <b>69</b>	<i>Low</i>	N/A
D5	Driver	High	Low	<i>Low</i>	N/A	N/A	<i>Low</i>	N/A
P6-P12	Pedestrian	Low	High	<i>Moderate</i>	N/A	N/A	<i>Low</i>	N/A
F13-F19	Facade	Low	High	<i>Moderate</i>	N/A	N/A	N/A	<i>Low</i>

\* The high impact reflections are infrequent and short in duration.

\*\* The high impact reflections last up to 11 minutes in duration.



# OVERALL OBSERVATIONS & CONCLUSIONS



## **Thermal Impacts on Pedestrians, Drivers, and Facades**

1. The planar facades of the proposed One Post Office Square redevelopment ensure that reflected sunlight will not focus (multiply) in any particular area. Therefore, RWDI does not expect any significant thermal impacts (i.e. risks to human safety or property damage) to occur either on the site of the development or in the surrounding neighborhood.

## **Visual Glare Impact on Drivers**

2. Drivers travelling in the vicinity of the development are expected to experience an increased level of visual glare impact. These impacts are expected to alter a driver's current experience since the glare occurs at times when the sun would not ordinarily be within a driver's field-of-view. In particular, a driver's experience could be altered when:
  - a) Travelling northwest on Pearl St. at the intersection of High St. (receptor D3) during some mornings in January and November; (This is illustrated in Figure 10)
  - b) Travelling northwest on Oliver St. at the intersection of High St. (receptor D4) during mornings of January, November, and December; (see Figure 11)

That being said, the impacts on receptor D3 are predicted to be very short in duration and occur infrequently (25 days per year at most). The morning reflections on receptor D4 are

predicted to occur 69 days per year at most, last up to 11 minutes in duration and occur only between 8:30 am and 9:30 am EST. Also, once the drivers have travelled slightly further north, the potential for high impacts is eliminated. Completely eliminating these impacts would require significant alterations to the facade.

For drivers travelling south on Congress St. and east on Milk St. (driver receptors D1 and D2), visual glare impacts are moderate at worst, hence they are not expected to pose a safety concern to drivers. For further details refer to the visual impact diagram for driver receptors D1-D5 illustrated in Appendix A.

## **Visual Glare Impact on Pedestrians and Facades – Off-Site**

4. Moderate levels of visual impact are predicted to fall on the pedestrian and facade receptors in the surrounding neighborhood (receptors P6-P9, and F13-F19). Many of these reflections are frequent and long in duration. The maximum frequency of glare occurrence found at pedestrian level is approximately 20% of daytime hours, occurring within Norman Leventhal Park. That said, these types of reflections would occur for any glazed surface and represent at worst a visual nuisance, as viewers can easily look away or close blinds.

# OVERALL OBSERVATIONS & CONCLUSIONS



5. Reflections from the proposed design may reach some of the greenspaces that make up the Rose Fitzgerald Kennedy Greenway, specifically the spaces between E India Row and State Street (receptor P10). These impacts are expected to be very infrequent and brief.
6. The simulations also predict minor reflection impacts on the podium of the John W. McCormack Post Office and Courthouse (receptor P8) as well as on the podium terrace of One Federal Street (receptor P9). These impacts occur between September and April, last approximately 1 hour or less and begin during the late morning or late afternoon.
7. The vertical fins on the current facade design are a positive design feature and aid in reducing the frequency and intensity of some reflections, particularly to the north and east of the development. The lack of similar fins on the west and southwest facades is partially why reflection impacts occur more frequently to the west and southwest of the tower.

## **Visual Glare Impacts – On-Site**

8. Moderate levels of visual impact fall on the pedestrian receptors located on the podiums roofs of the development. Within the rooftop areas of the southern podiums (e.g., receptor P12), the reflections have the potential to be frequent and long in duration throughout the majority of the year. While not posing any risk to safety, the reflections may be a nuisance for people in these areas, making mitigation advisable if these spaces are to be used as amenity areas.

# OVERALL OBSERVATIONS & CONCLUSIONS



## Glare Source Diagram for Selected Impacts on Driver Receptor D3

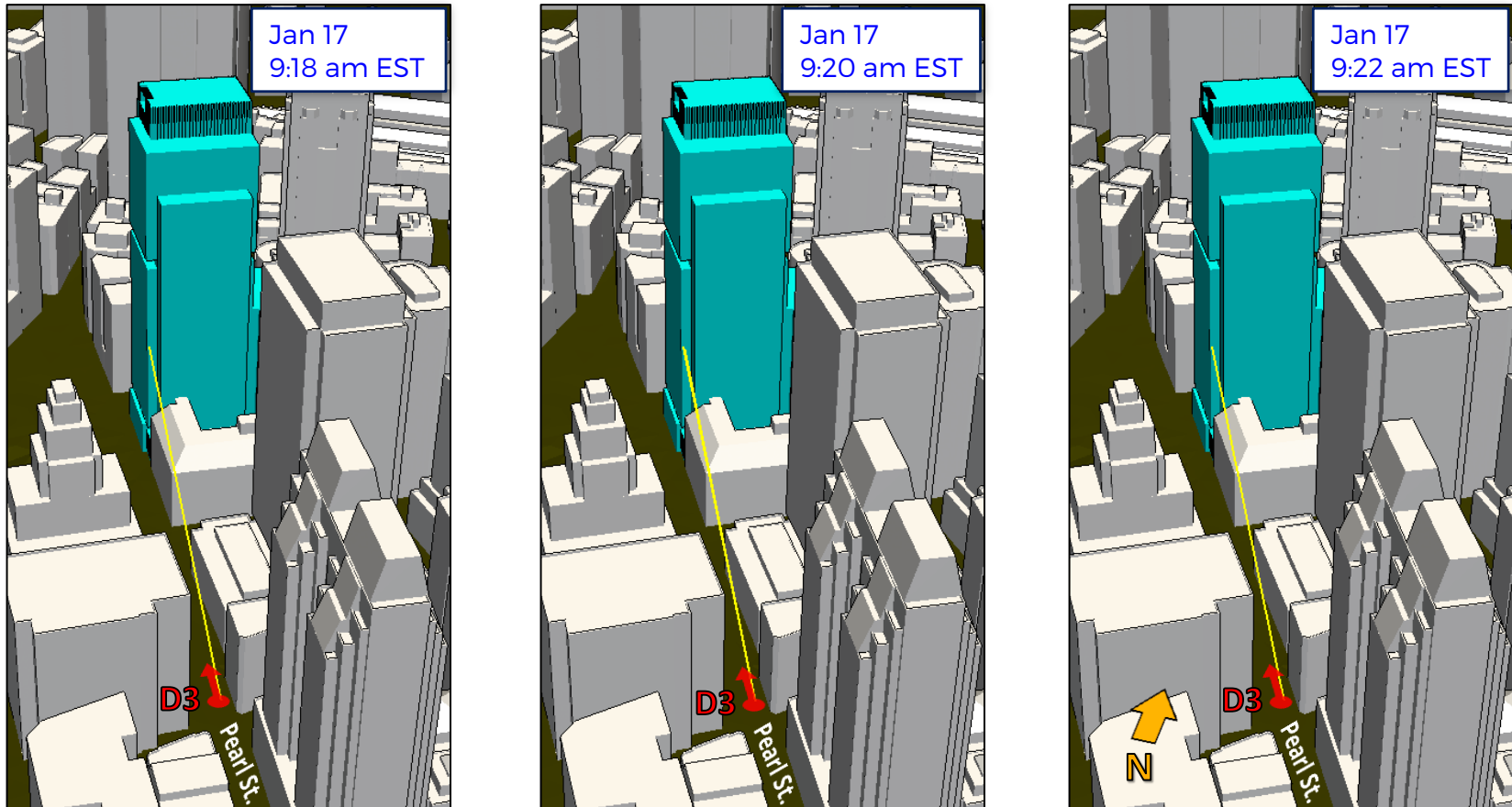


Figure 10: Illustration of high impact reflections on Receptor D3 during the morning of January 17

# OVERALL OBSERVATIONS & CONCLUSIONS



## Glare Source Diagram for Selected Impacts on Driver Receptor D4

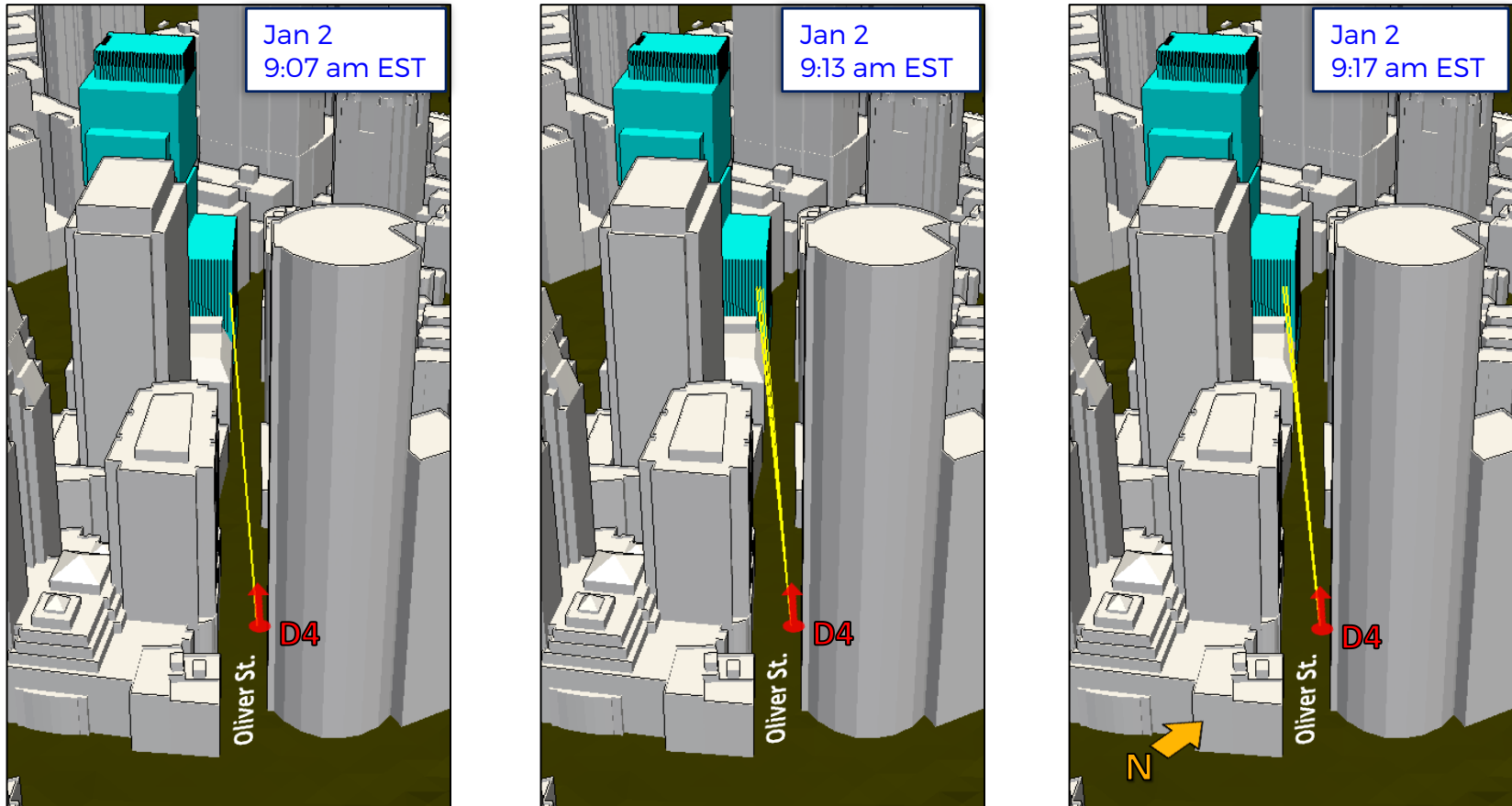


Figure 11: Illustration of high impact reflections on Receptor D4 during the morning of January 2

# OVERALL OBSERVATIONS & CONCLUSIONS



## Glare Source Diagram for Selected Impacts on Pedestrian Receptor P12

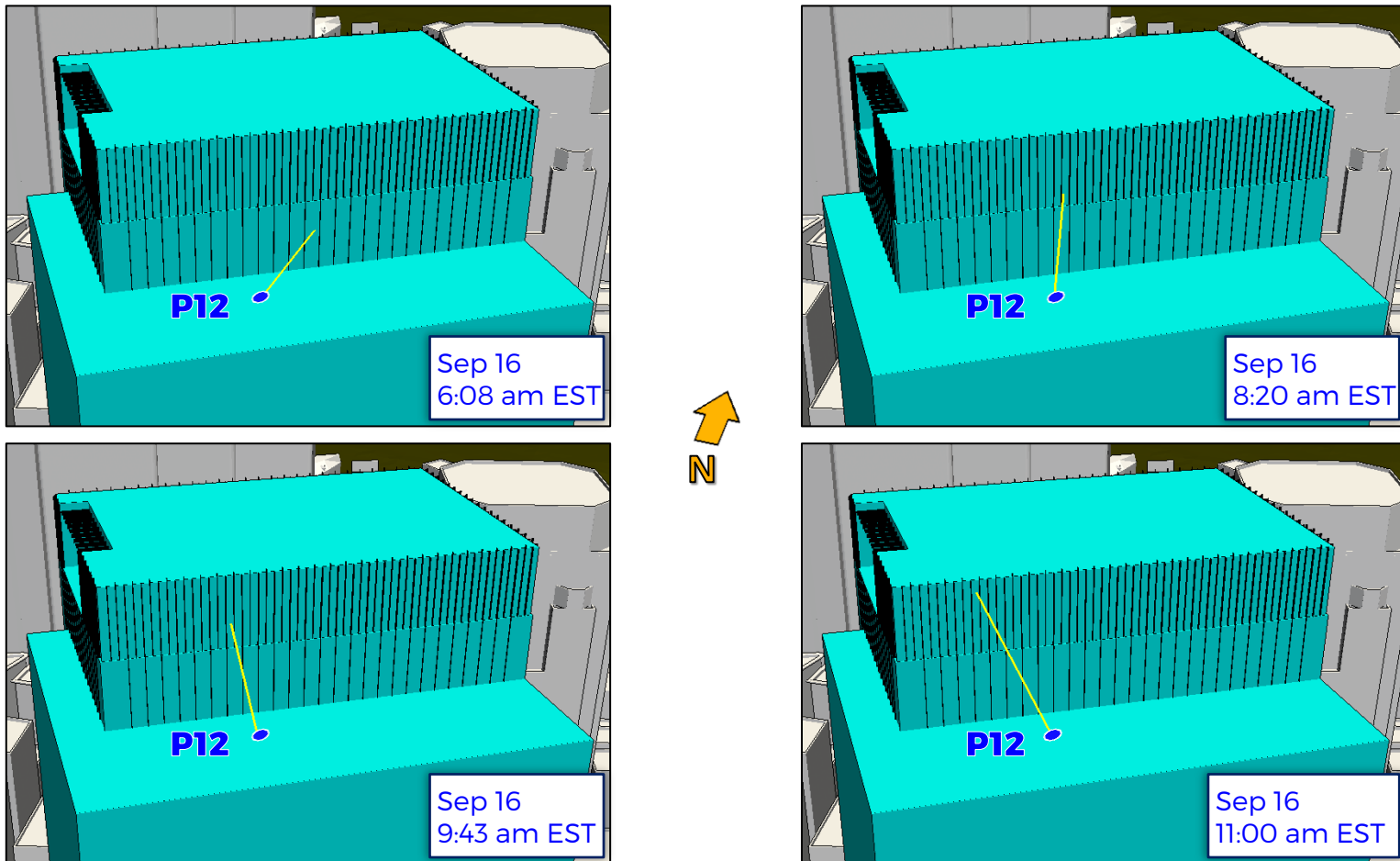


Figure 12: Illustration of moderate impact reflections on Receptor P12 during the morning of January 17



# MITIGATION STRATEGIES



Overall, it is RWDI's opinion that the reflections falling from the proposed One Post Office Square redevelopment onto the surrounding neighborhood are comparable to reflections elsewhere in the city. If however, there are concerns about the predicted reflection impacts, RWDI offers the following suggestions for further consideration (refer to Figures 13-17 in the following four pages for a mark-up of these recommendations):

- 1. Building Mounted Shading Devices:** Breaking up some of the reflections emanating from the facades of the development could be accomplished by constructing physical blockages. In particular, mounting vertical fins to the west and southwest facades (areas inside the yellow box in Figure 13) that are 10-12 inches deep would aid in reducing the frequency of impacts on the area to the immediate northwest of the development, including receptors D1, P6, P8, and F19.
- 2. Glazing Change-out:** Selecting glazing units with a lower visible reflectance in the area specified in Figure 14 would aid in reducing the intensity of reflections impacting the area to the west of the development. Similarly, reducing the visible reflectivity of the areas highlighted in Figure 15 would slightly help in decreasing the frequency of high-impact reflections on driver receptors D3 and D4. That being said,

this approach will only reduce the degree of the impact, not eliminate them entirely.

- 3. Glazing Surface Modification:** Modifying the exterior surface of the highlighted areas in Figures 13 and 15 to diffuse reflected light rather than reflecting like a mirror (i.e. by "frosting" or roughening the exterior surface) could also help in reducing the frequency of reflections falling to the west of the development and onto the driver receptors D1, D3, and D4. This could also be achieved through adding fritting or tinting to the glazing.
- 4. Free-Standing Shading Devices:** A practical approach to intercept some of the frequent reflections falling onto the roof of southern podiums of the development (e.g., receptor P12 in Figure 16) may be to block reflections closer to pedestrian level. Strategic use of shading devices (umbrellas, canopies, vegetation, etc.) will limit the impact of reflections from the development's facades.

# MITIGATION OPTIONS



- 5. Operationalized Mitigation:** Mitigation for the roofs of the southern podiums can also be achieved through operational means (e.g. scheduling any activities on the rooftops in the evening when no significant reflections are expected). This would not be necessary if the pedestrian areas are sufficiently shaded.

It should be noted that building mounted shading devices need careful design to ensure that they do not lead to potential problems with wind induced noise or vibration, snow and ice build up, etc. Thus, if mitigation via facade mounted shading structures is desired, RWDI would recommend re-running the simulations with the proposed shading devices included to predict their effectiveness.

# MITIGATION OPTIONS

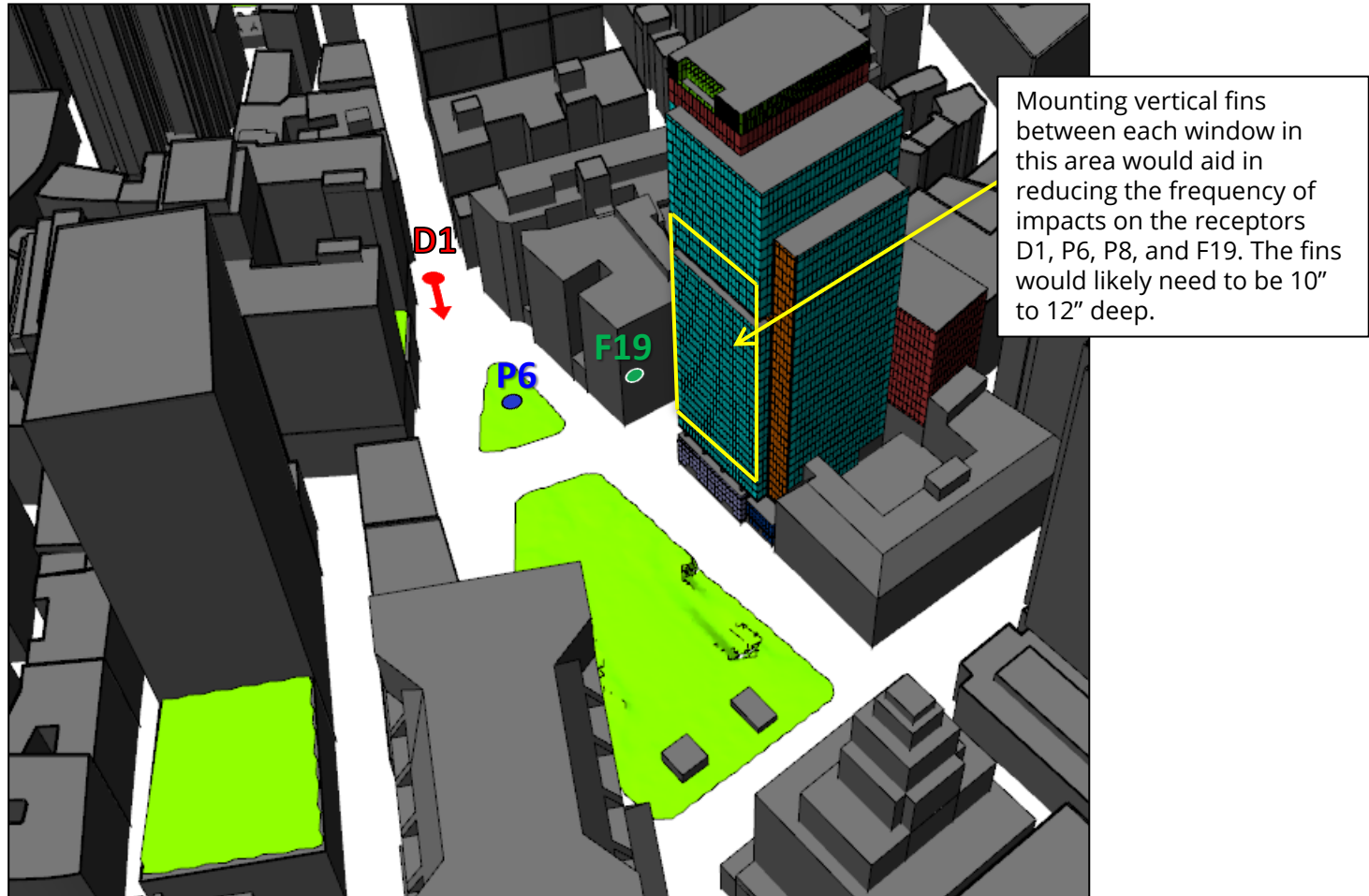


Figure 13: Markup of locations where building-mounted shading devices would be an appropriate mitigation option

# MITIGATION OPTIONS

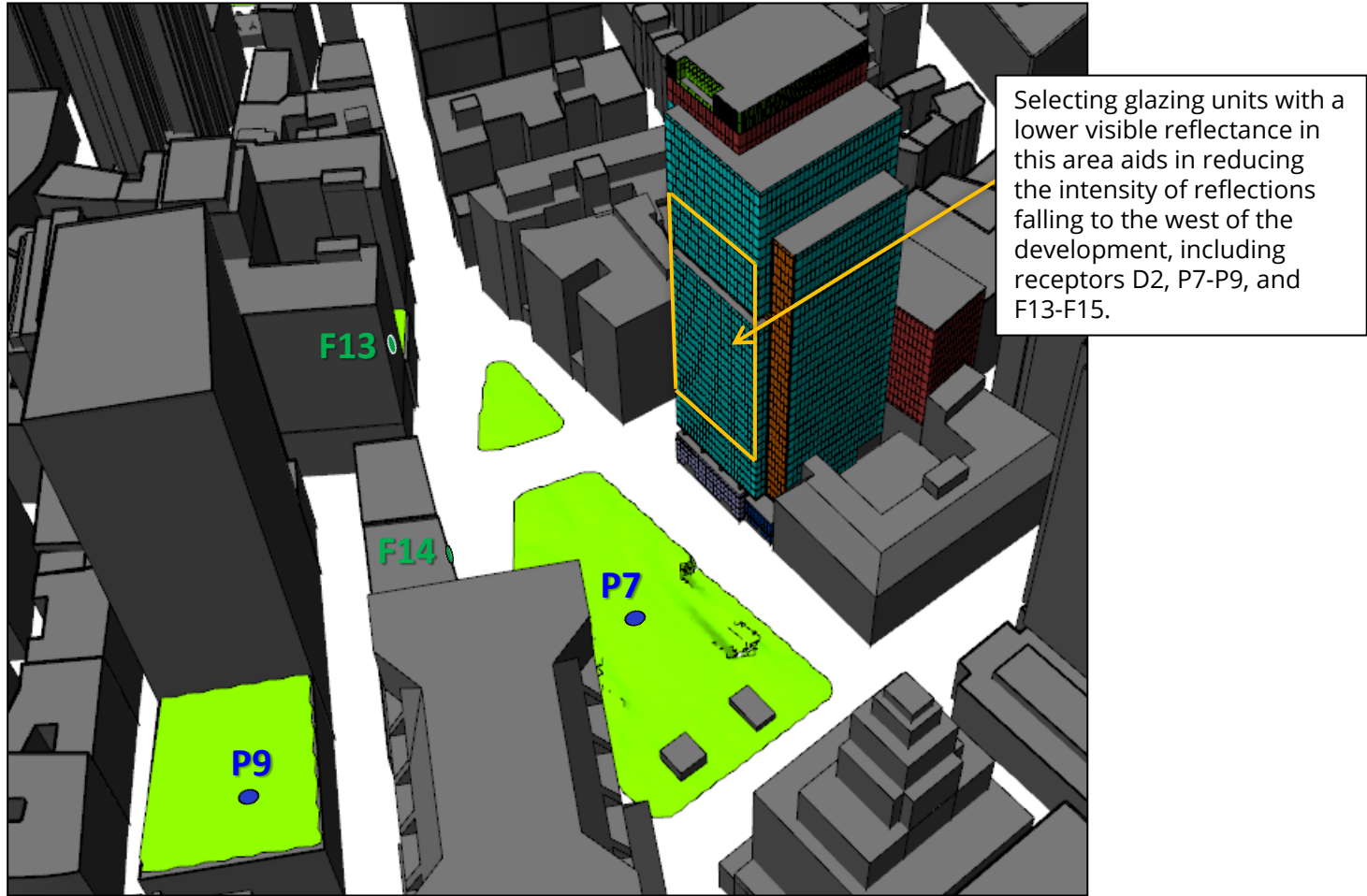


Figure 14: Markup of locations where reducing visible reflectance would be an appropriate mitigation option

# MITIGATION OPTIONS

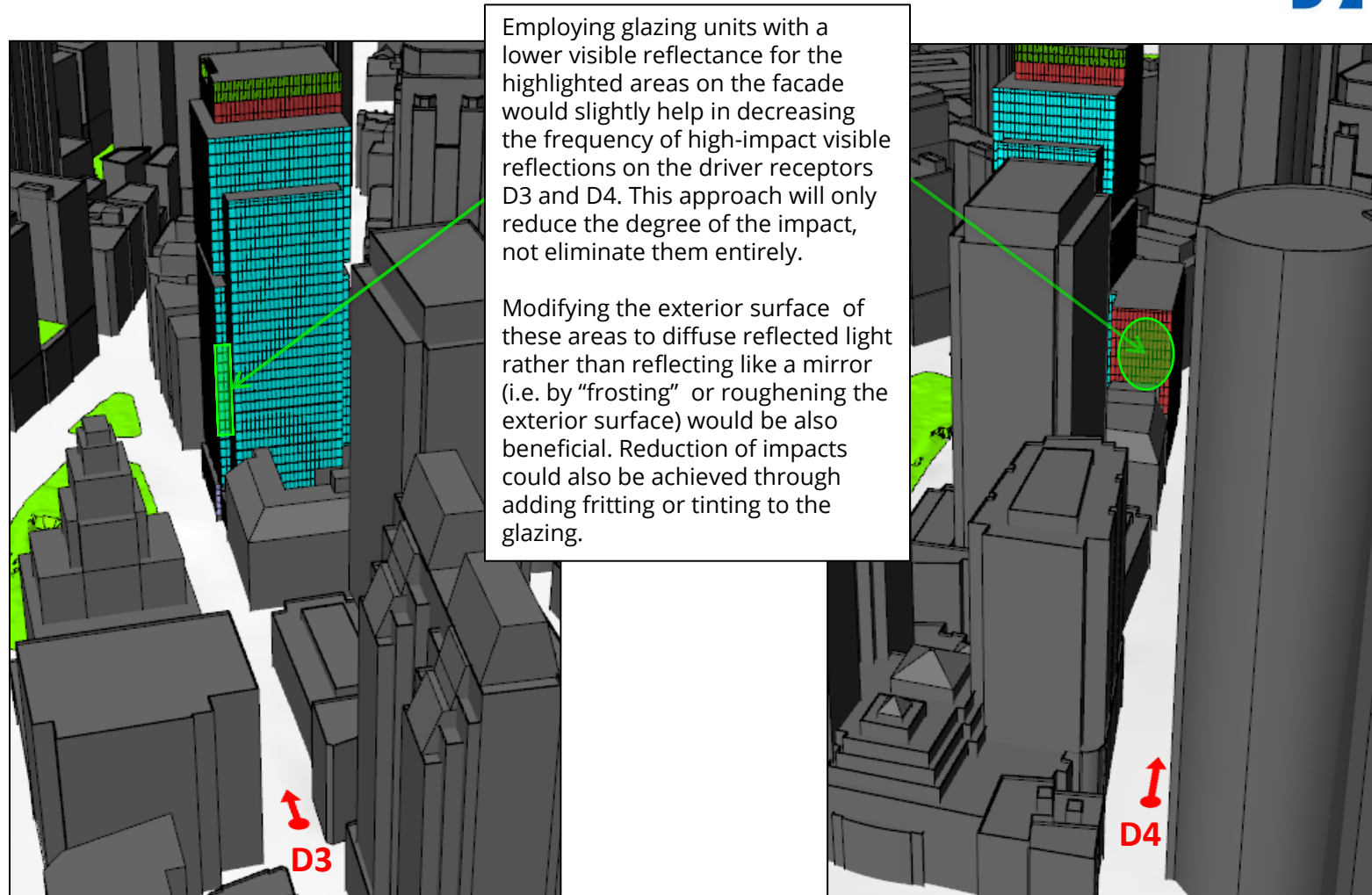
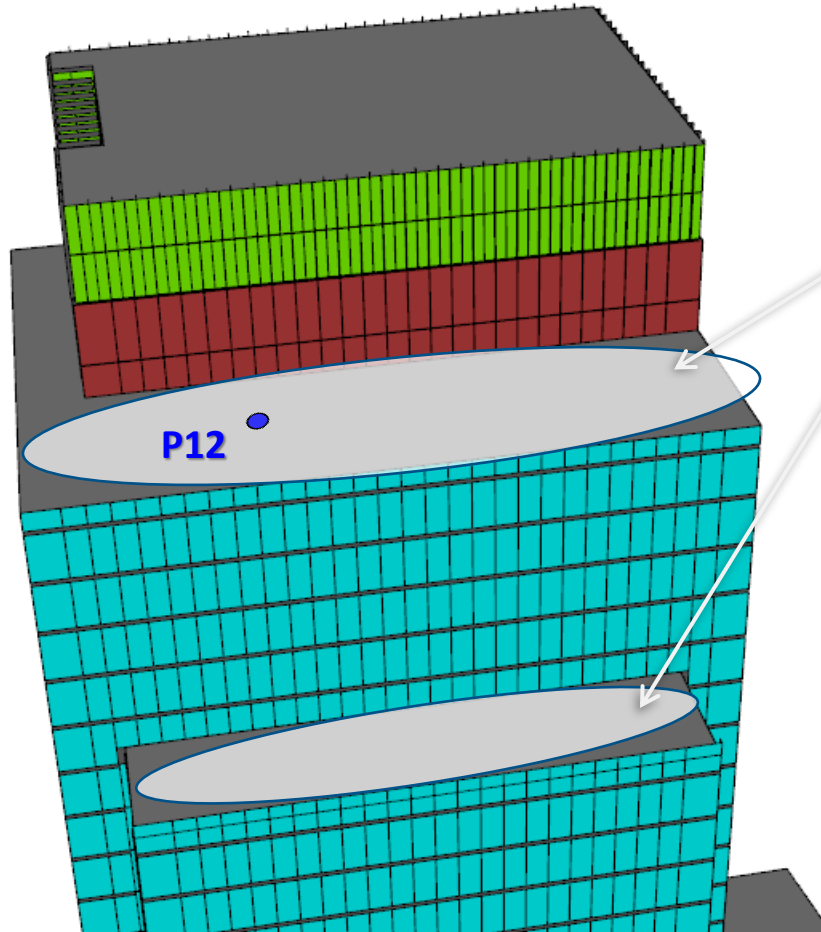


Figure 15: Markup of locations where reducing visible reflectance would be an appropriate mitigation option.



# MITIGATION OPTIONS



Strategic use of shading structures (canopies, umbrellas, etc.) and/or landscaping (dense trees) would improve visual and thermal comfort in the areas located on the roof of podiums by obstructing both direct and reflected sunlight.

Mitigation on-site can also be achieved through operational means (e.g. scheduling any activities in the afternoons and evenings). This would not be necessary if the pedestrian areas are sufficiently shaded.

Figure 16: Markup of locations where user operable shading devices and/or operational mitigation measures would be an appropriate mitigation option

# APPENDIX A

**DETAILED REFLECTION RESULTS**

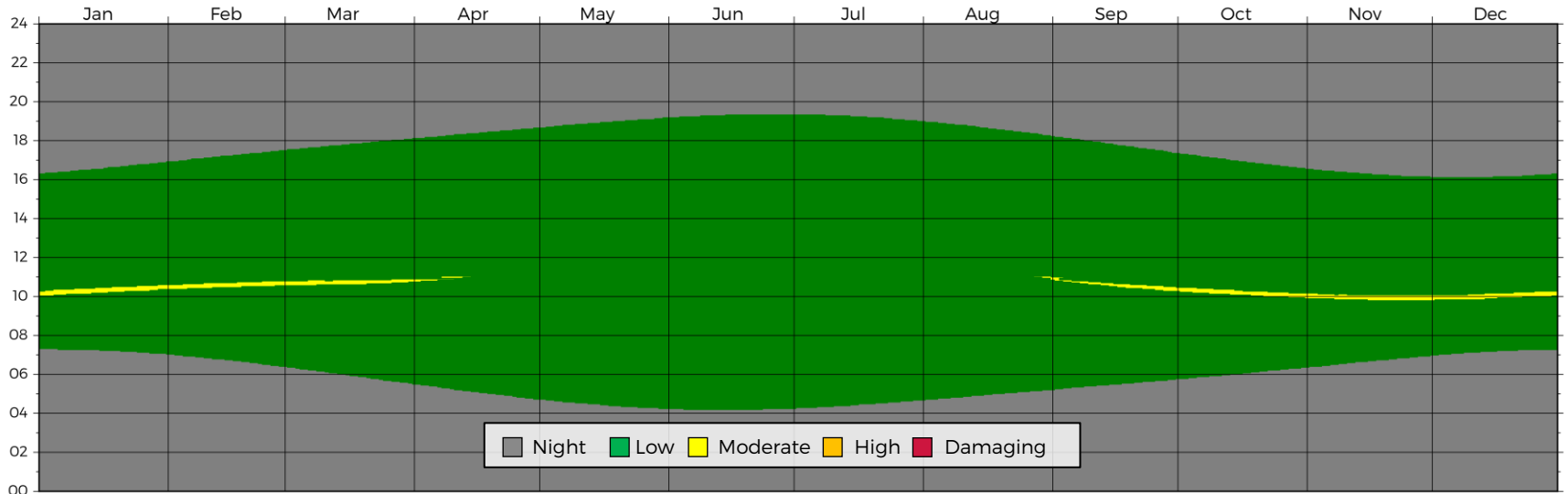
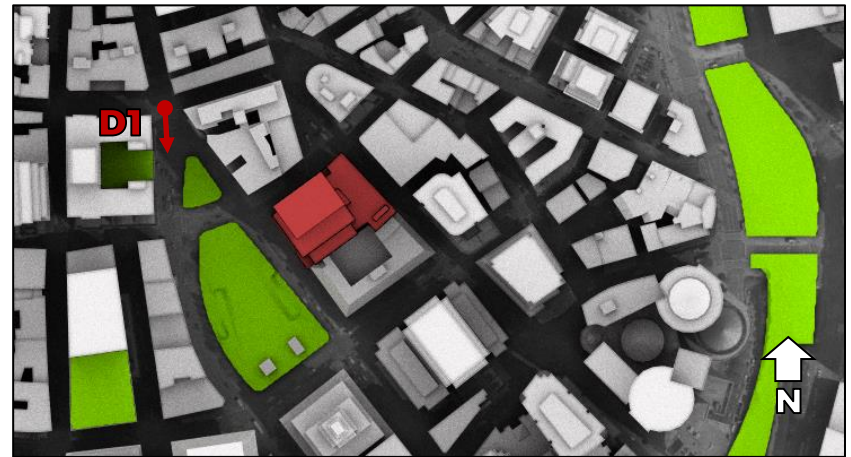
# ANNUAL VISUAL IMPACT



## Driver Receptor D1

Receptor D1 was chosen to assess the visual risk associated with solar reflections affecting drivers traveling south on Congress St.

Please note that the referenced times are in local standard time, so in jurisdictions where Daylight Savings Time is used, the time should be shifted by an hour when appropriate.



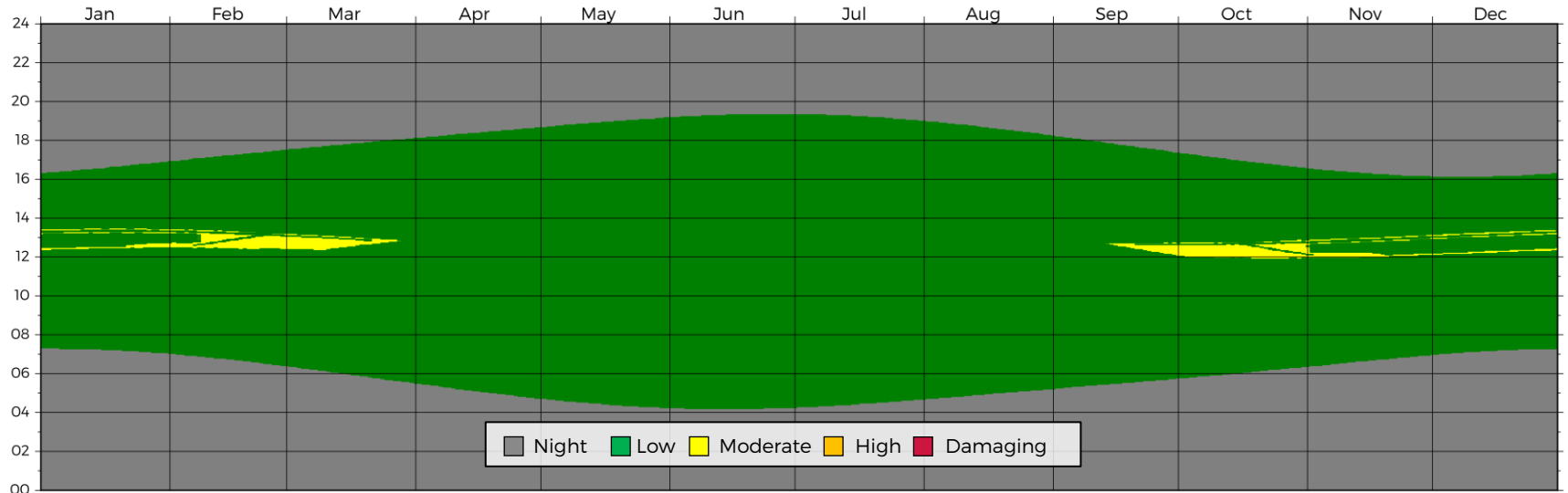
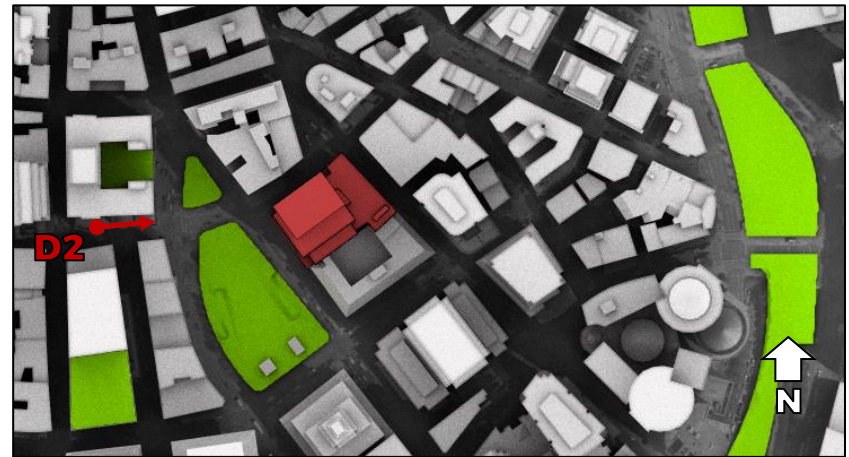
# ANNUAL VISUAL IMPACT



## Driver Receptor D2

Receptor D2 was chosen to assess the visual risk associated with solar reflections affecting drivers traveling east on Milk St.

Please note that the referenced times are in local standard time, so in jurisdictions where Daylight Savings Time is used, the time should be shifted by an hour when appropriate.



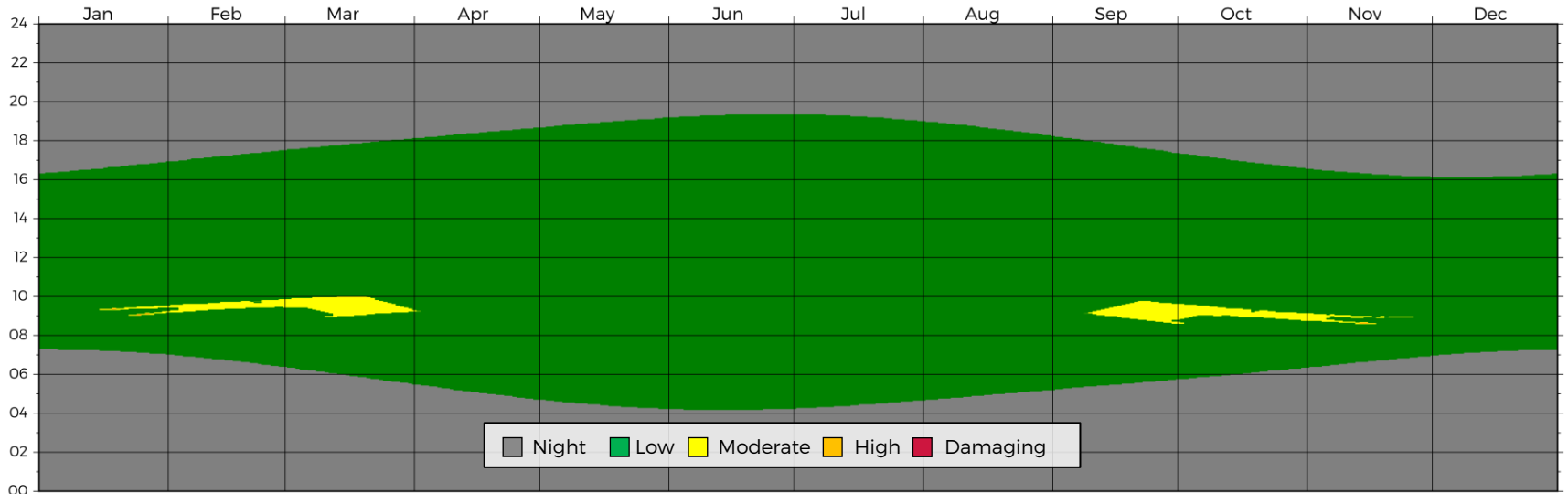
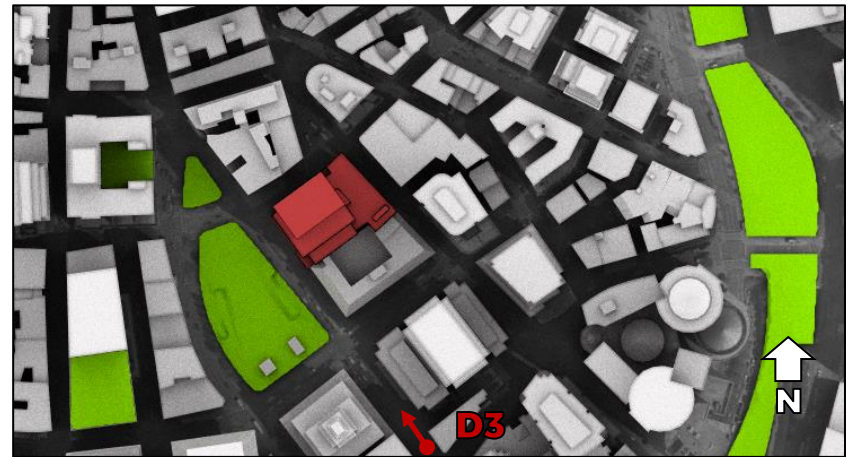
# ANNUAL VISUAL IMPACT



## Driver Receptor D3

Receptor D3 was chosen to assess the visual risk associated with solar reflections affecting drivers traveling northwest on Pearl St.

Please note that the referenced times are in local standard time, so in jurisdictions where Daylight Savings Time is used, the time should be shifted by an hour when appropriate.





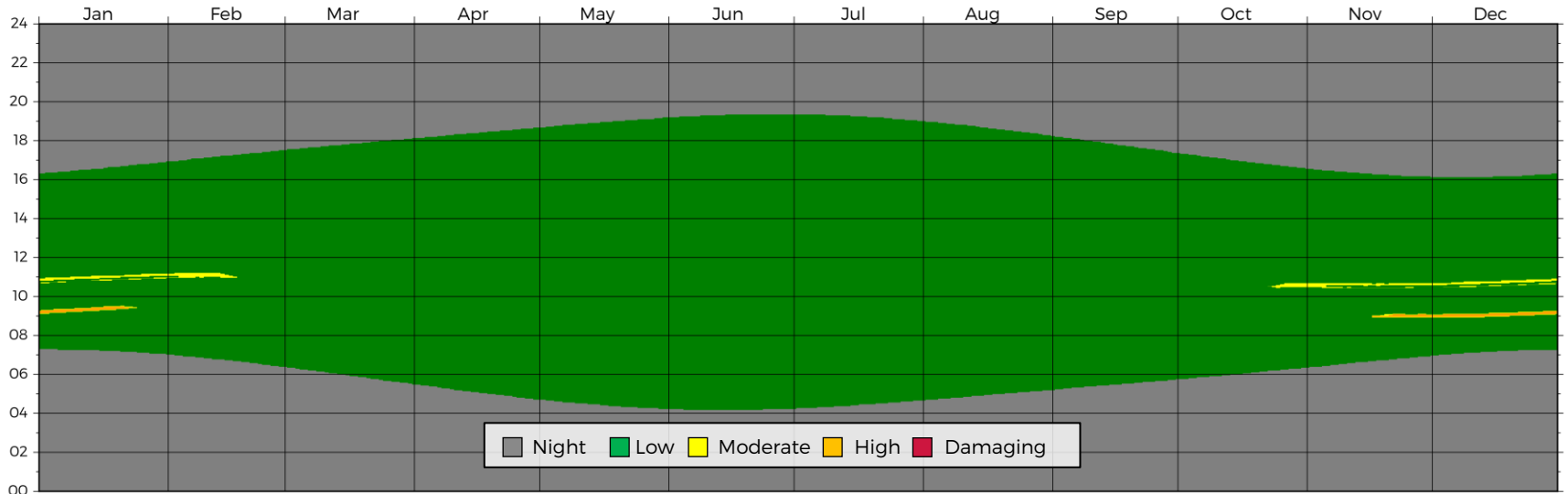
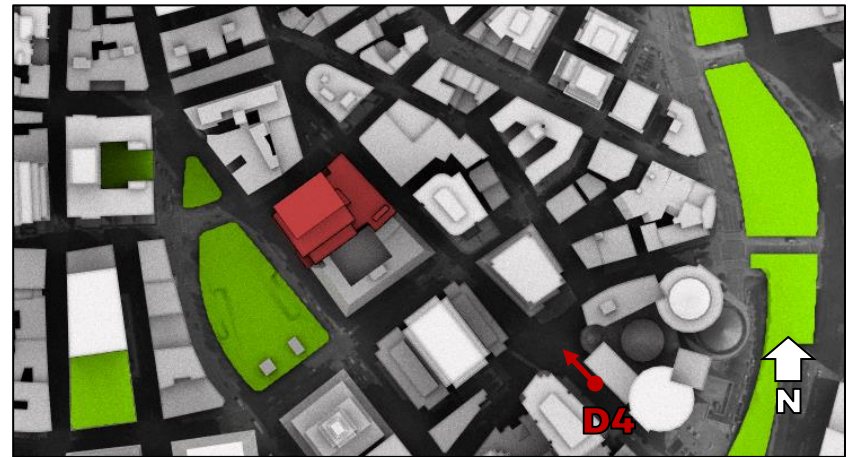
# ANNUAL VISUAL IMPACT



## Driver Receptor D4

Receptor D4 was chosen to assess the visual risk associated with solar reflections affecting drivers traveling northwest on Oliver St.

Please note that the referenced times are in local standard time, so in jurisdictions where Daylight Savings Time is used, the time should be shifted by an hour when appropriate.



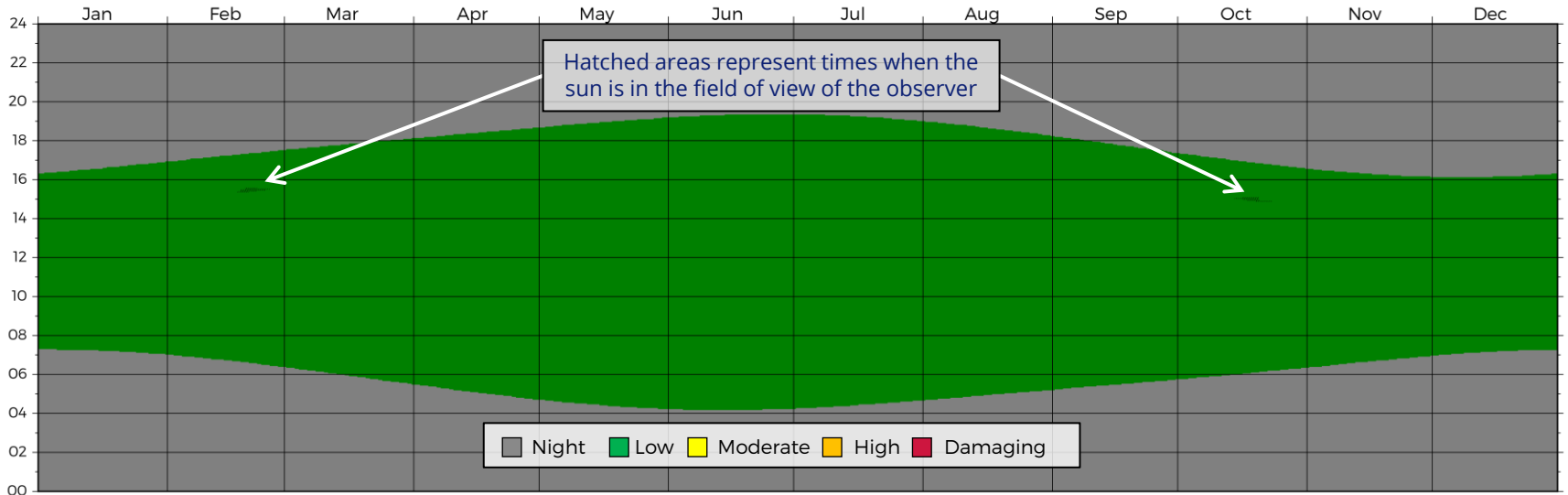
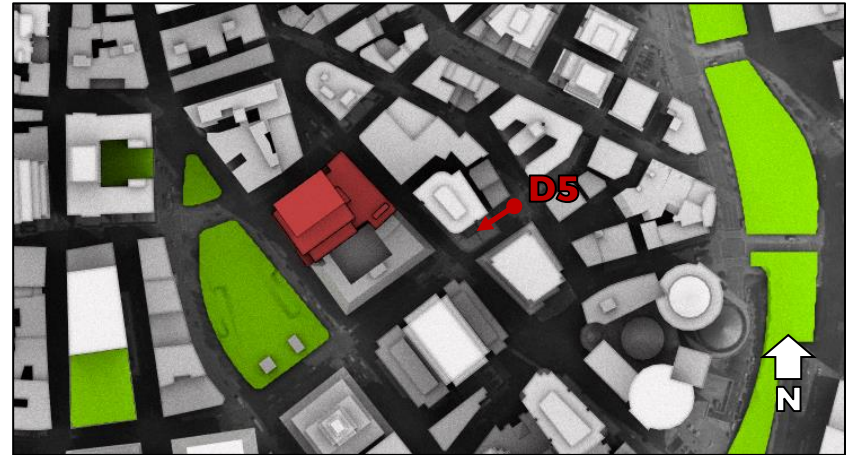
# ANNUAL VISUAL IMPACT



## Driver Receptor D5

Receptor D5 was chosen to assess the visual risk associated with solar reflections affecting drivers traveling southwest on Franklin St.

Please note that the referenced times are in local standard time, so in jurisdictions where Daylight Savings Time is used, the time should be shifted by an hour when appropriate.



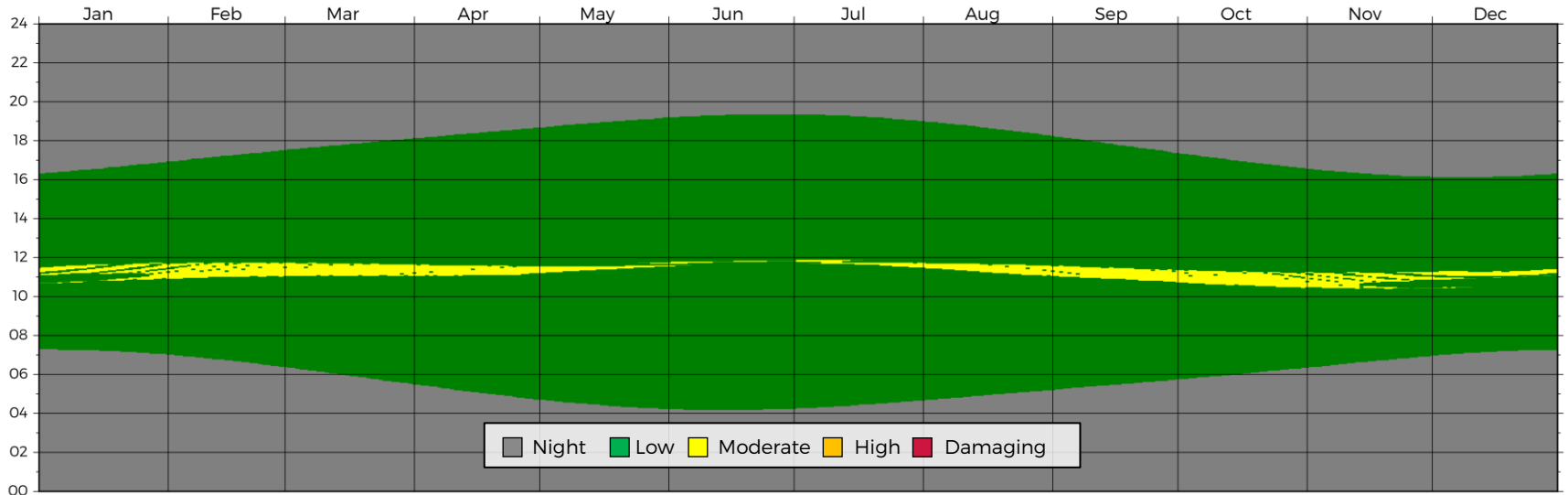
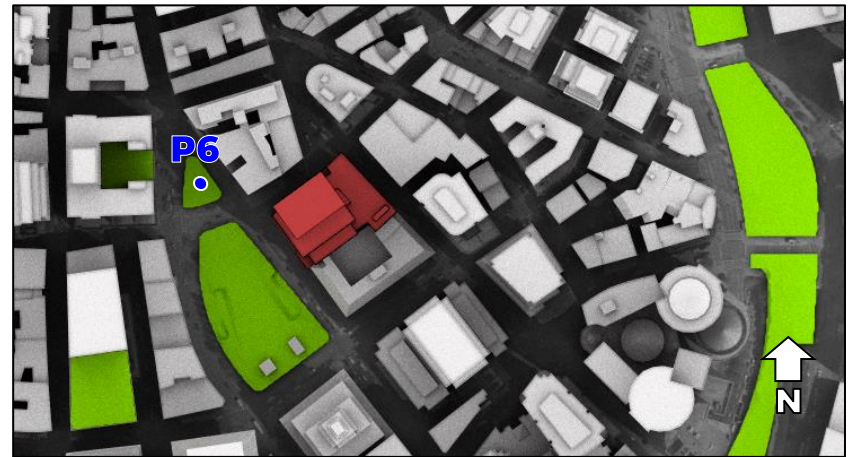
# ANNUAL VISUAL IMPACT



## Pedestrian Receptor P6

Receptor P6 was chosen to assess the visual risk associated with solar reflections affecting pedestrians at Norman Leventhal Park.

Please note that the referenced times are in local standard time, so in jurisdictions where Daylight Savings Time is used, the time should be shifted by an hour when appropriate.



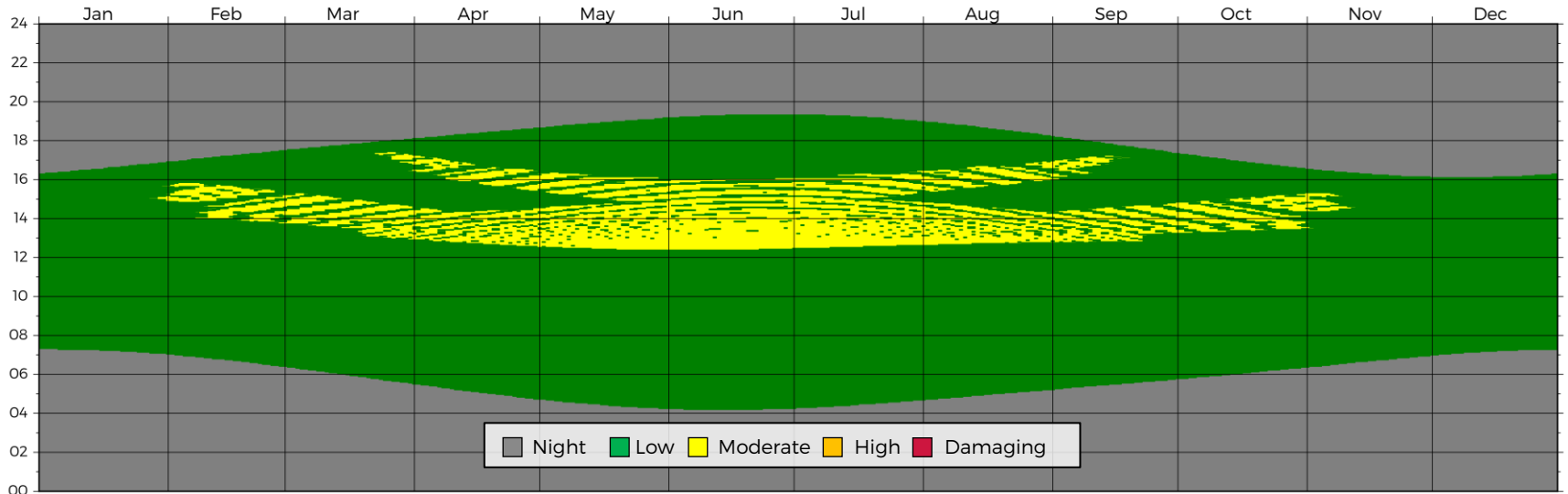
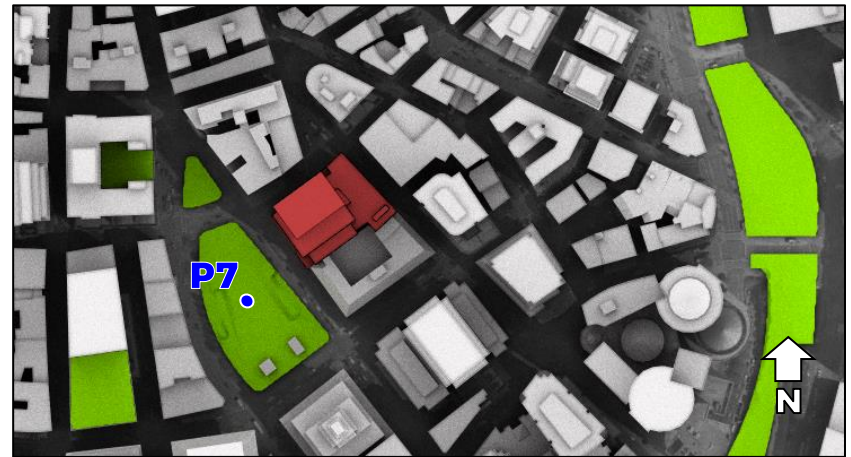
# ANNUAL VISUAL IMPACT



## Pedestrian Receptor P7

Receptor P7 was chosen to assess the visual risk associated with solar reflections affecting pedestrians at Norman Leventhal Park.

Please note that the referenced times are in local standard time, so in jurisdictions where Daylight Savings Time is used, the time should be shifted by an hour when appropriate.



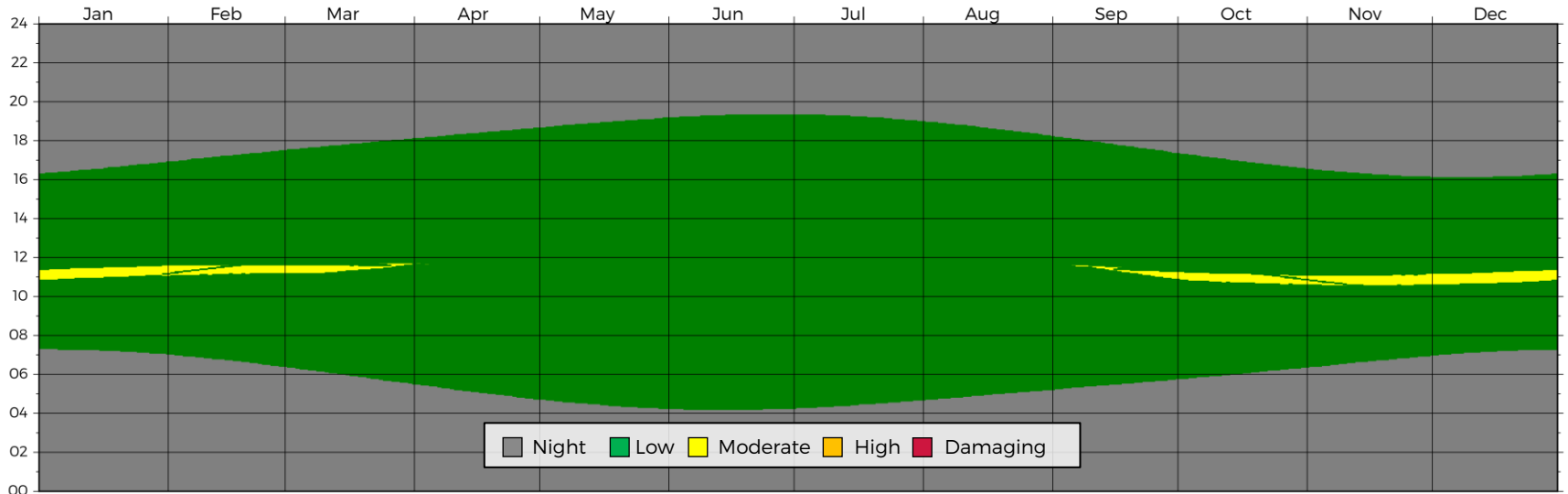
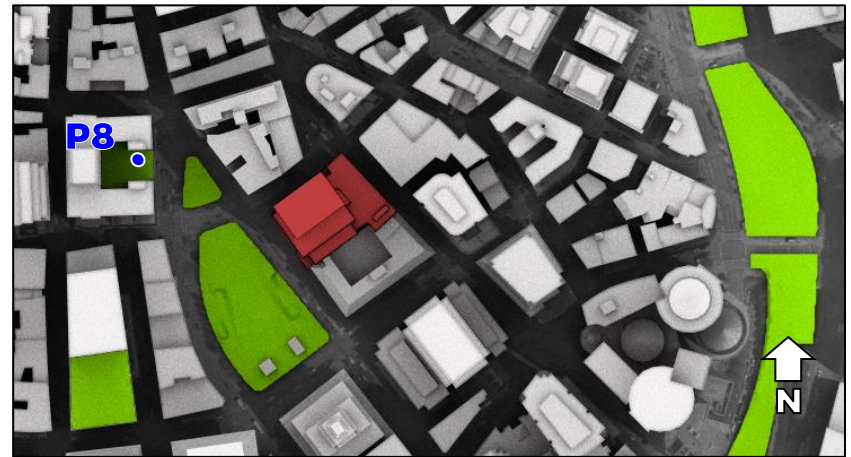
# ANNUAL VISUAL IMPACT



## Pedestrian Receptor P8

Receptor P8 was chosen to assess the visual risk associated with solar reflections affecting pedestrians on rooftop/podium of a building to the west of the development.

Please note that the referenced times are in local standard time, so in jurisdictions where Daylight Savings Time is used, the time should be shifted by an hour when appropriate.





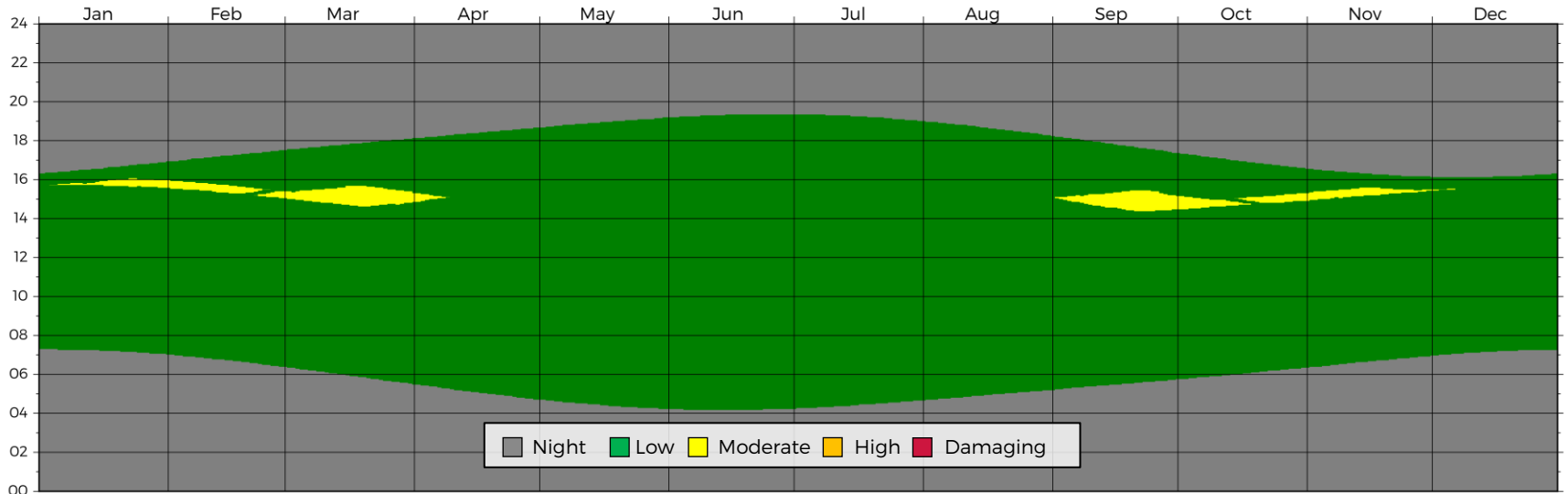
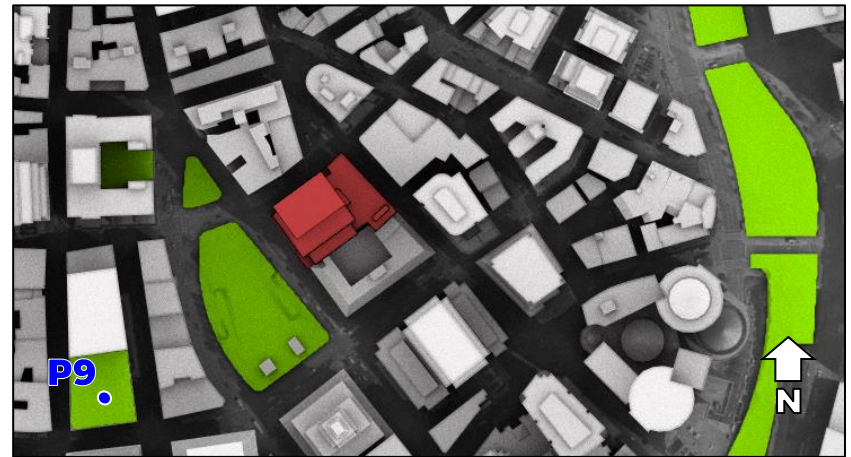
# ANNUAL VISUAL IMPACT



## Pedestrian Receptor P9

Receptor P9 was chosen to assess the visual risk associated with solar reflections affecting pedestrians on rooftop/podium of a building to the southwest of the development.

Please note that the referenced times are in local standard time, so in jurisdictions where Daylight Savings Time is used, the time should be shifted by an hour when appropriate.



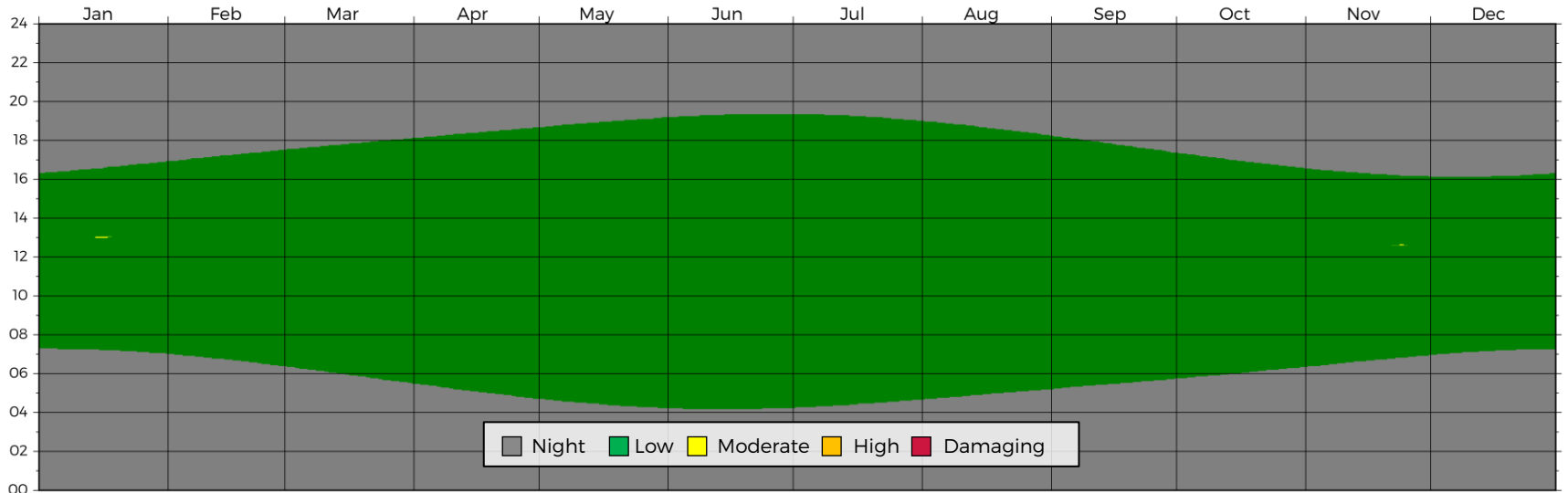
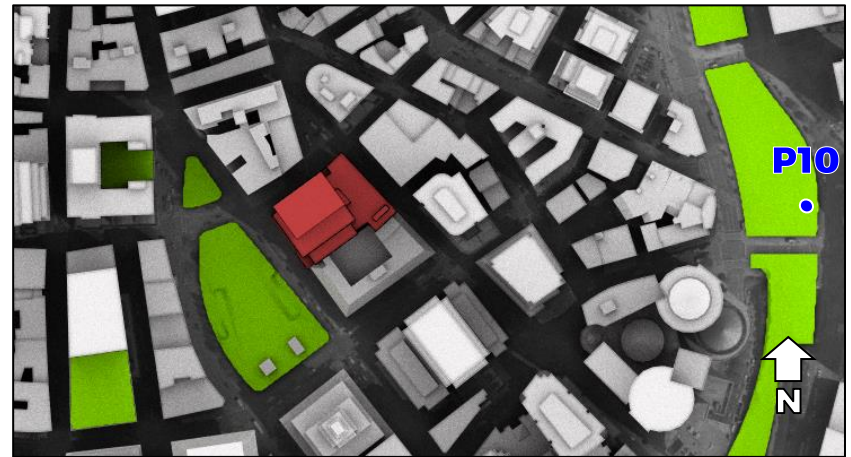
# ANNUAL VISUAL IMPACT



## Pedestrian Receptor P10

Receptor P10 was chosen to assess the visual risk associated with solar reflections affecting pedestrians at Wharf District Parks.

Please note that the referenced times are in local standard time, so in jurisdictions where Daylight Savings Time is used, the time should be shifted by an hour when appropriate.



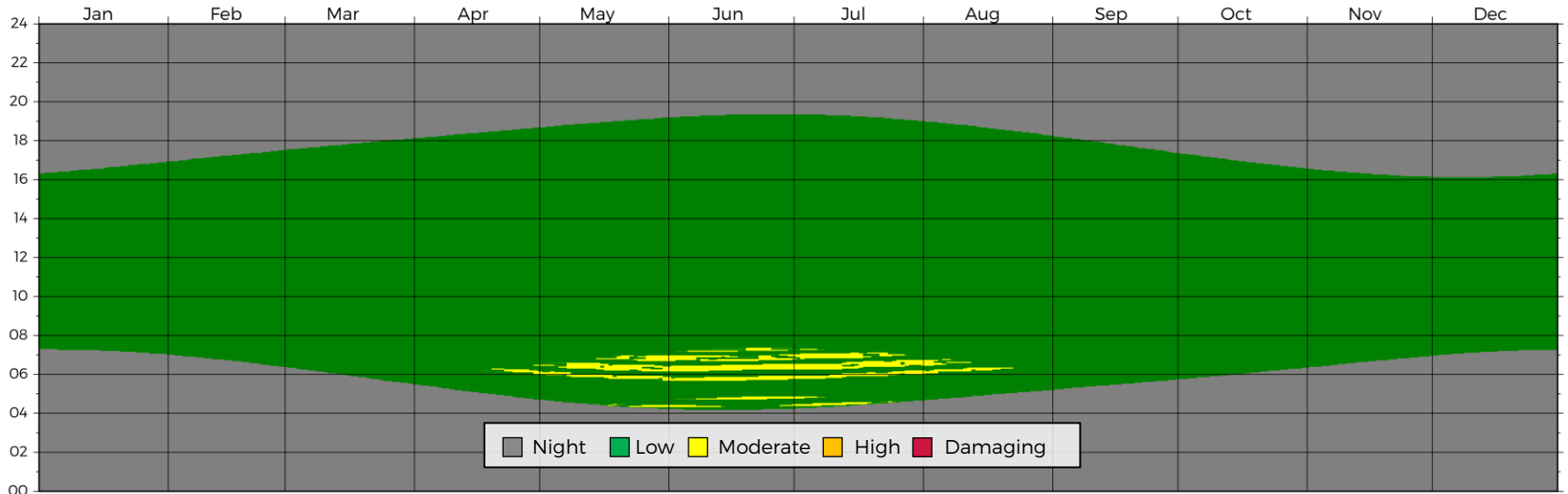
# ANNUAL VISUAL IMPACT



## Pedestrian Receptor P11

Receptor P11 was chosen to assess the visual risk associated with solar reflections affecting pedestrians on podium/rooftop of the development.

Please note that the referenced times are in local standard time, so in jurisdictions where Daylight Savings Time is used, the time should be shifted by an hour when appropriate.



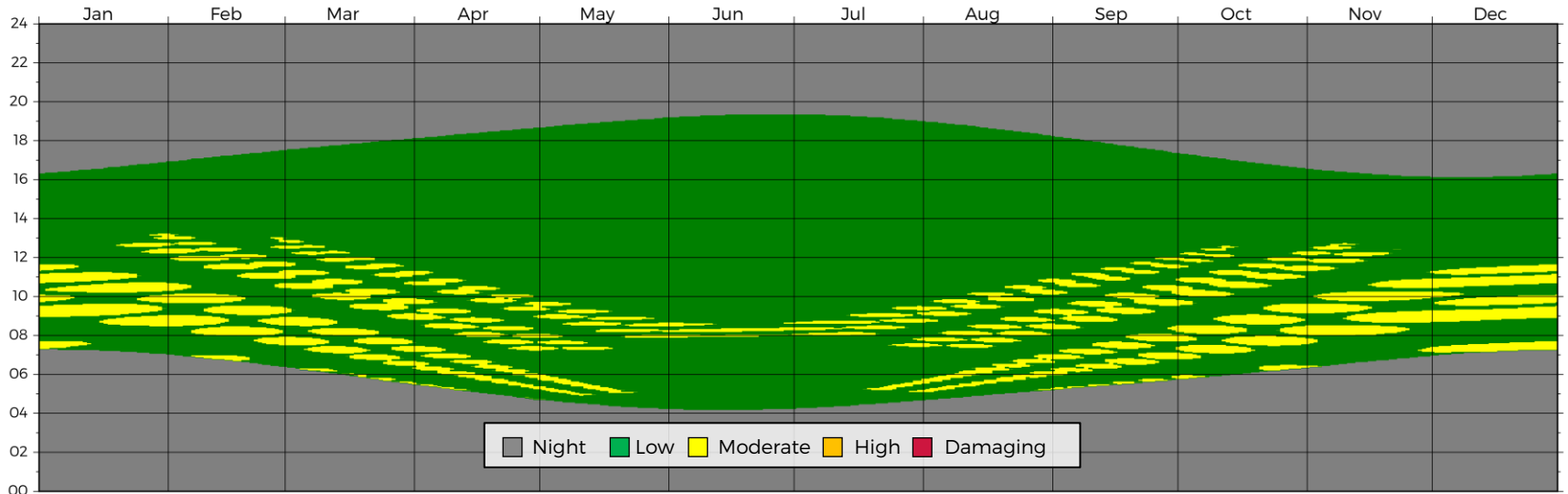
# ANNUAL VISUAL IMPACT



## Pedestrian Receptor P12

Receptor P12 was chosen to assess the visual risk associated with solar reflections affecting pedestrians on podium/rooftop of the development.

Please note that the referenced times are in local standard time, so in jurisdictions where Daylight Savings Time is used, the time should be shifted by an hour when appropriate.



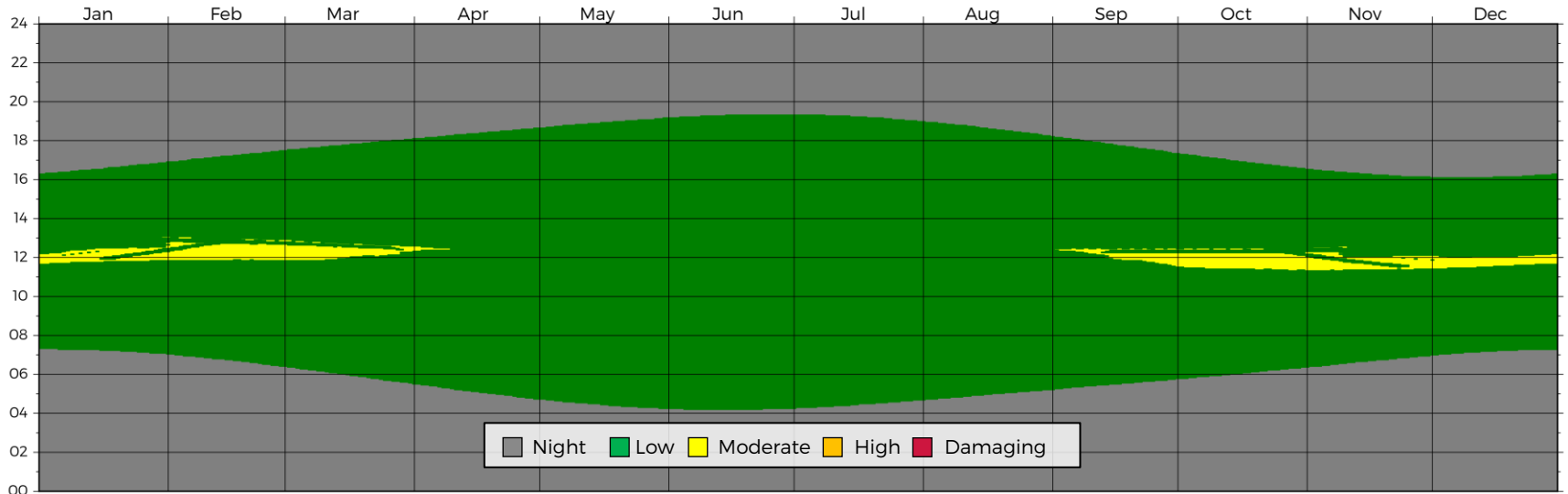
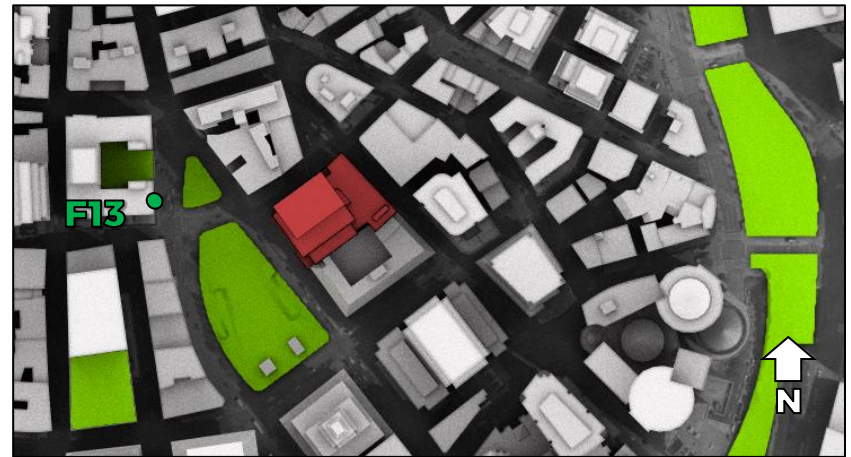
# ANNUAL VISUAL IMPACT



## Facade Receptor F13

Receptor F13 was chosen to assess the visual risk associated with solar reflections impacting the building to the west of the development.

Please note that the referenced times are in local standard time, so in jurisdictions where Daylight Savings Time is used, the time should be shifted by an hour when appropriate.





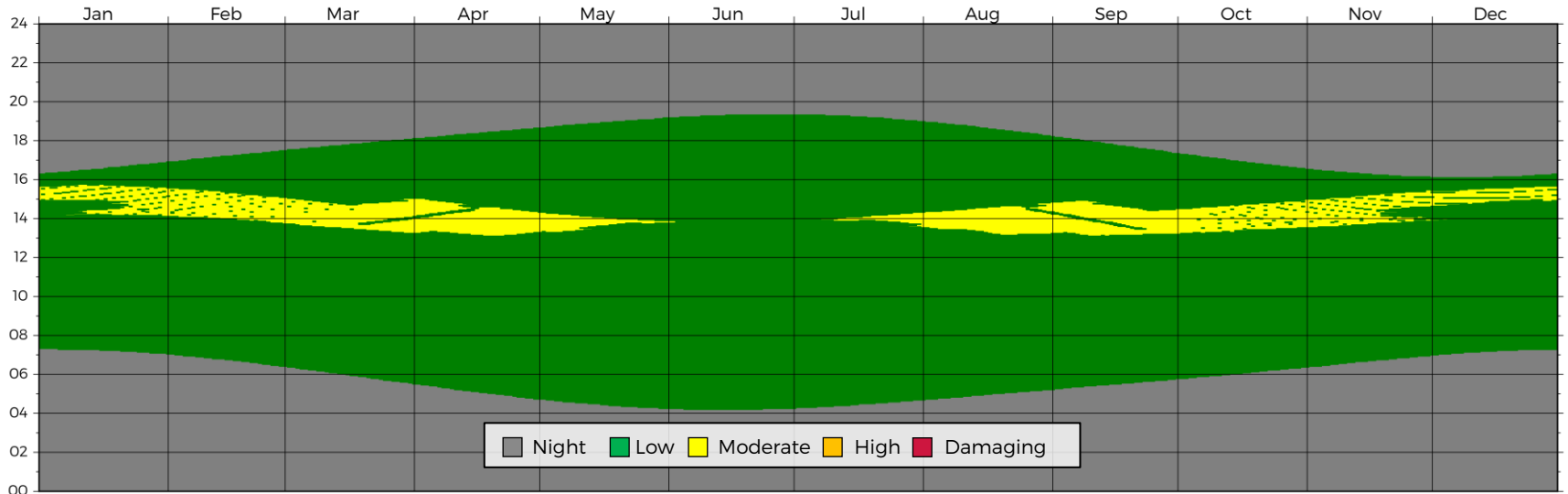
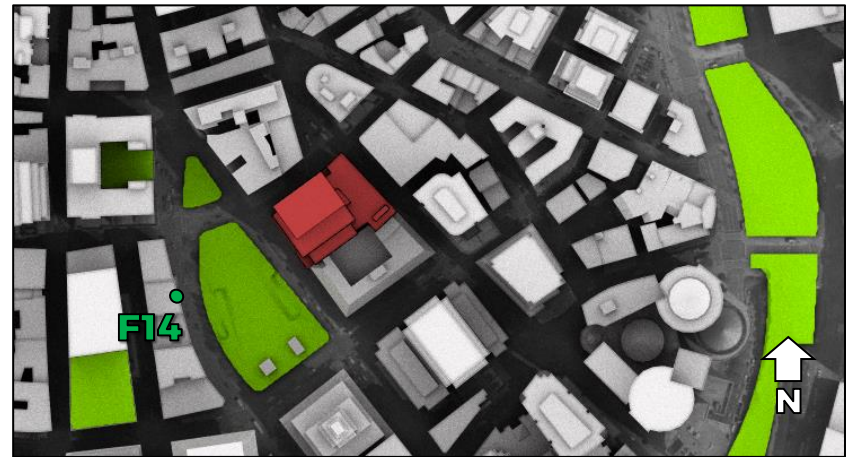
# ANNUAL VISUAL IMPACT



## Facade Receptor F14

Receptor F14 was chosen to assess the visual risk associated with solar reflections impacting the facade of a building to the southwest of the development.

Please note that the referenced times are in local standard time, so in jurisdictions where Daylight Savings Time is used, the time should be shifted by an hour when appropriate.



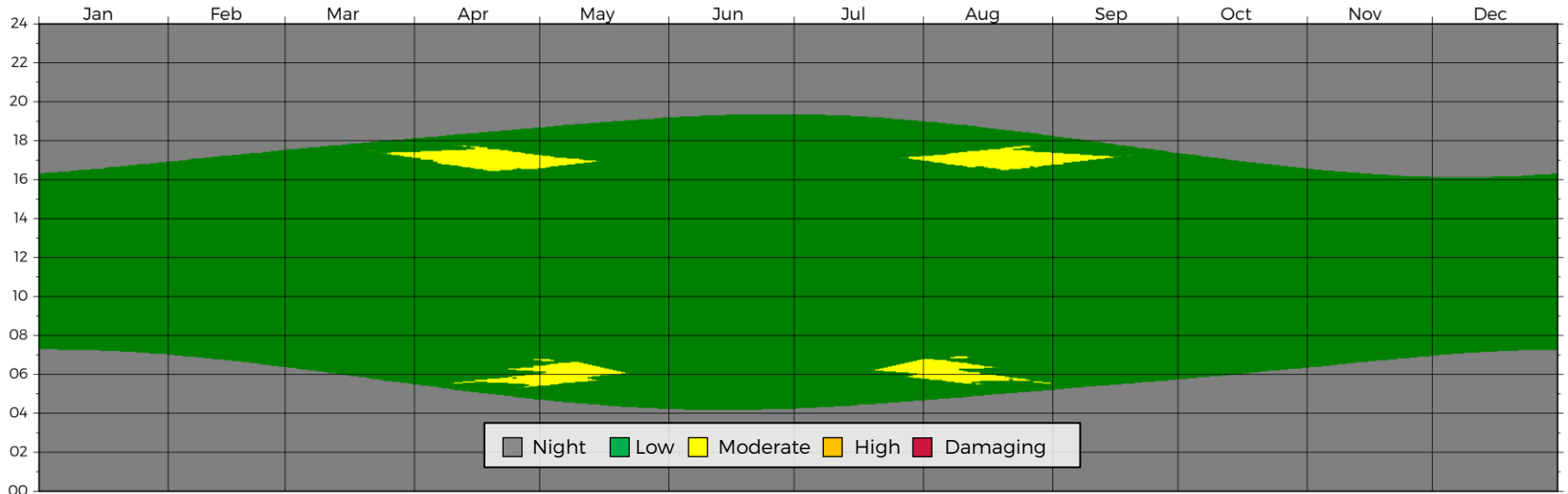
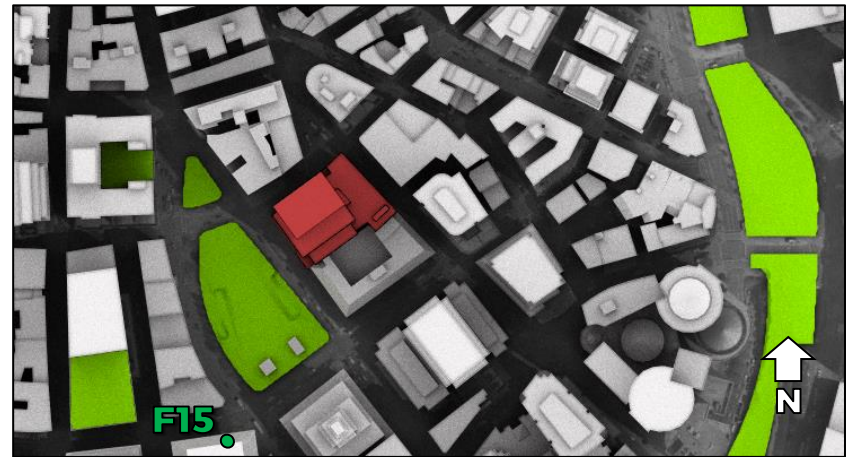
# ANNUAL VISUAL IMPACT



## Facade Receptor F15

Receptor F15 was chosen to assess the visual risk associated with solar reflections impacting the facade of a building to the southwest of the development.

Please note that the referenced times are in local standard time, so in jurisdictions where Daylight Savings Time is used, the time should be shifted by an hour when appropriate.



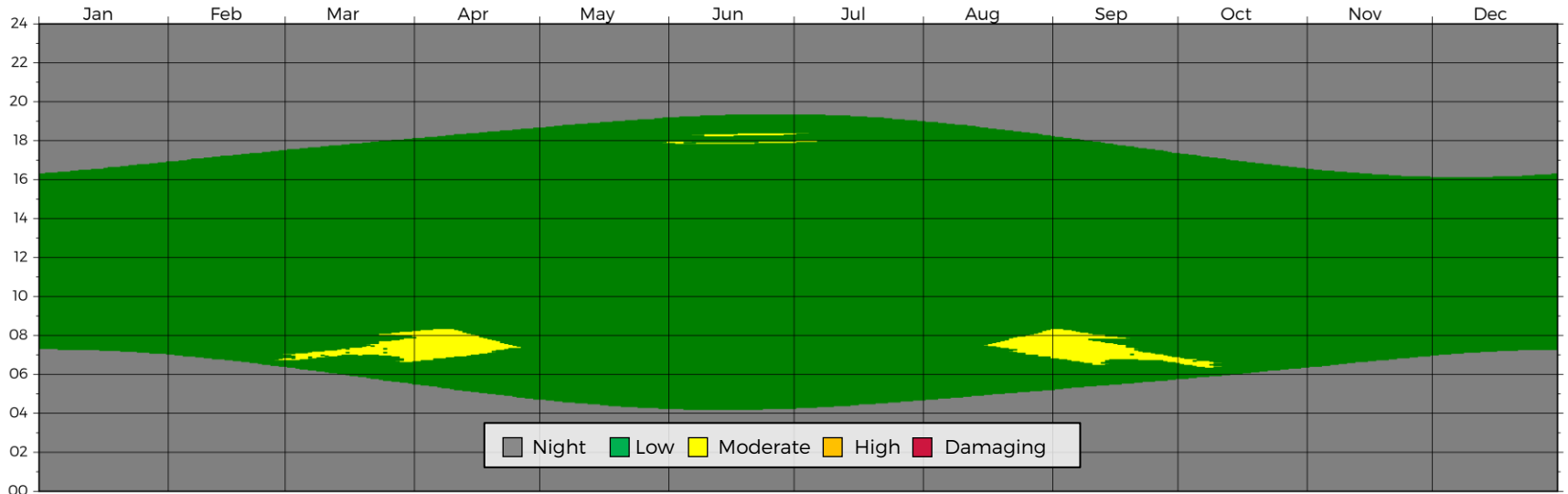
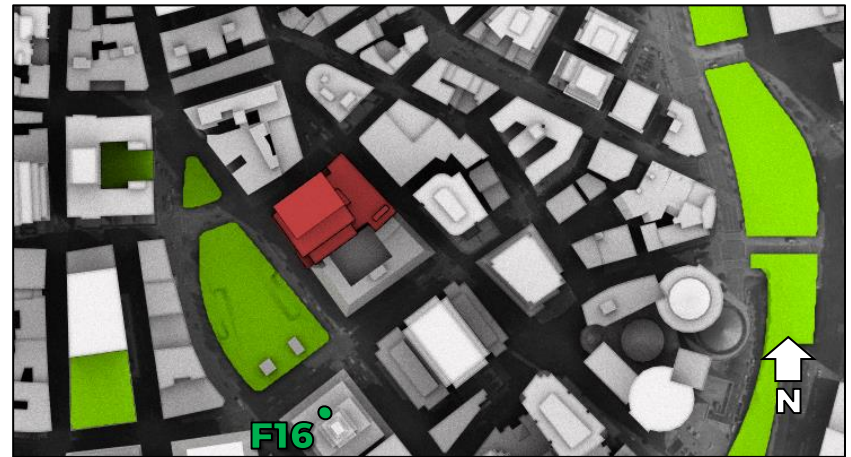
# ANNUAL VISUAL IMPACT



## Facade Receptor F16

Receptor F16 was chosen to assess the visual risk associated with solar reflections impacting the facade of a building to the south of the development.

Please note that the referenced times are in local standard time, so in jurisdictions where Daylight Savings Time is used, the time should be shifted by an hour when appropriate.



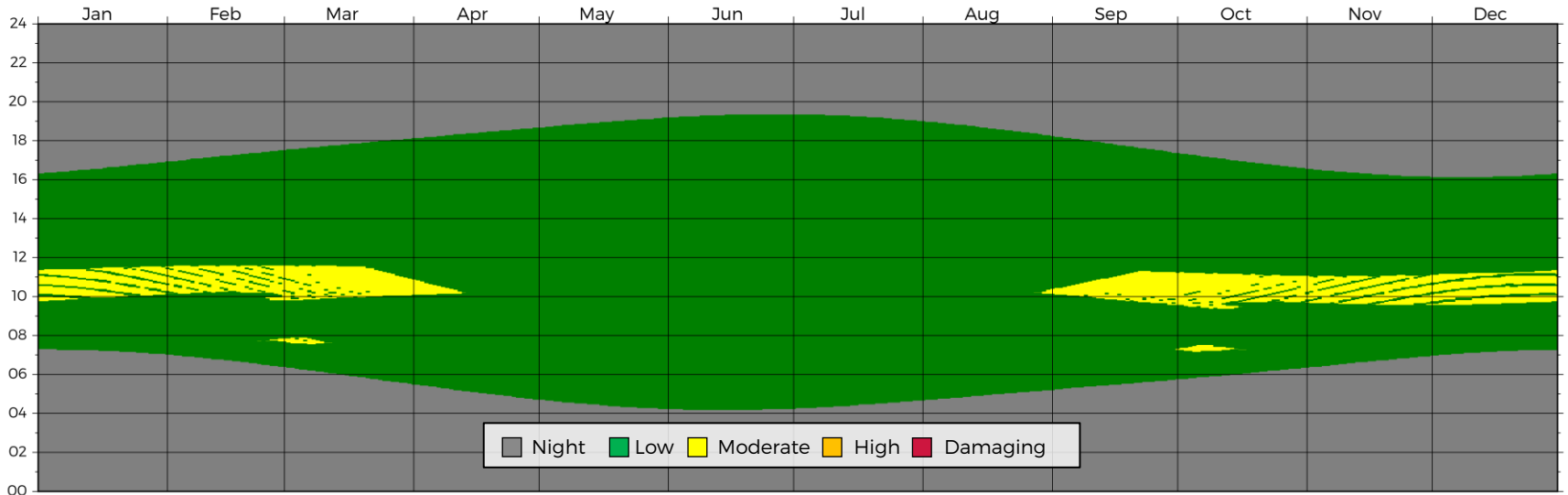
# ANNUAL VISUAL IMPACT



## Facade Receptor F17

Receptor F17 was chosen to assess the visual risk associated with solar reflections impacting the facade of a building to the southeast of the development.

Please note that the referenced times are in local standard time, so in jurisdictions where Daylight Savings Time is used, the time should be shifted by an hour when appropriate.



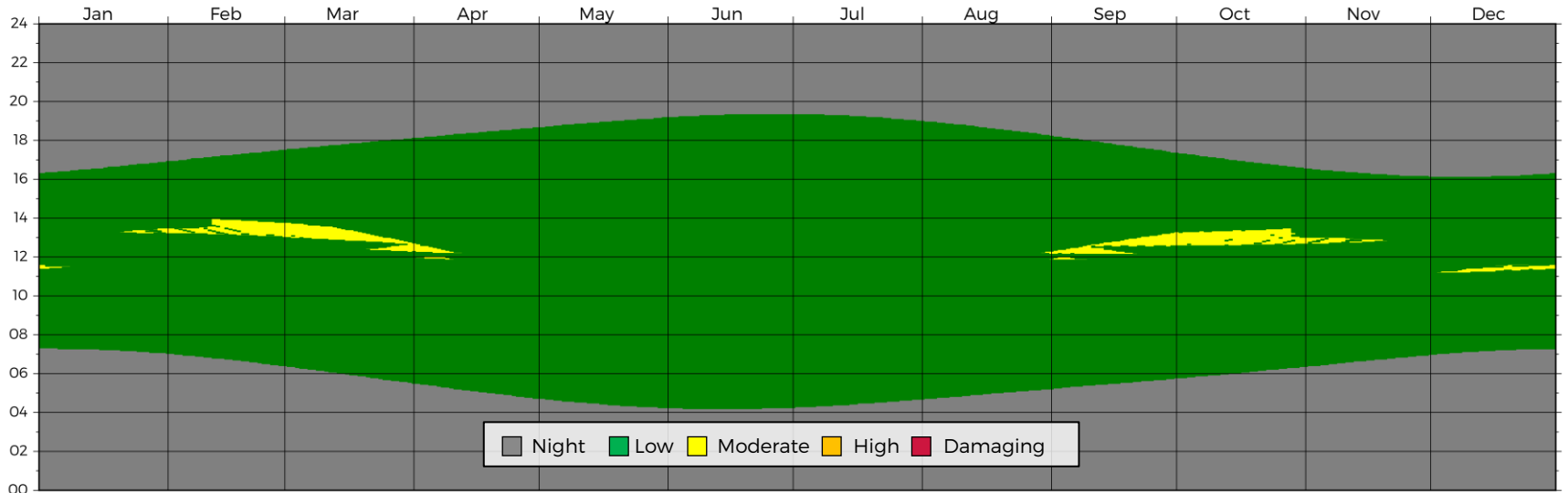
# ANNUAL VISUAL IMPACT



## Facade Receptor F18

Receptor F18 was chosen to assess the visual risk associated with solar reflections impacting the facade of a building to the east of the development.

Please note that the referenced times are in local standard time, so in jurisdictions where Daylight Savings Time is used, the time should be shifted by an hour when appropriate.





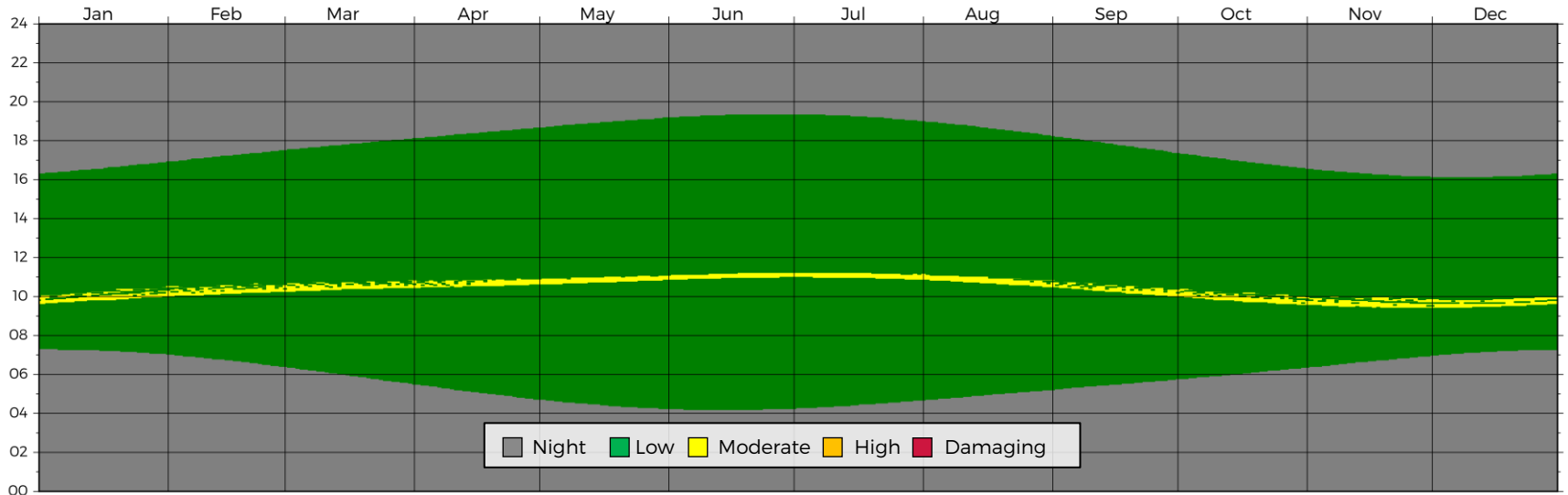
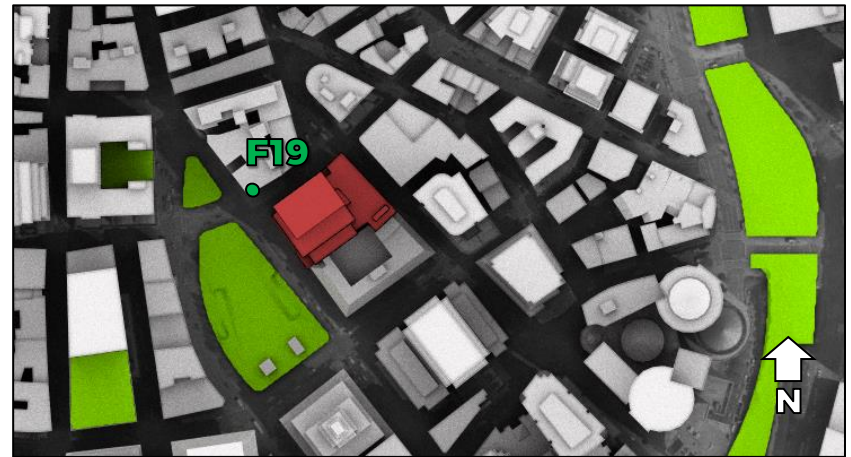
# ANNUAL VISUAL IMPACT



## Facade Receptor F19

Receptor F19 was chosen to assess the visual risk associated with solar reflections impacting the facade of a building to the northwest of the development.

Please note that the referenced times are in local standard time, so in jurisdictions where Daylight Savings Time is used, the time should be shifted by an hour when appropriate.



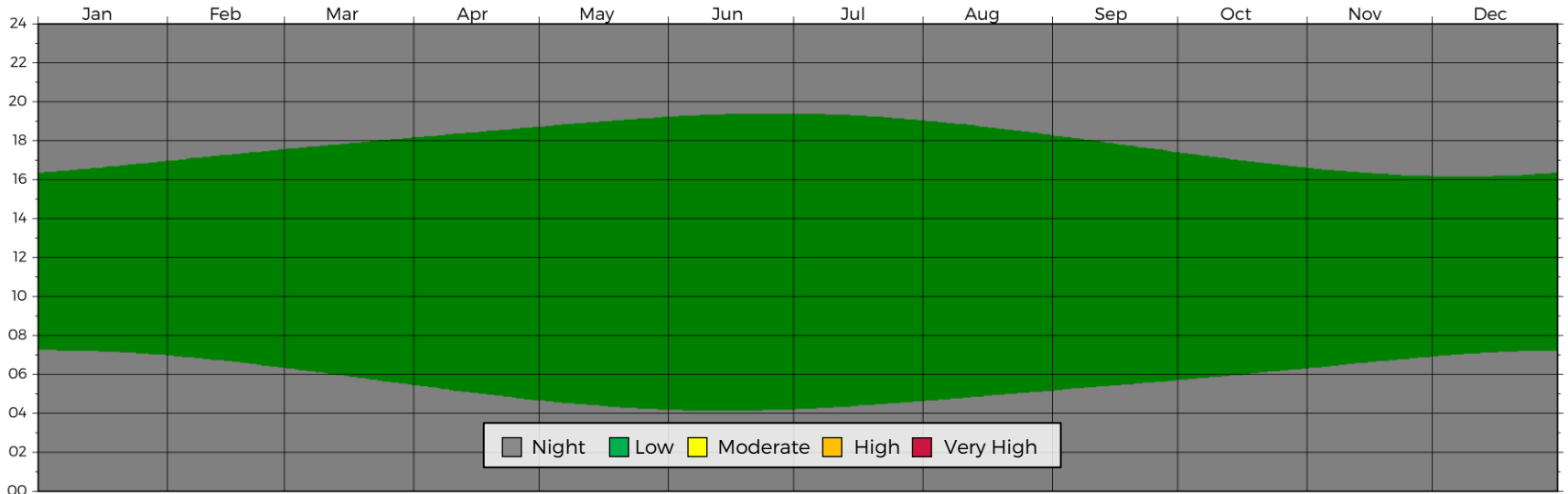
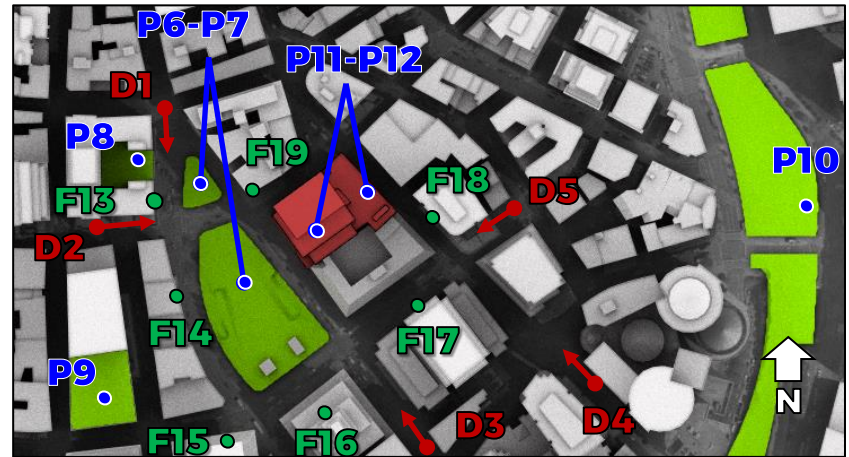
# ANNUAL THERMAL IMPACT - PEOPLE



## All Receptors

All reflection impacts at all receptors were found to have intensities below RWDI's short-term and human safety threshold values.

Please note that the referenced times are in local standard time, so in jurisdictions where Daylight Savings Time is used, the time should be shifted by an hour when appropriate.



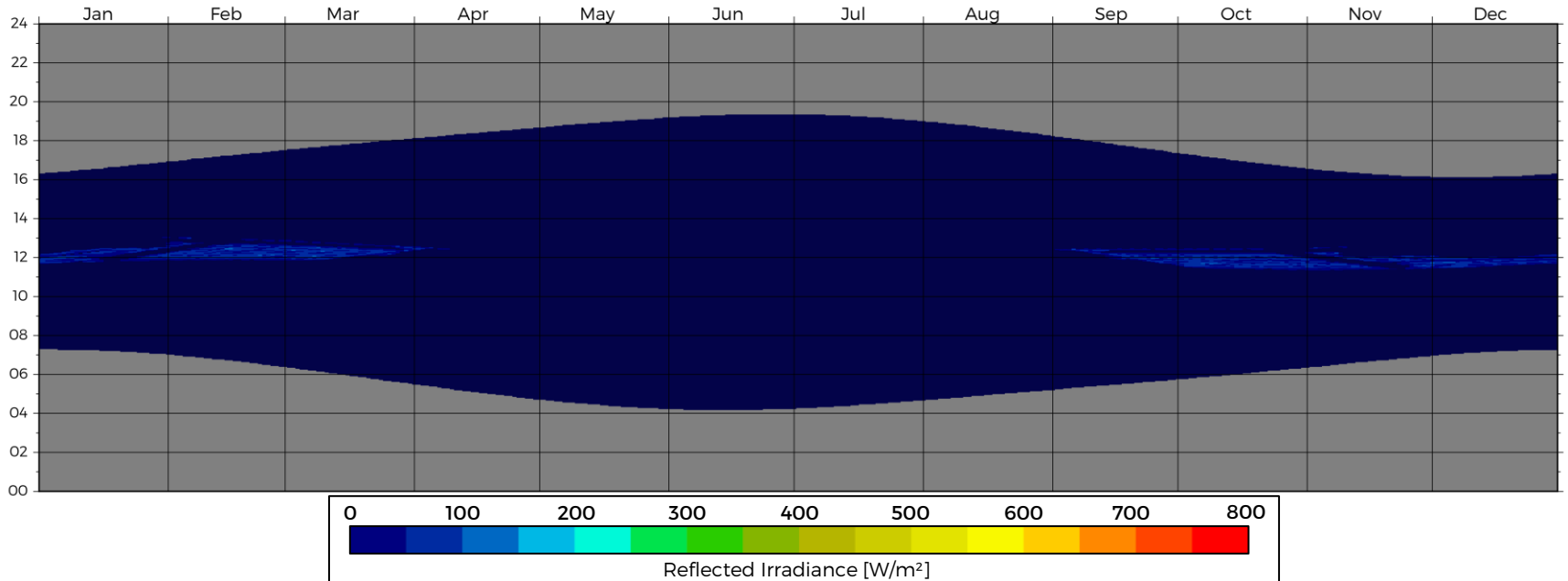
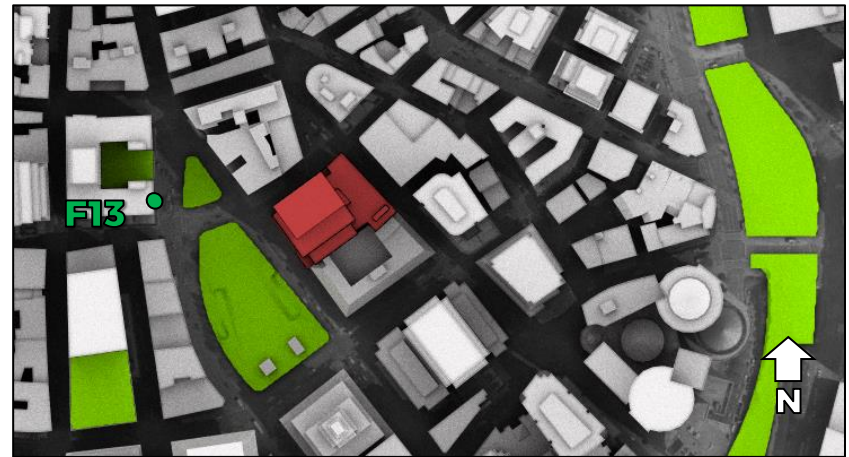
# ANNUAL THERMAL IMPACT - FACADE



## Facade Receptor F13

Receptor F13 was chosen to assess the thermal impact associated with solar reflections affecting the building to the west of the development.

Please note that the referenced times are in local standard time, so in jurisdictions where Daylight Savings Time is used, the time should be shifted by an hour when appropriate.



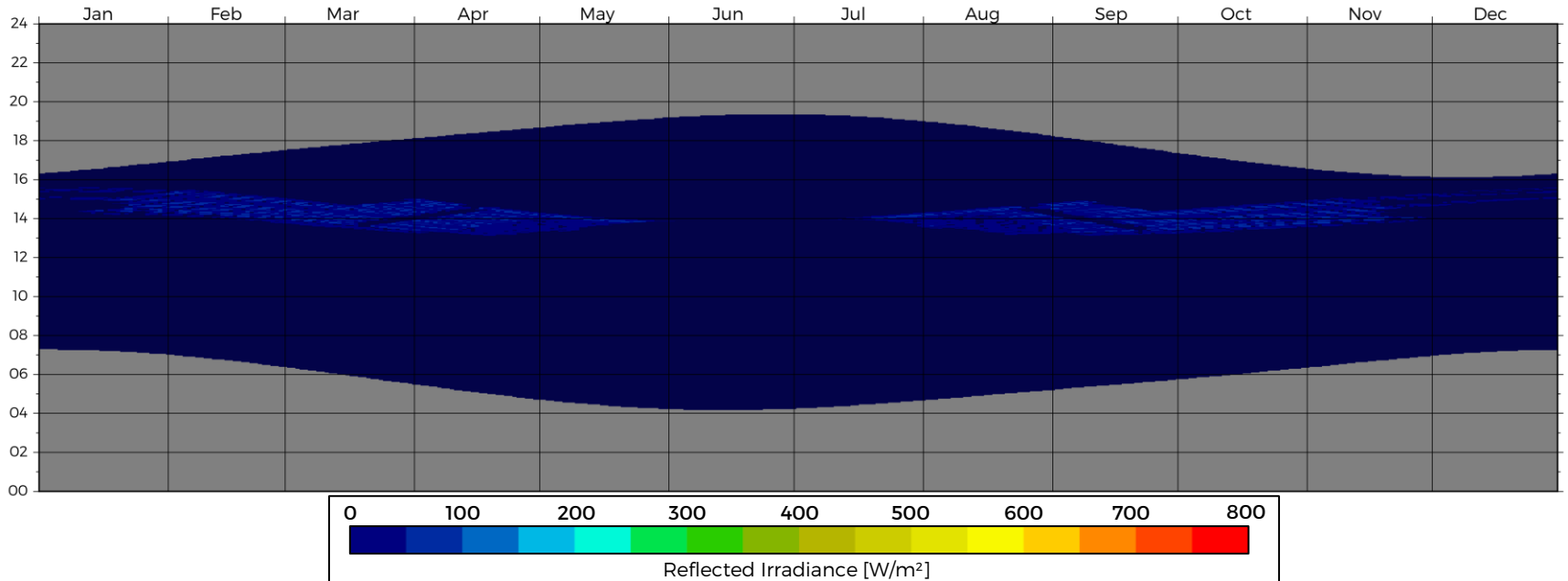
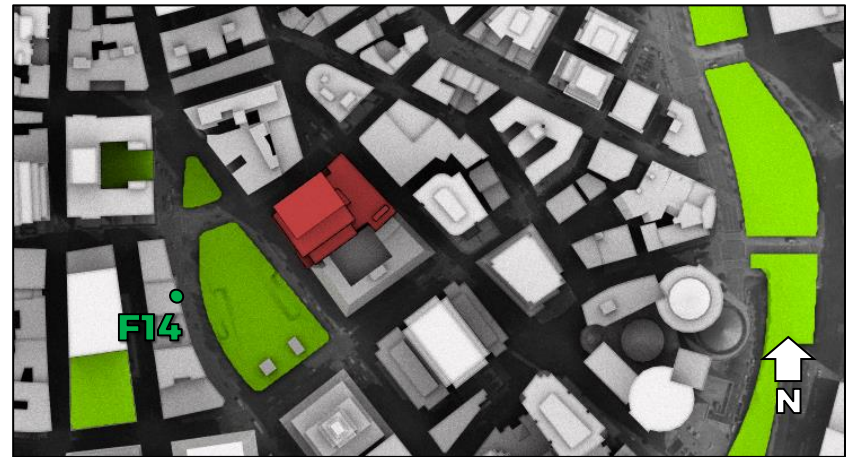
# ANNUAL THERMAL IMPACT - FACADE



## Facade Receptor F14

Receptor F14 was chosen to assess the thermal impact associated with solar reflections affecting the facade of a building to the southwest of the development.

Please note that the referenced times are in local standard time, so in jurisdictions where Daylight Savings Time is used, the time should be shifted by an hour when appropriate.



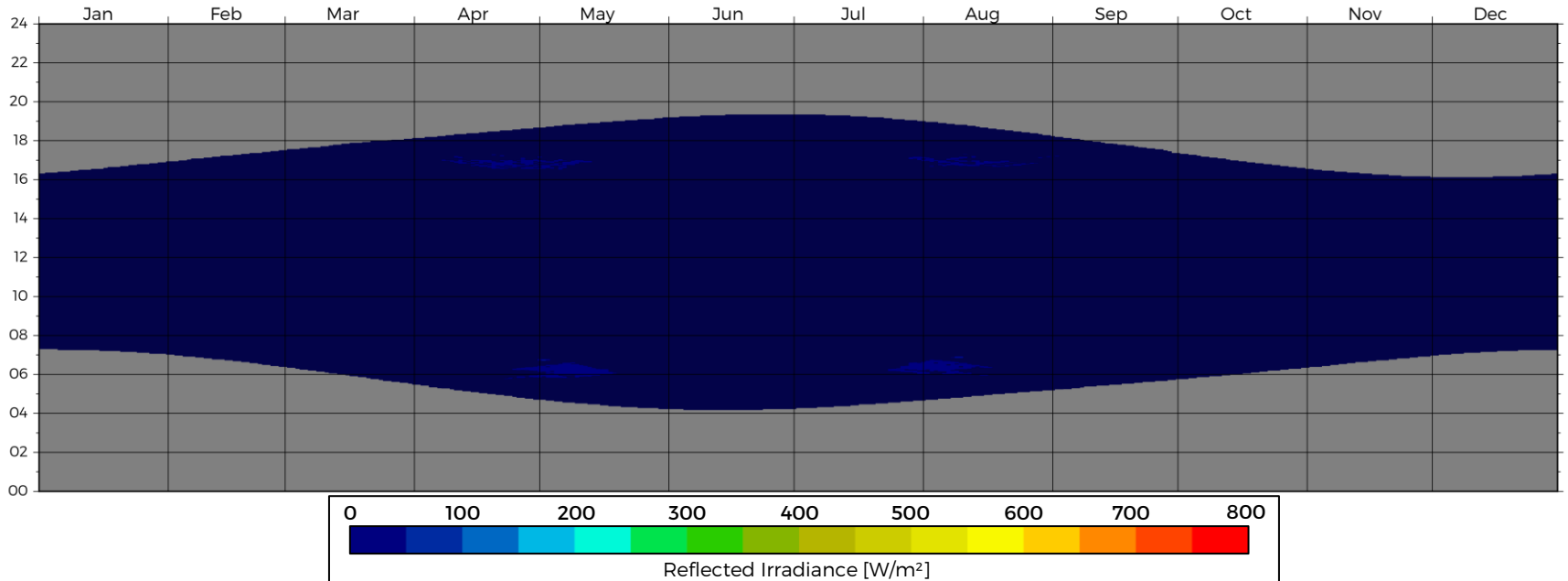
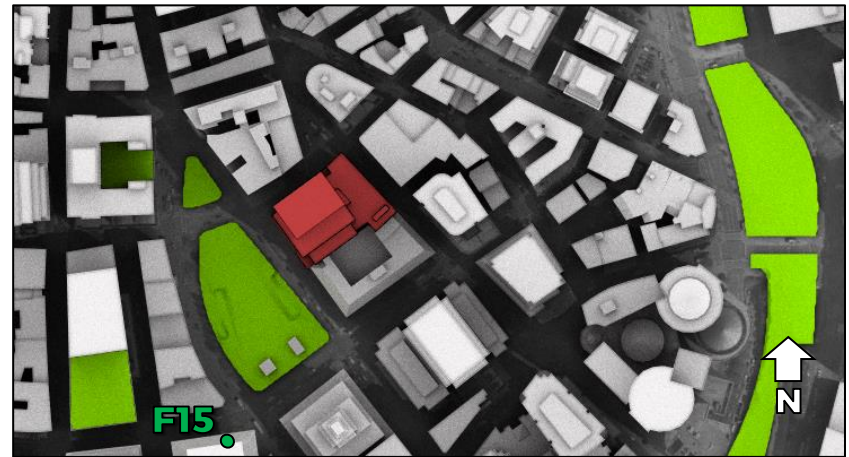
# ANNUAL THERMAL IMPACT - FACADE



## Facade Receptor F15

Receptor F15 was chosen to assess the thermal impact associated with solar reflections affecting the facade of a building to the southwest of the development.

Please note that the referenced times are in local standard time, so in jurisdictions where Daylight Savings Time is used, the time should be shifted by an hour when appropriate.





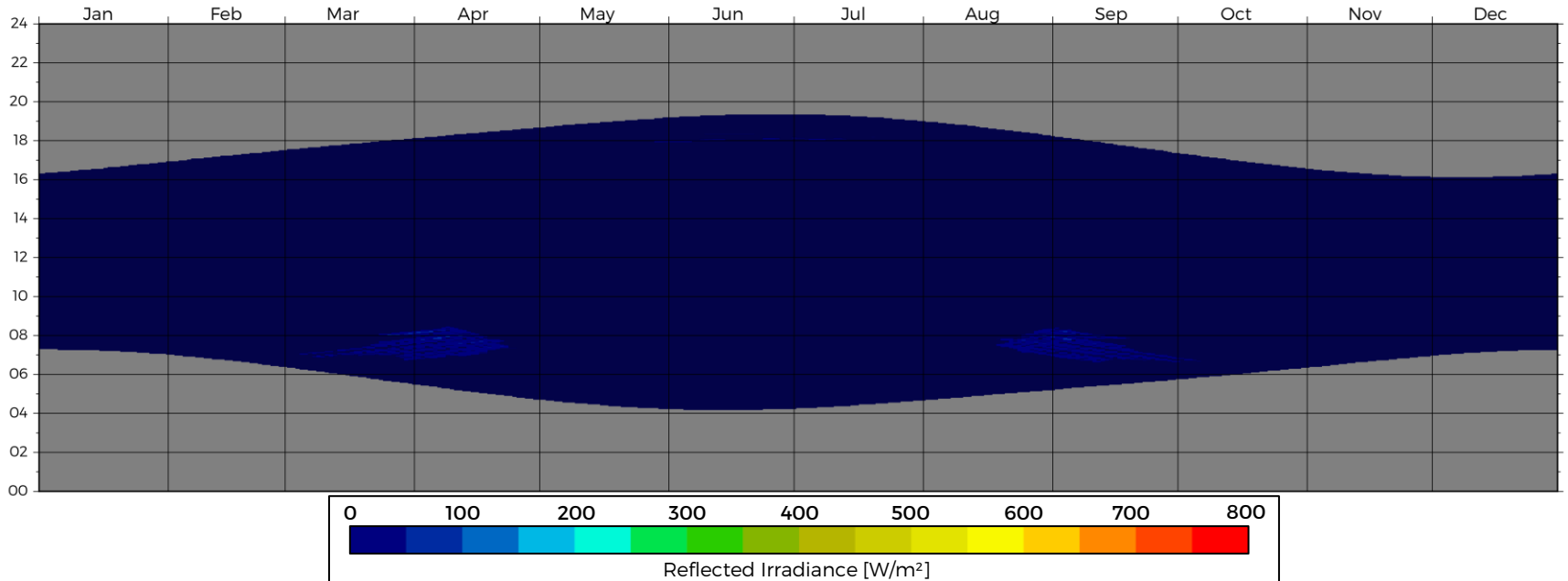
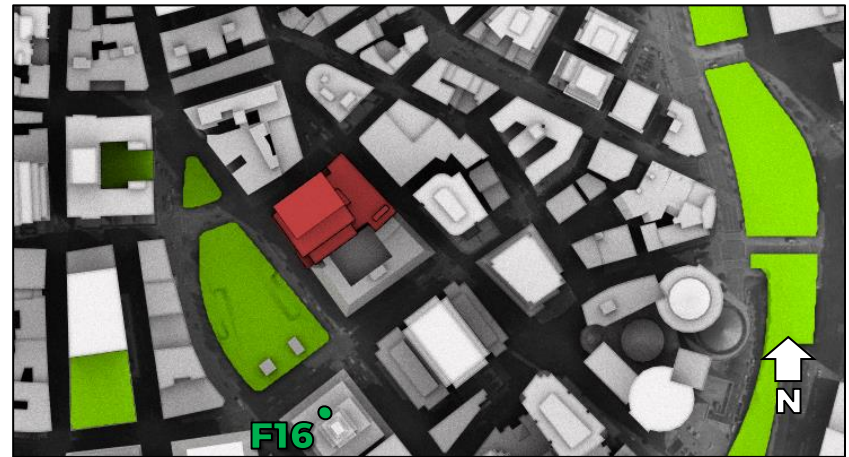
# ANNUAL THERMAL IMPACT - FACADE



## Facade Receptor F16

Receptor F16 was chosen to assess the thermal impact associated with solar reflections affecting the facade of a building to the south of the development.

Please note that the referenced times are in local standard time, so in jurisdictions where Daylight Savings Time is used, the time should be shifted by an hour when appropriate.



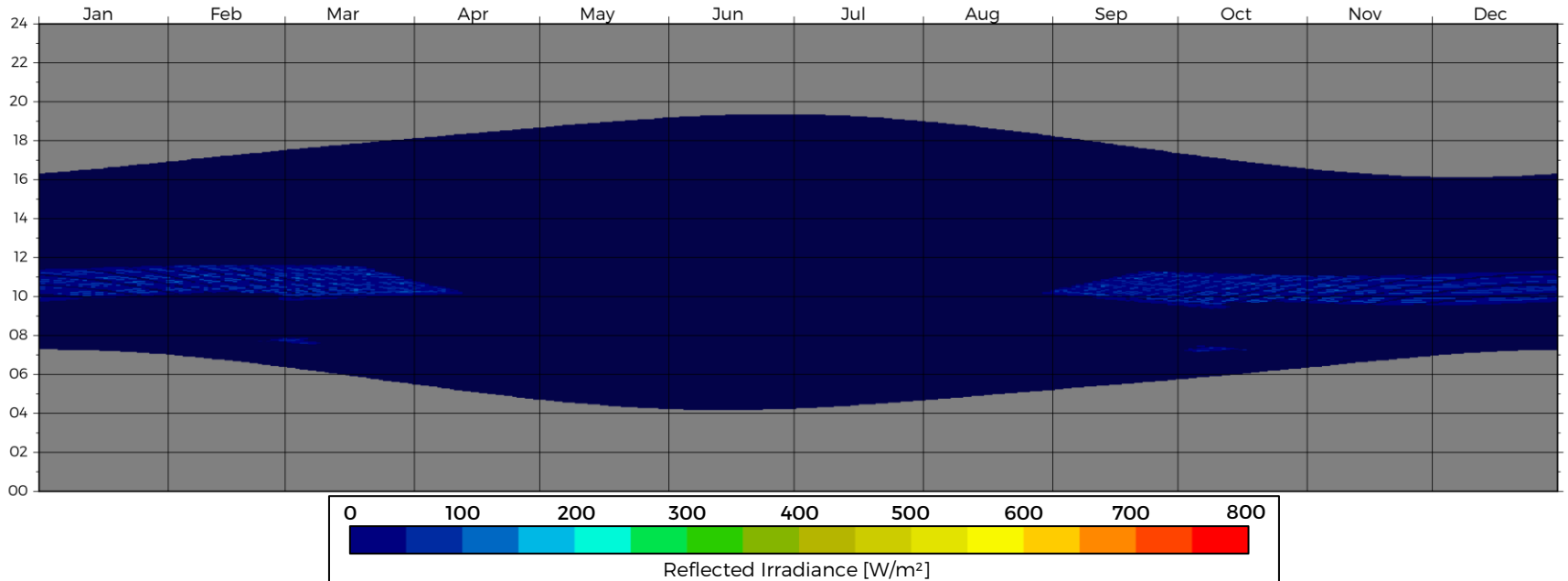
# ANNUAL THERMAL IMPACT - FACADE



## Facade Receptor F17

Receptor F17 was chosen to assess the thermal impact associated with solar reflections affecting the facade of a building to the southeast of the development.

Please note that the referenced times are in local standard time, so in jurisdictions where Daylight Savings Time is used, the time should be shifted by an hour when appropriate.



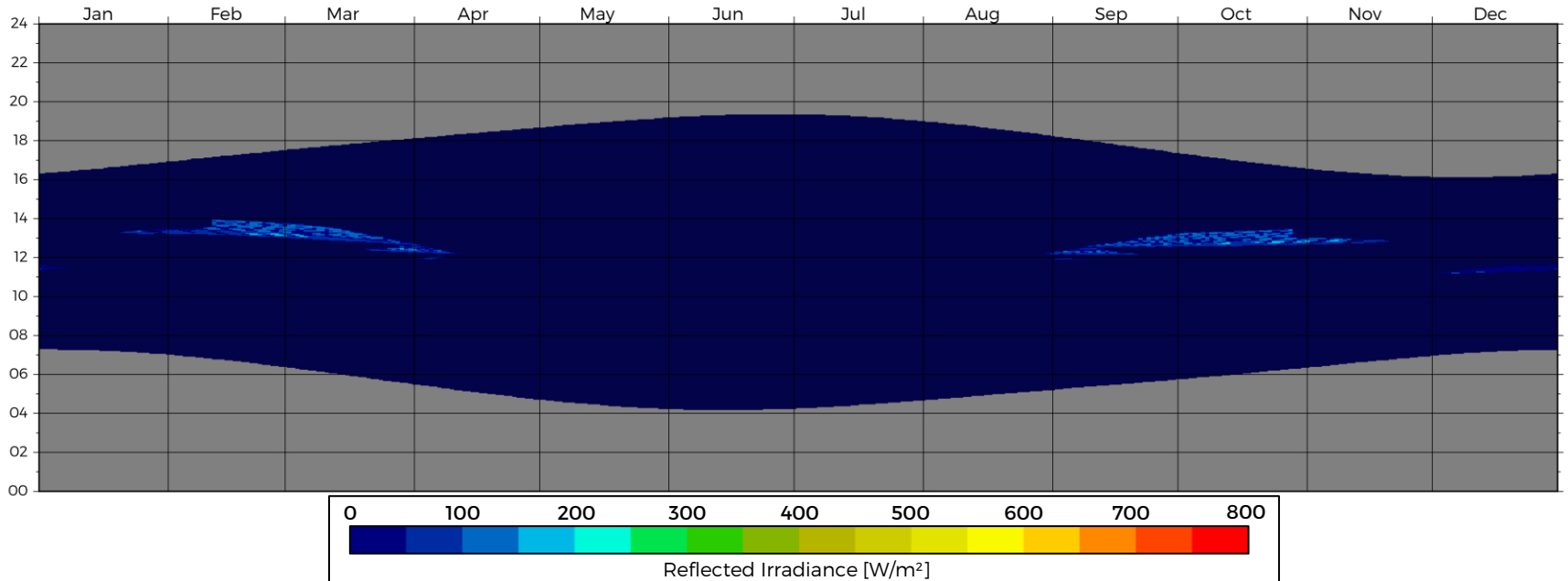
# ANNUAL THERMAL IMPACT - FACADE



## Facade Receptor F18

Receptor F18 was chosen to assess the thermal impact associated with solar reflections affecting the facade of a building to the east of the development.

Please note that the referenced times are in local standard time, so in jurisdictions where Daylight Savings Time is used, the time should be shifted by an hour when appropriate.



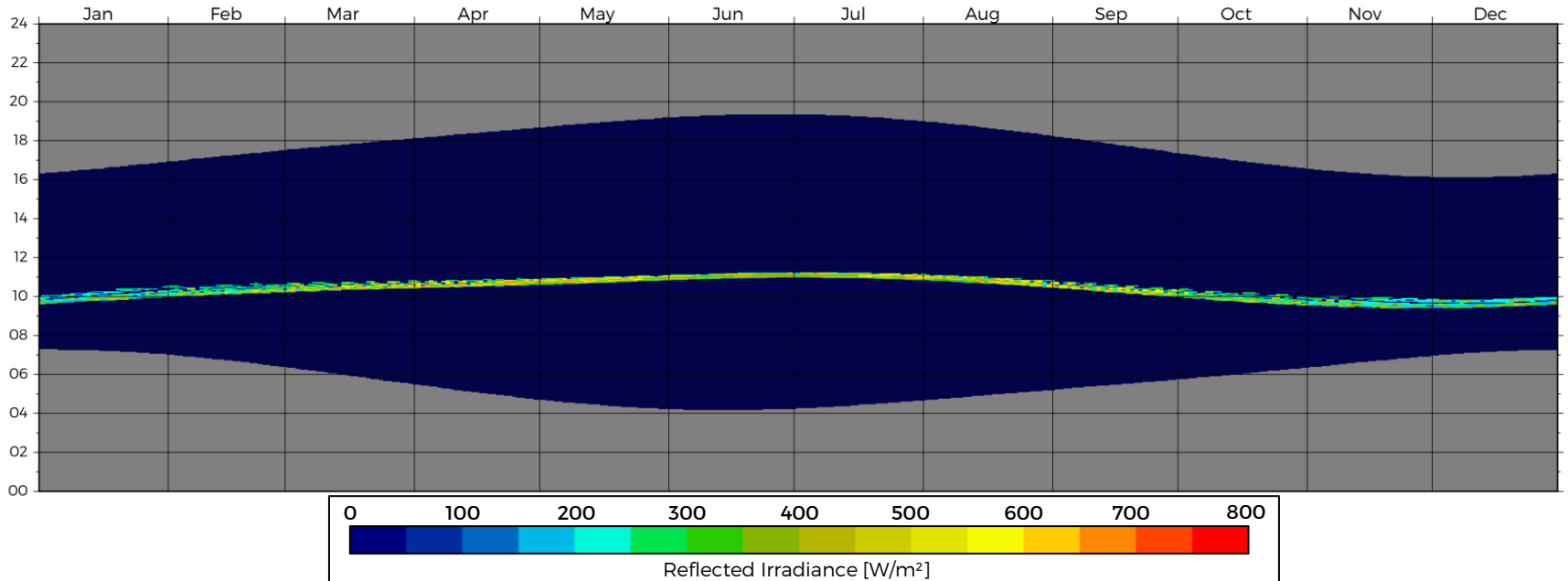
# ANNUAL THERMAL IMPACT - FACADE



## Facade Receptor F19

Receptor F19 was chosen to assess the thermal impact associated with solar reflections affecting the facade of a building to the northwest of the development.

Please note that the referenced times are in local standard time, so in jurisdictions where Daylight Savings Time is used, the time should be shifted by an hour when appropriate.



# APPENDIX B

RWDI REFLECTION CRITERIA



# RWDI REFLECTION CRITERIA

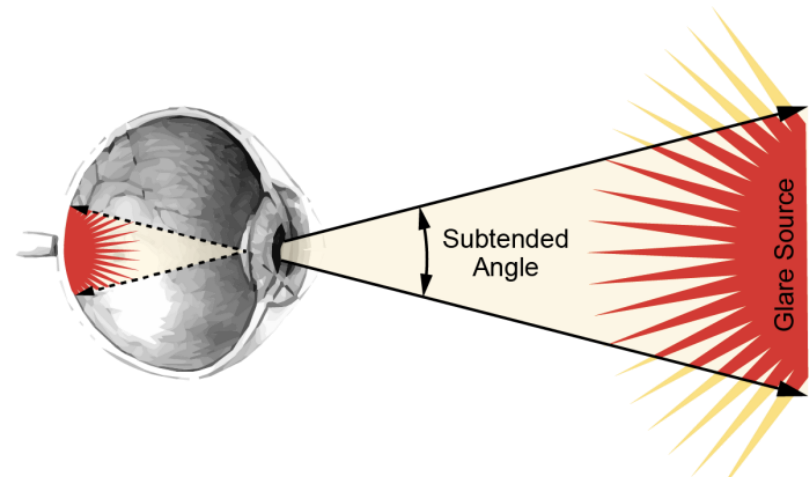


## Visual Glare

There are currently no existing criteria or standards that define an “acceptable” level of reflected solar radiation from buildings. RWDI has conducted a literature review of available scientific sources<sup>1</sup> to determine levels of solar radiation that could be considered acceptable to individuals from a visual standpoint.

Many glare metrics are designed for interior use and have been found to not correlate well with the glare impact humans perceive from direct sun or in outdoor environments. RWDI uses the methodology of Ho et al<sup>2</sup>, which defines glare impact based on a physical reaction rather than on a preference based correlation.

Based on the intensity of the glare source and the size of the source in the field of view (Figure A1), the risk of that source causing temporary flash blindness (i.e. the after images visible after one is exposed to a camera flash in a dark room) can be determined.



**Figure A1: Schematic illustrating the subtended angle of a glare source**

# RWDI REFLECTION CRITERIA



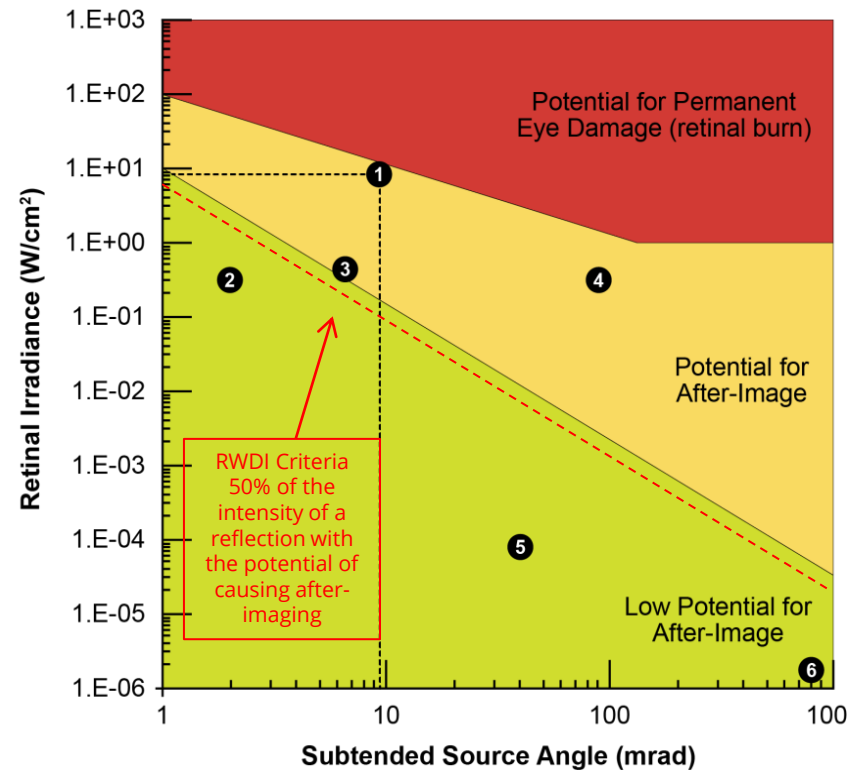
## Visual Glare (cont'd)

At the screening level, we conservatively take any reflections at least 50% of the intensity required to cause after images as a “significant” reflection to be counted in the frequency analysis.

As a reference, point 1 on Figure A2 on the right illustrates where looking directly at the sun falls in terms of irradiance on the retina (on average about  $8 \times 10^4 \text{ W/m}^2$ ), and the size of the angle that the sun subtends in the sky (about 9.8 milliradians). This puts it just at the border of causing serious damage. This methodology assumes that the exposure time is equivalent to the length of an average person's blink response.

The rest of the points in Figure A2 correspond to the following:

2. Direct viewing of high-intensity car headlamp from 50 ft
3. Direct viewing of typical camera flash from 7 ft
4. Direct viewing of high-intensity car headlamp from 5 ft
5. Direct viewing of frosted 60W light bulb from 5 ft
6. Direct viewing of average computer monitor from 2ft



**Figure A2: Plot showing the potential for glare sources of various sizes and intensities to cause after imaging**



## Thermal Impact (Heat Gain) on People

The primary sources for exposure limits to thermal radiation come from fire protection literature. The U.S. National Fire Protection Association (NFPA) defines 2,500 W/m<sup>2</sup> as an upper limit for a tenable egress environment<sup>3</sup>. That being said, while an individual could move through such an environment, they would not necessarily emerge unscathed. Both the British Standards Institution<sup>4</sup> and the U.S. Federal Energy Management Agency<sup>5</sup> indicate that individuals are likely to feel pain within 30 seconds at such exposure levels on bare skin. With second degree burns possible within minutes of exposure. Additionally, this level of additional heat flux can lead to rapid heating of exposed objects which could present a further risk to human safety.

It should be noted that these numbers are guideline values only, and that in reality many factors (skin color, age, clothing choice, etc.) influence how a person reacts to thermal radiation. **For our work RWDI has established 2,500 W/m<sup>2</sup> as a ceiling exposure limit which reflection intensity should not exceed for any length of time.**

Lower reflection intensities, while not posing as serious of a risk to human safety, can still negatively impact human comfort. There are no definitive guidelines or criteria with respect to this issue. We know this criterion should be less than 2,500 W/m<sup>2</sup> and greater than typical peak solar noon levels of 1,000 W/m<sup>2</sup> which people commonly experience. RWDI's opinion at this time is that a reasonable criterion is to limit reflected irradiance exposure to 1,500 W/m<sup>2</sup> or less. Based on our assessment, we believe at this level of irradiance most people would be able to tolerate it for several minutes before the onset of discomfort. Additionally reflections at this intensity level will heat surfaces more slowly.

**Thus we feel reflections below 1,500 W/m<sup>2</sup> pose a reduced risk to people and should therefore be considered a short term exposure limit.** We would conservatively define "short term" as 10 minutes or less which is slightly shorter than the standard 15 minute definition of short term used in the occupational safety context.

# RWDI REFLECTION CRITERIA



## Thermal Impact (Heat Gain) on Property

The impact of solar irradiance on different materials is primarily based on the temperature gains to the material which can cause softening, deformation, melting, or in extreme cases, combustion. These temperature gains are difficult to predict as they are highly dependent on the convective heat transfer from air movement around the object and long-wave radiative heat transfer to the surroundings.

Generally, irradiance levels at or above 10,000 W/m<sup>2</sup> for more than 10 minutes are required to ignite common building and automotive materials in the presence of a pilot flame. That value increases to 25,000 W/m<sup>2</sup> when no pilot flame is present<sup>6,7,8</sup>. However, some materials like plastics and even some asphalts may begin to soften and deform at lower temperatures. For example, some plastics can deform at a temperature of 140°F (60°C), or lower if force is applied. The applied force typically comes from the thermal expansion of the material, the force of gravity acting on the material or an external mechanical force (i.e. someone or something pushing or pulling on it).

NASA<sup>9</sup> defines an upper limit of 111°F (44°C) for surfaces that require extended contact time with bare skin. Surface temperatures below this limit can be handled for any length of time without causing pain.

Because of the difficult nature of determining material temperatures, RWDI takes a conservative approach and uses a **threshold value of 1,000 W/m<sup>2</sup> which is approximately the peak intensity of natural sunlight that could be expected to occur over the course of a year.** Intensities beyond this value exceed the levels of irradiance that common exterior building materials are presumably designed for, and depending on the duration, may lead to deformation or damage. Though, as noted this would depend heavily on environmental conditions and the material properties of the exposed object or assembly.

# RWDI REFLECTION CRITERIA



## References

1. Danks, R., Good, J., & Sinclair, R., "Assessing reflected sunlight from building facades: A literature review and proposed criteria." *Building and Environment*, 103, 193-202, 2016.
2. Ho, C., Ghanbari, C. and Diver, R., "Methodology to Assess Potential Glint and Glare Hazards From Concentrating Solar Power Plants: Analytical Models and Experimental Validation," *J. Sol. Energy Eng.*, vol. 133, no. 3, 2011.
3. National Fire Protection Association. (2003). NFPA 130: standard for fixed guideway transit and passenger rail systems. NFPA.
4. The application of fire safety engineering principles to fire safety design of buildings – Part 6: Human Factors' PD 7974-6:2004, British Standards Institution 2004.
5. Federal Emergency Management Agency, U.S. Department of Transportation, and U.S. Environmental Protection Agency. 1988. Handbook of Chemical Hazard Analysis Procedures. Washington, D.C.: Federal Emergency Management Agency Publications Office.
6. Building Research Establishment: 'Fire spread in car parks' BD2552, Department of Communities and Local Government 2010
7. SFPE Handbook of Fire Protection Engineering 4th Edition NFPA/SPFE 2008 USA
8. V. Babrauskas 'Ignition Handbook' Fire Science Publishers + SFP, 2003
9. E Ungar, K Stroud 'A New Approach to Defining Human Touch Temperature Standards' National Aeronautics and Space Agency, 2010



*Appendix G*

# Shadow Study

# Report

# ONE POST OFFICE SQUARE



## ARTICLE 80 SHADOW ANALYSIS- DRAFT

PROJECT #: 1701641

NOVEMBER 16, 2017

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# INTRODUCTION



RWDI was retained to provide an analysis of the shadows cast by the One Post Office Square redevelopment onto the surrounding urban realm. The existing building is a 41 story tower located adjacent to the Financial District of Boston, MA (Figure 1). This building is proposed to undergo facade modifications which will include slight changes to the shape and massing of the building (see Figure 2 for comparison of the existing and proposed towers). As a result, the present shadow analysis was carried out in order to understand when and where new shadow may occur after the planned renovation of the tower.

RWDI's analysis included predictions of shadows within the general area of the development at specific times of day for the vernal equinox, summer solstice, autumnal equinox, and winter solstice as per Article 80 of the Boston Zoning Code. The shadow impacts were simulated using a 3D surrounds model which represented the current existing urban context corrected to high-resolution topographic information.

The following pages outline the methodology used for this analysis as well as the key findings of the shadow simulations.

**Proposed One Post Office Square Building**



**Figure 1: Location of Proposed One Post Office Square Building in Boston, MA**

# INTRODUCTION (CONT'D)

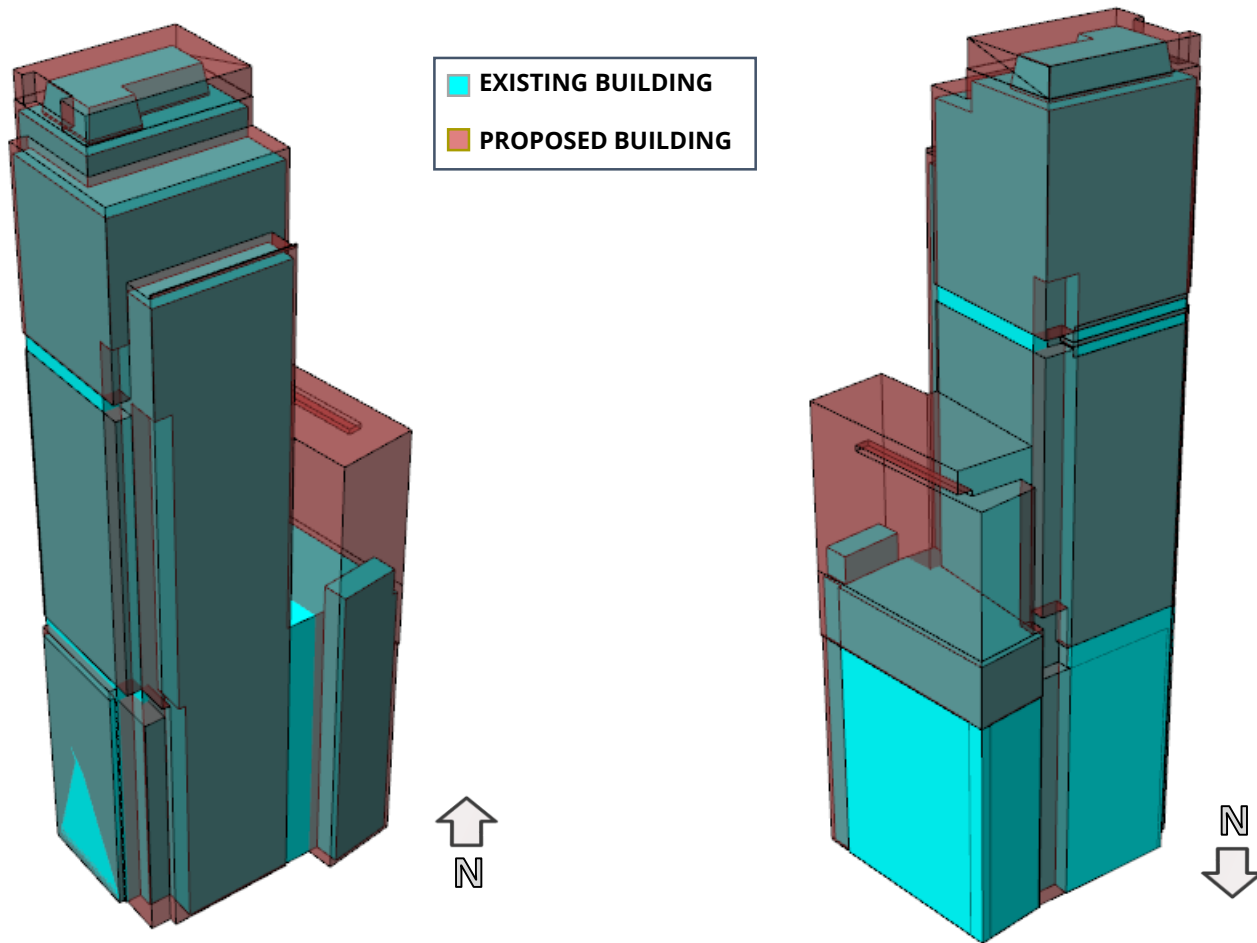


Figure 2: Comparison Between the Existing and the Proposed One Post Office Square Buildings

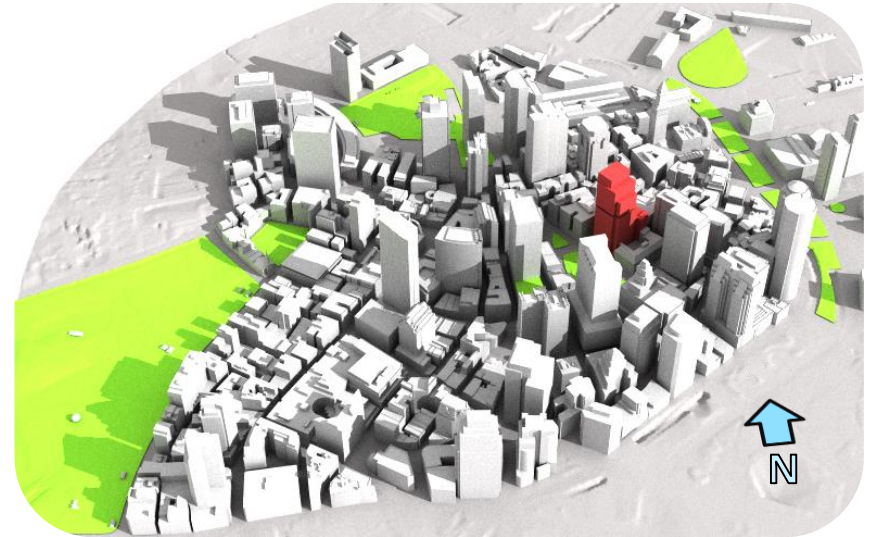
# BACKGROUND AND APPROACH



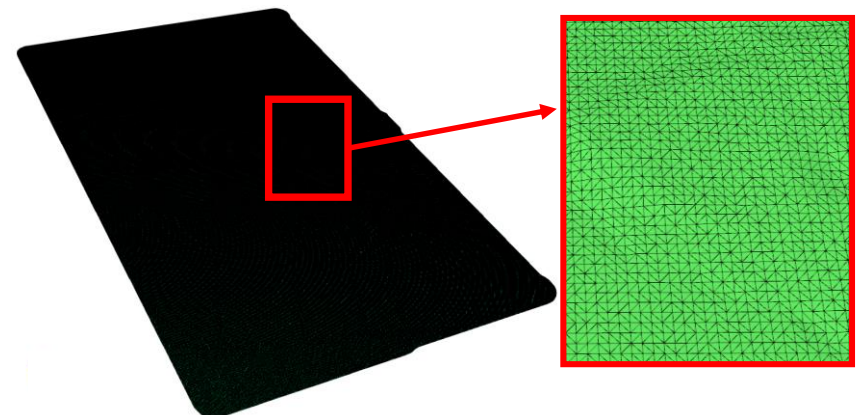
## Methodology

RWDI assessed the potential shadow impacts using RWDI's proprietary *Eclipse* software, as per the steps outlined below:

- A 3D model of the area of interest was developed. The model incorporated the topographical elevation of the ground as well as the surrounding buildings (Figure 3).
- Surfaces representing the ground where shadows from the building could fall were created and subdivided into approximately 650,000 test areas, each representing approximately 30 square feet (Figure 4).
- For each minute in a year, the expected solar position was determined, and “virtual rays” were drawn from the sun to each of the test surfaces. These rays were tested for intersections with the surrounding buildings, and thus if they are currently in shadow.
- The above process was conducted for configurations with and without the proposed tower to compute the net-new shadow falling on the selected areas caused by the proposed tower alone.
- A statistical analysis was then performed to compute the frequency of new shadow impacts on each of the subdivided surfaces.



**Figure 3: 3D Computer Model of the Proposed Building with the Surrounding Neighborhood**



**Figure 4: Close-up View of a Sample Test Surface, Showing Surface Subdivisions**



# BACKGROUND AND APPROACH



## Shadow In Boston

Boston, like many major cities around the world, has regulations in place designed to prevent excessive shadows from buildings impacting public spaces. Article 80 of the Boston Zoning Code outlines the basic requirements for any tall building in Boston with respect to shadowing. Specifically, plots must be created which illustrate existing and new shadows caused by a proposed building for specific times on the solstices and equinoxes (summarized in Table 1).

**Table 1: Time, Day, and the Sun Position for the Article 80 Shadow Analysis**

	Altitude	Azimuth	Time Zone
<b><u>21 March</u></b>			<i>Standard</i>
9:00 a.m.	33.0	125.7	
12:00 Noon	48.0	-176.9	
3:00 p.m.	30.5	-121.8	
<b><u>21 June</u></b>			<i>Daylight Saving</i>
9:00 a.m.	39.9	93.5	
12:00 Noon	68.8	149.4	
3:00 p.m.	56.5	-113.7	
6:00 p.m.	23.9	-79.3	
<b><u>21 September</u></b>			<i>Daylight Saving</i>
9:00 a.m.	25.9	115.3	
12:00 Noon	47.4	166.0	
3:00 p.m.	37.4	-132.9	
6:00 p.m.	7.3	-96.0	
<b><u>21 December</u></b>			<i>Standard</i>
9:00 a.m.	14.2	141.9	
12:00 Noon	24.1	-175.6	
3:00 p.m.	10.0	-135.1	

## Assumptions and Limitations

### Meteorological Data

This analysis was conducted using a “clear-sky” methodology, i.e. cloud cover was not included and the sun was assumed to always be fully exposed. The sun’s location was referenced to the approximate latitude and longitude of the proposed tower: (42.356851, -71.055089)

### Spatial and Temporal Fidelity

The spaces of interest were divided into 5 square foot test areas (or smaller) and tested for shadow at one minute increments. Thus, the expected accuracy of this modeling is no less than  $\pm 5$  square feet and no less than  $\pm 1$  minute for all spatial and temporal predictions made in this report.

### Study Building and Surrounds Models

The analysis was conducted based on a model of the proposed tower provided by Gensler to RWDI on June 2, 2017. The surroundings model was developed based on data made available by the City of Boston. The ground surface and the surrounding buildings were topographically corrected based on a high-resolution LiDAR survey conducted by the National Oceanic and Atmospheric Administration (NOAA) in 2013-2014. According to NOAA, the horizontal accuracy of this data set is stated as 16.5 inches at a 95% confidence level. Its vertical accuracy is stated as 4.8 inches at a 95% confidence level.

### Applicability of Results

The results presented in this report are highly dependent on the form of the proposed building. Should there be any design changes, RWDI should be contacted and requested to review their potential impact on the findings and conclusions of this report.

# RESULTS



## Article 80 Analysis

The full set of shadow extent plots required by Article 80 can be found in Appendix A, but a representative image showing shadow impacts at 3:00 p.m. on December 21 is included as Figure 5 at right.

Generally the new shadows created by the proposed tower (colored magenta in the figure) occur in the area west to east of the proposed tower, while the most significant impacts are predicted to occur in the area from north to the east of the tower.

The most distant new shadows predicted reach up to 3000 ft from the center of the development and occur on September 21 at 6:00 p.m., and December 21 at 3:00 p.m. The longest new shadows are also observed during the same events. That said, the majority of the new shadows that occur fall on the channel rather than on land.

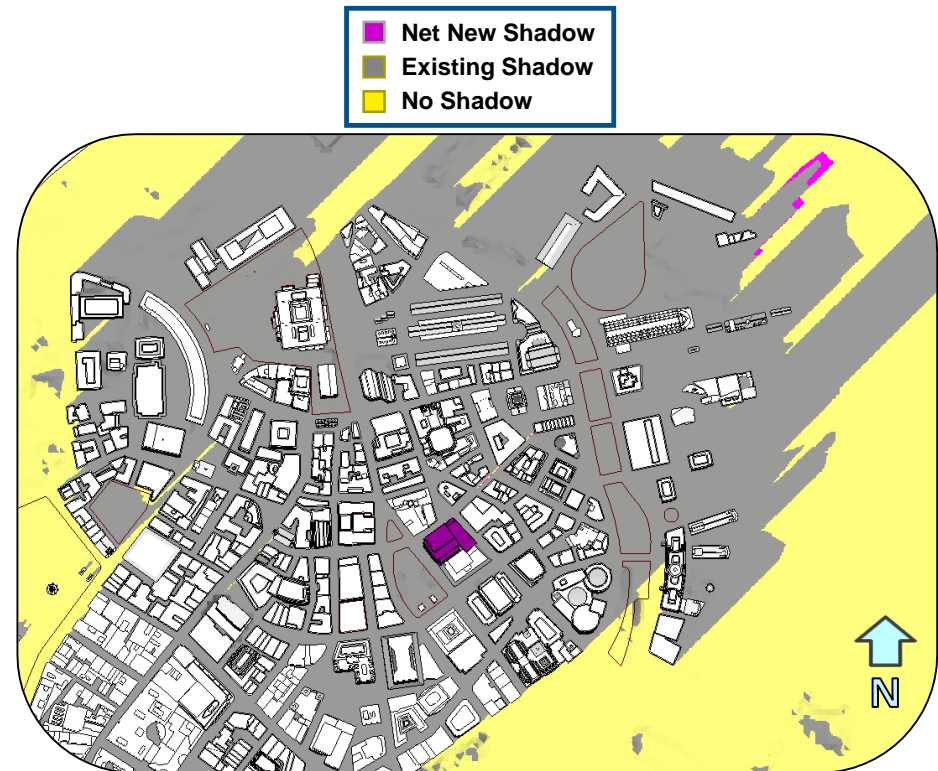


Figure 5: Representative Article 80 plot for December 21 at 3:00 p.m.

# OBSERVATIONS AND CONCLUSIONS



## Article 80 Analysis

1. Generally the new shadows created by the proposed tower (as shown in Appendix A) occur in the area west to east of the proposed tower, while the most significant impacts are predicted to occur in the area from north to the east of the tower.
2. The most distant new shadows predicted reach as far as 3000 ft from the center of the development and occur on September 21 at 6:00 p.m., and December 21 at 3:00 p.m. The longest new shadows are also observed during the same occasions. That said, most of these shadows do not fall on land.
3. The spaces on the ground which experience the largest shadow impacts tend to be roadways and parking spaces which will minimize the impact that the shadows have on people.



# APPENDIX A

**EXISTING AND NET NEW SHADOWS AT REQUIRED TIMES AND  
DAYS AS PER ARTICLE 80 OF BOSTON ZONING CODE**



# EXISTING AND NET NEW SHADOWS



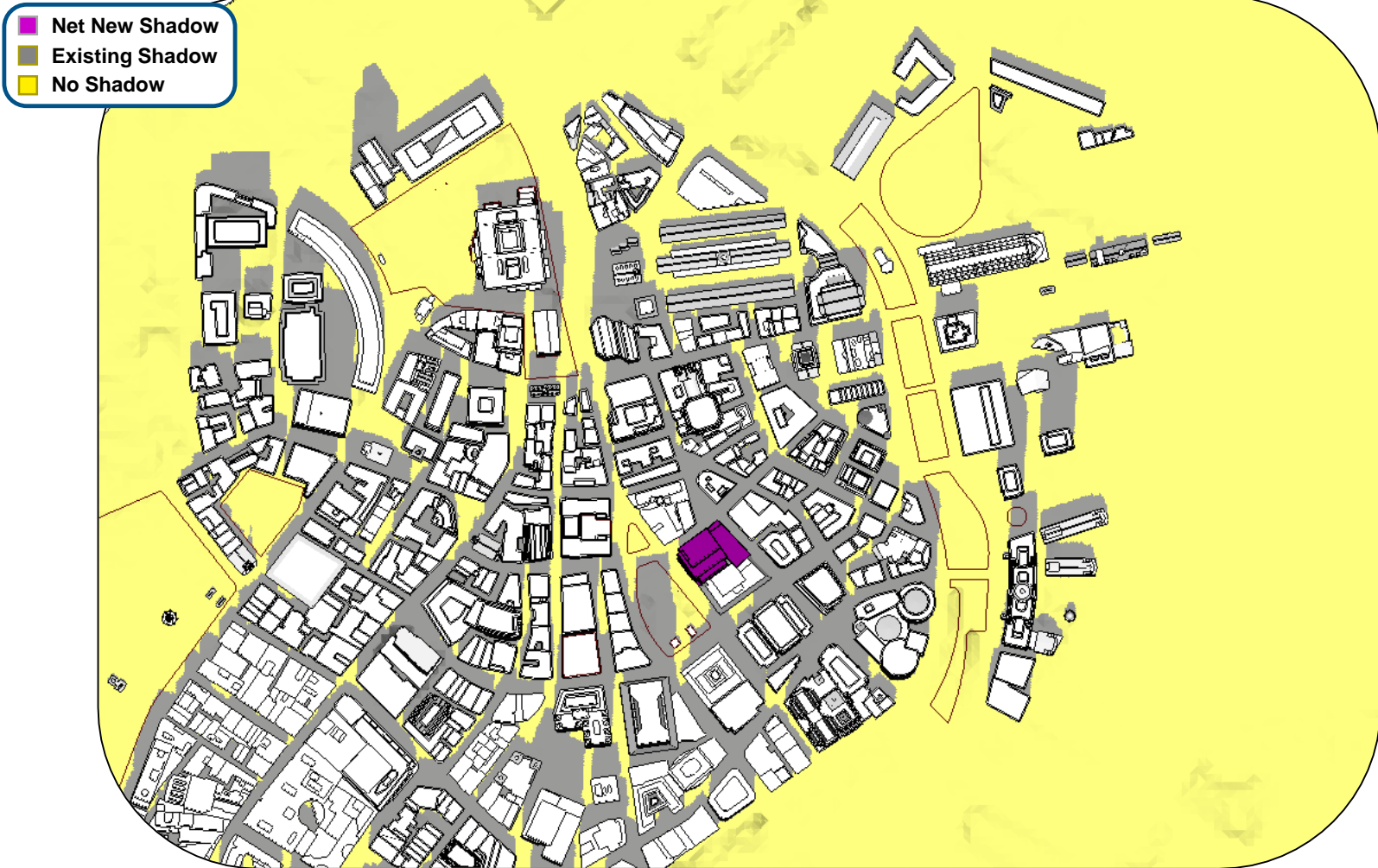
March 21<sup>st</sup> - 9:00 a.m. (Standard Time)



# EXISTING AND NET NEW SHADOWS



March 21<sup>st</sup> - 12:00 p.m. (Standard Time)



# EXISTING AND NET NEW SHADOWS



March 21<sup>st</sup> - 3:00 p.m. (Standard Time)

- Net New Shadow
- Existing Shadow
- No Shadow

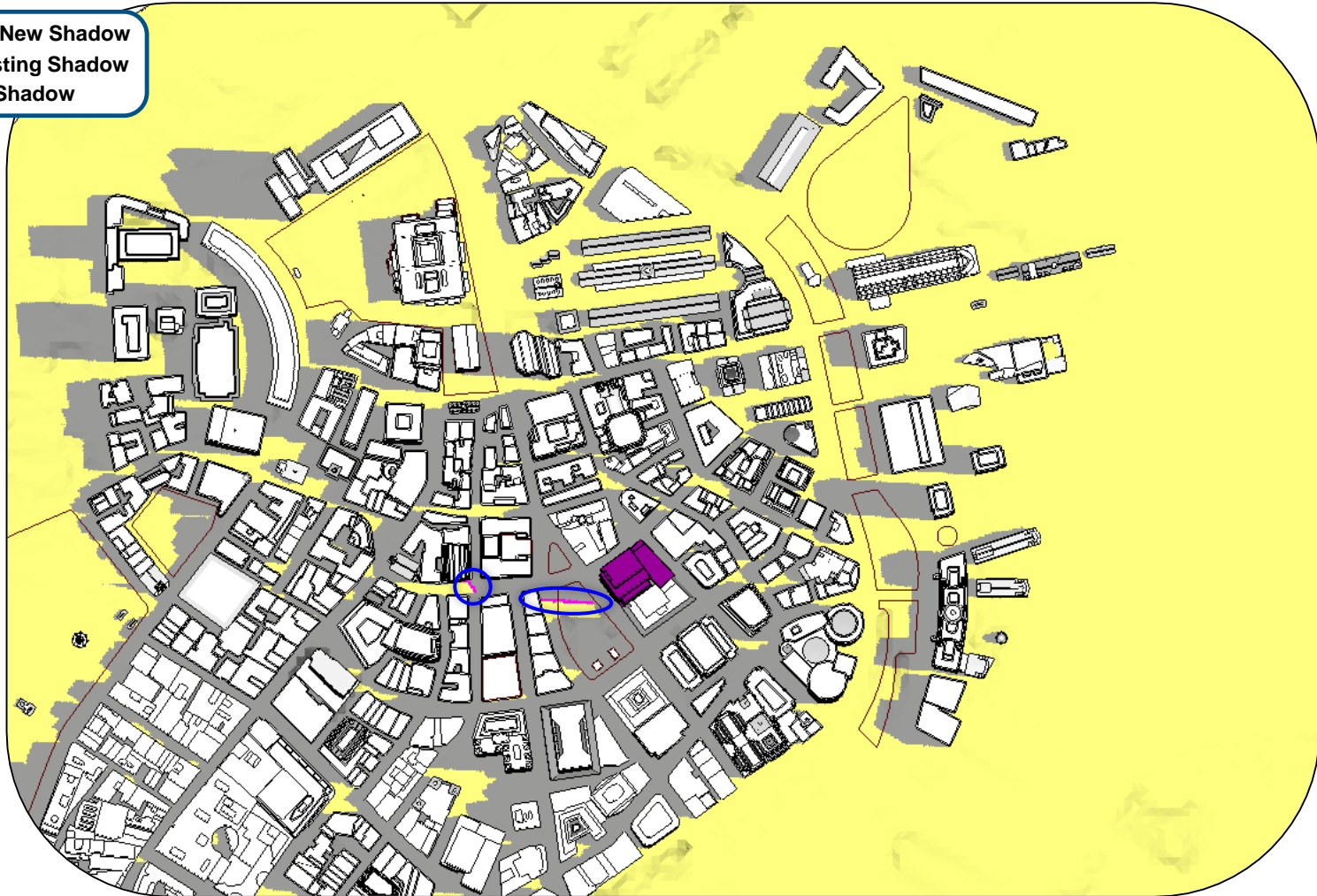


# EXISTING AND NET NEW SHADOWS



June 21<sup>st</sup> - 9:00 a.m. (Daylight Saving Time)

- Net New Shadow
- Existing Shadow
- No Shadow



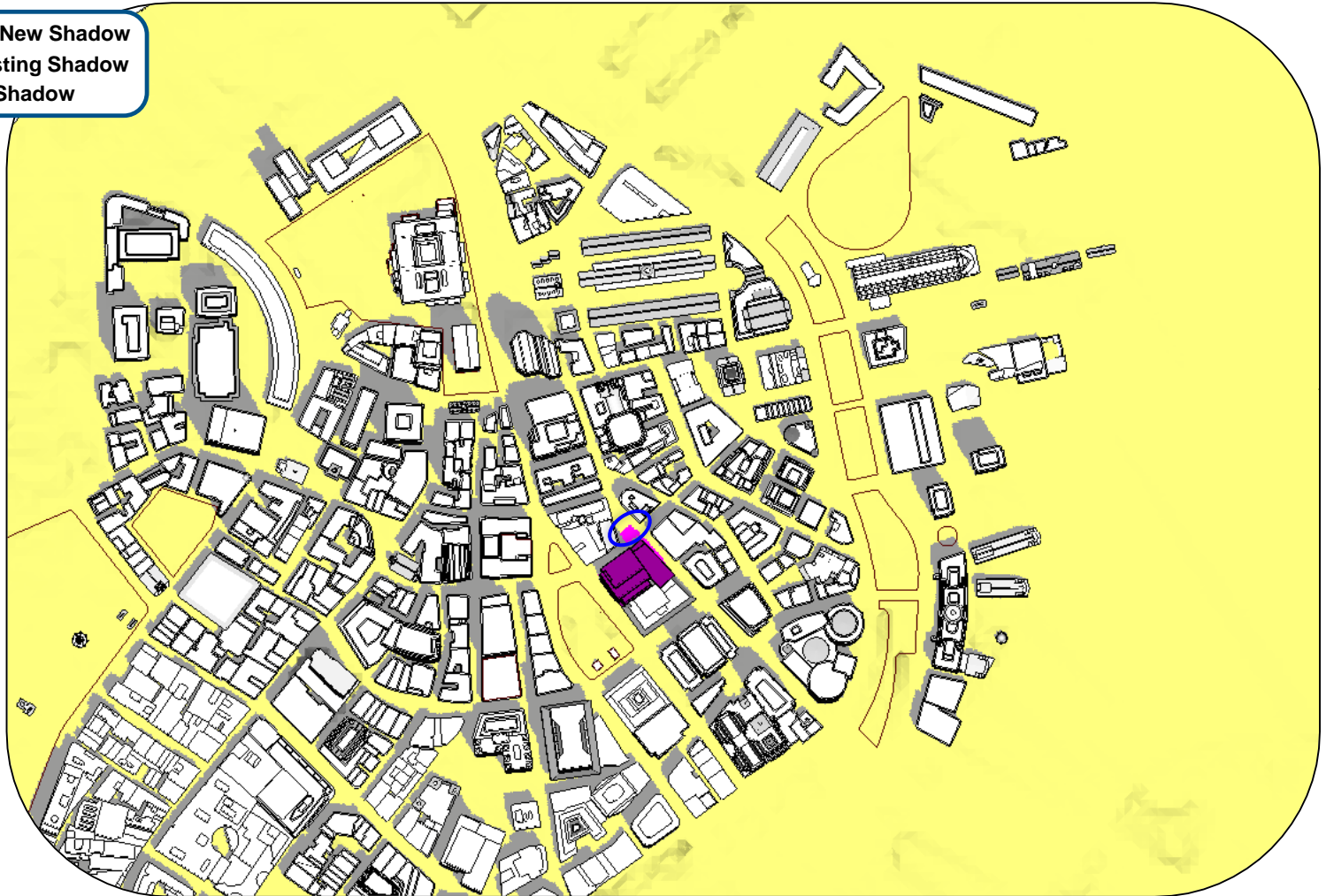


# EXISTING AND NET NEW SHADOWS



June 21<sup>st</sup> - 12:00 p.m. (Daylight Saving Time)

- Net New Shadow
- Existing Shadow
- No Shadow





# EXISTING AND NET NEW SHADOWS



June 21<sup>st</sup> - 3:00 p.m. (Daylight Saving Time)

- Net New Shadow
- Existing Shadow
- No Shadow

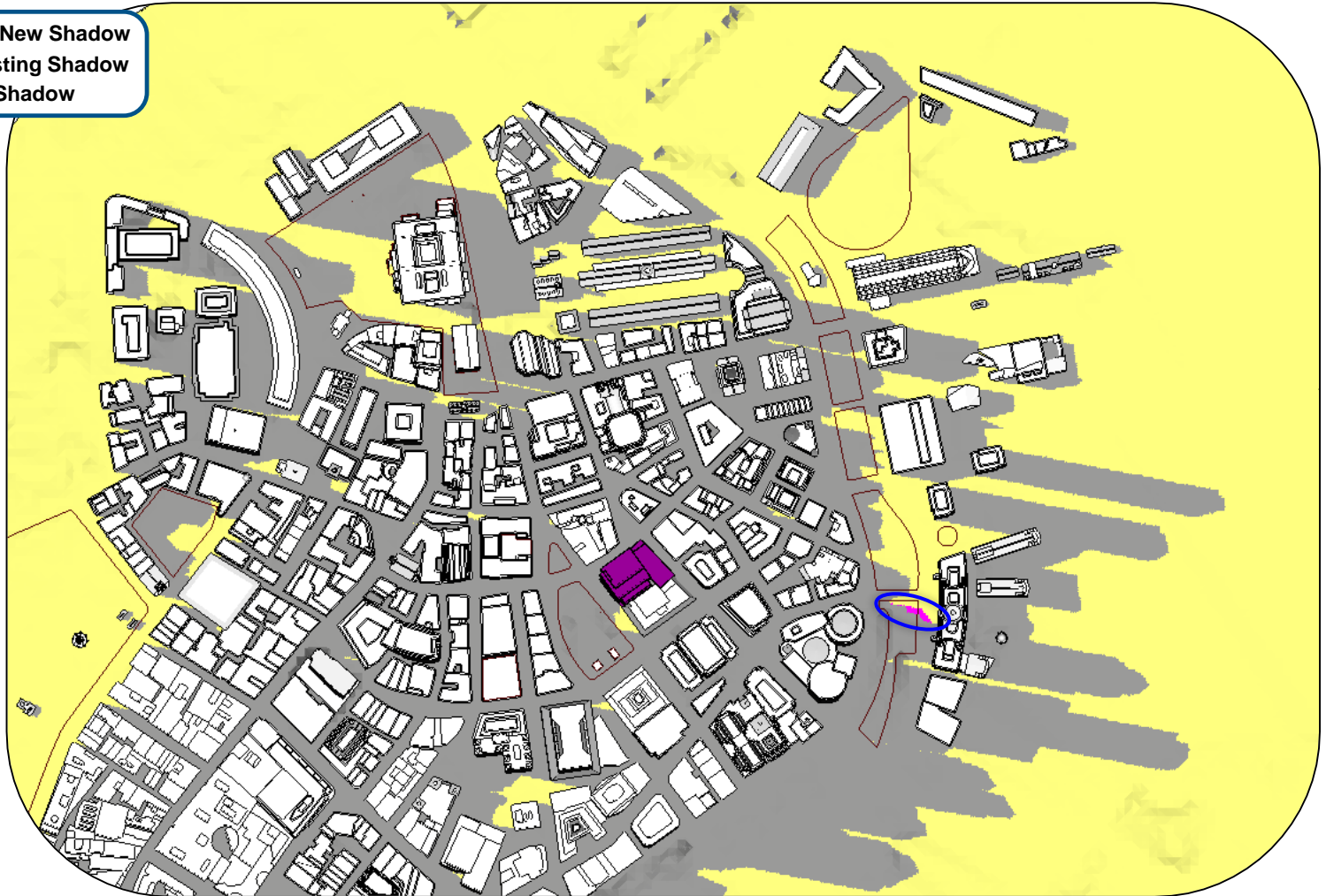


# EXISTING AND NET NEW SHADOWS



June 21<sup>st</sup> - 6:00 p.m. (Daylight Saving Time)

- Net New Shadow
- Existing Shadow
- No Shadow



# EXISTING AND NET NEW SHADOWS



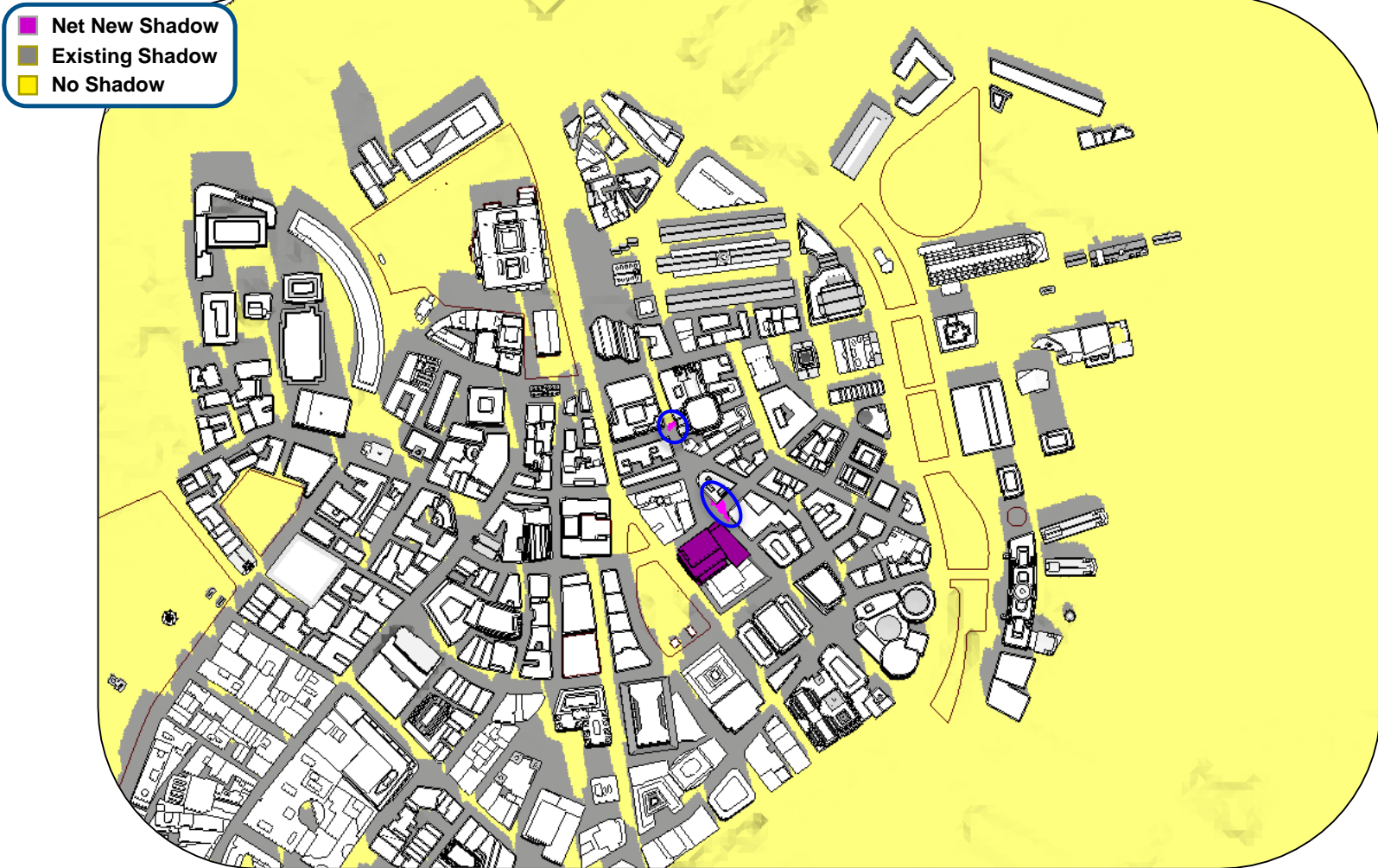
September 21<sup>st</sup> - 9:00 a.m. (Daylight Saving Time)



# EXISTING AND NET NEW SHADOWS



September 21<sup>st</sup> - 12:00 p.m. (Daylight Saving Time)





# EXISTING AND NET NEW SHADOWS



September 21<sup>st</sup> - 3:00 p.m. (Daylight Saving Time)

- Net New Shadow
- Existing Shadow
- No Shadow





# EXISTING AND NET NEW SHADOWS



September 21<sup>st</sup> - 6:00 p.m. (Daylight Saving Time)



# EXISTING AND NET NEW SHADOWS



December 21<sup>st</sup> - 9:00 a.m. (Standard Time)



# EXISTING AND NET NEW SHADOWS



December 21<sup>st</sup> - 12:00 p.m. (Standard Time)

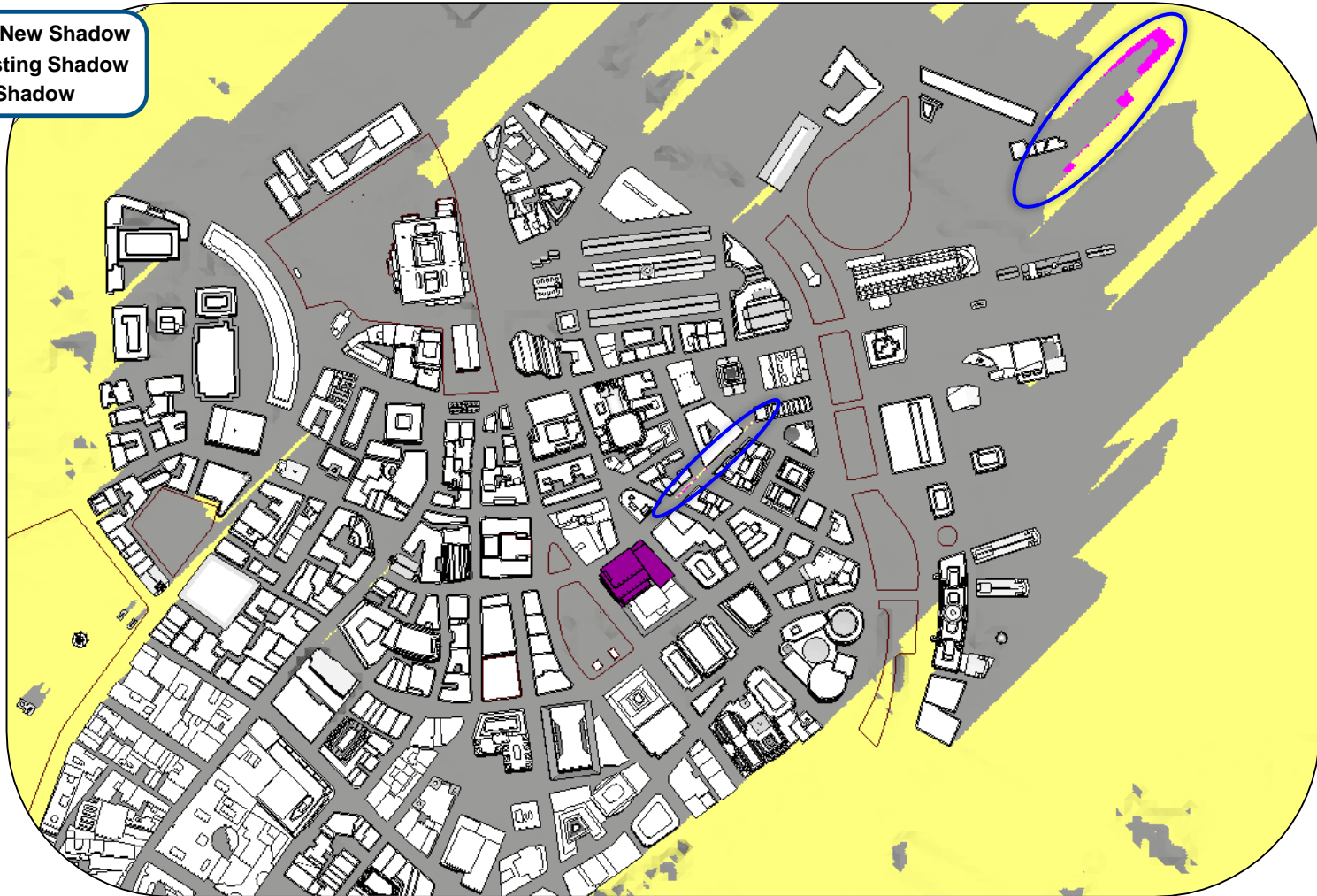


# EXISTING AND NET NEW SHADOWS



December 21<sup>st</sup> - 3:00 p.m. (Standard Time)

- Net New Shadow
- Existing Shadow
- No Shadow



*Appendix H*

# Wind Study



## PEDESTRIAN WIND CRITERIA

The Boston Planning and Development Agency (BPDA) has adopted two standards for assessing the relative wind comfort of pedestrians. First, the BPDA wind design guidance criterion states that an effective gust velocity (hourly mean wind speed +1.5 times the root-mean-square wind speed) of 31 mph should not be exceeded more than one percent of the time. The second set of criteria used by the BPDA to determine the acceptability of specific locations is based on the work of Melbourne<sup>1</sup>. This set of criteria is used to determine the relative level of pedestrian wind comfort for activities such as sitting, standing, or walking. The criteria are expressed in terms of benchmarks for the 1-hour mean wind speed exceeded 1% of the time (i.e., the 99-percentile mean wind speed). They are as follows:

### BPDA Mean Wind Criteria\*

Comfort Category	Mean Wind Speed (mph)
<b>Dangerous</b>	> 27
<b>Uncomfortable for Walking</b>	> 19 and $\leq$ 27
<b>Comfortable for Walking</b>	> 15 and $\leq$ 19
<b>Comfortable for Standing</b>	> 12 and $\leq$ 15
<b>Comfortable for Sitting</b>	< 12

\* Applicable to the hourly mean wind speed exceeded one percent of the time.

The wind climate found in a typical downtown location in Boston is generally comfortable for the pedestrian use of sidewalks and thoroughfares and meets the BPDA effective gust velocity criterion of 31 mph. However, without any mitigation measures, this wind climate is likely to be frequently uncomfortable for more passive activities such as sitting.

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<sup>1</sup> MELBOURNE, W.H., 1978, "CRITERIA FOR ENVIRONMENTAL WIND CONDITIONS", JOURNAL OF INDUSTRIAL AERODYNAMICS, 3 (1978) 241 - 249.

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# FIGURES



**Wind Tunnel Study Model  
No Build**

One Post Office Square – Boston, MA

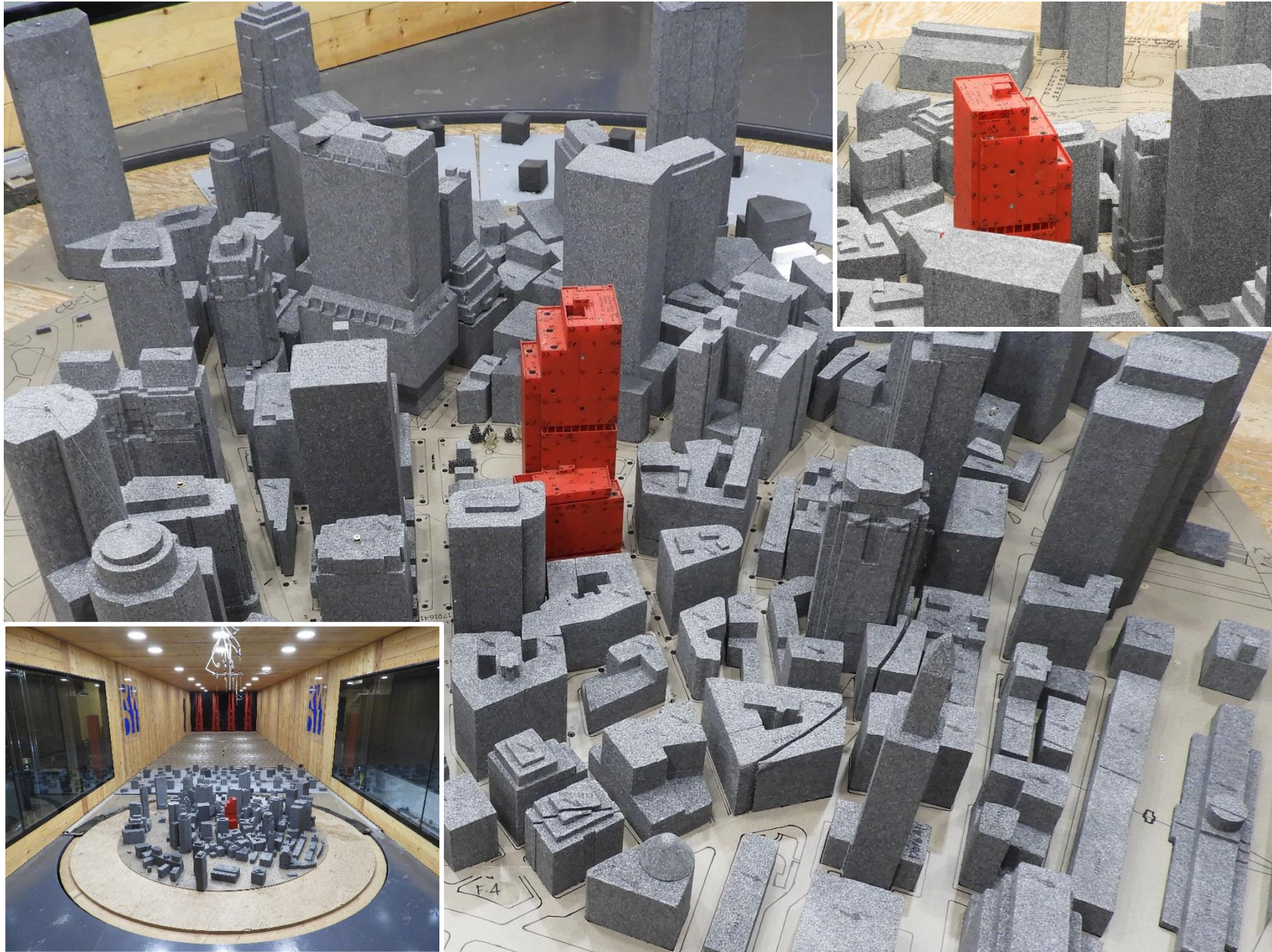
Figure No. 1a

Date: July 27, 2017



Project #1701641





**Wind Tunnel Study Model  
Build**

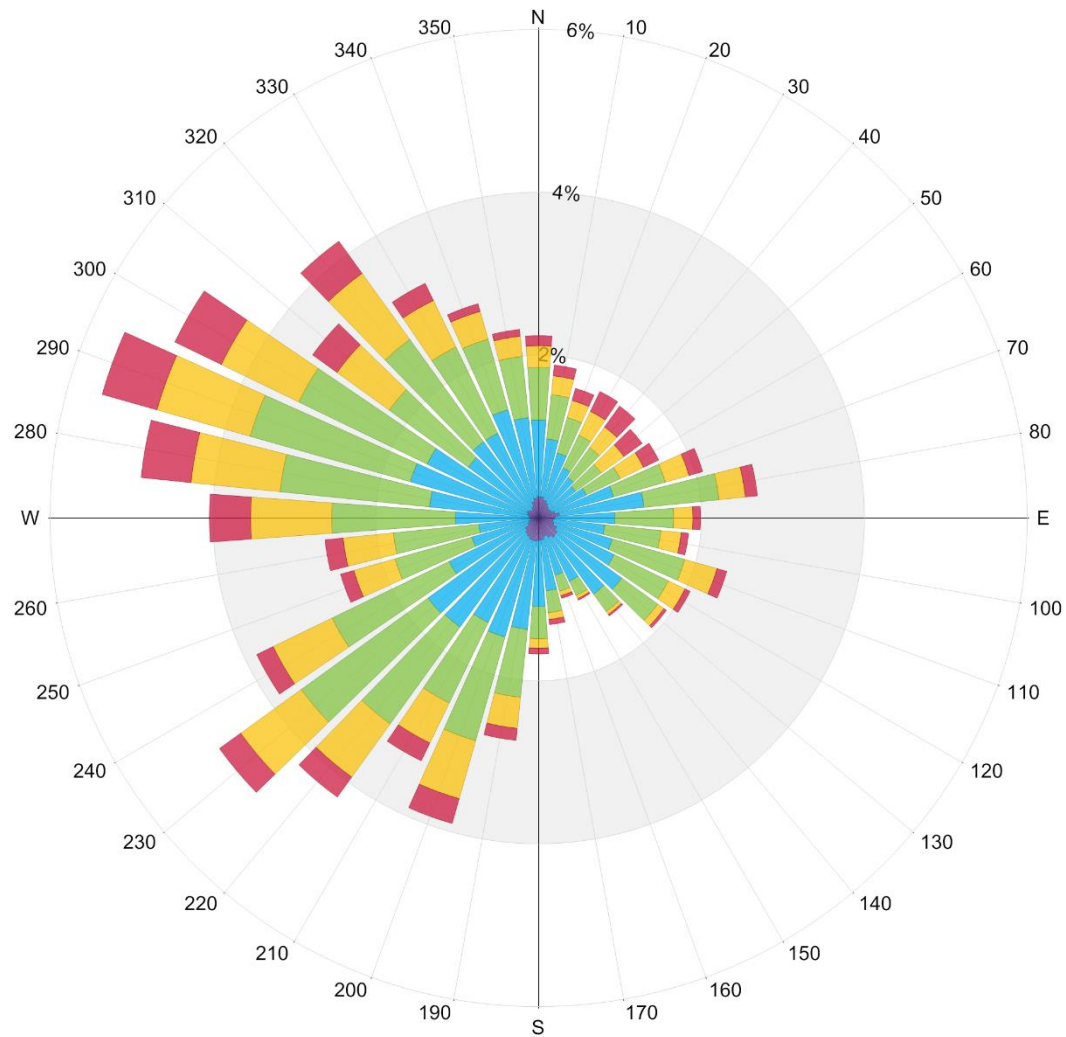
One Post Office Square – Boston, MA

Figure No. 1b

Date: July 27, 2017

Project #1702487





Annual Winds

Wind Speed (mph)	Probability (%)
Calm	2.6
1-5	7.4
6-10	32.1
11-15	33.0
16-20	16.9
>20	8.1

**Directional Distribution of Winds Approaching Boston Logan International Airport (1991 - 2016)**

One Post Office Square – Boston, MA

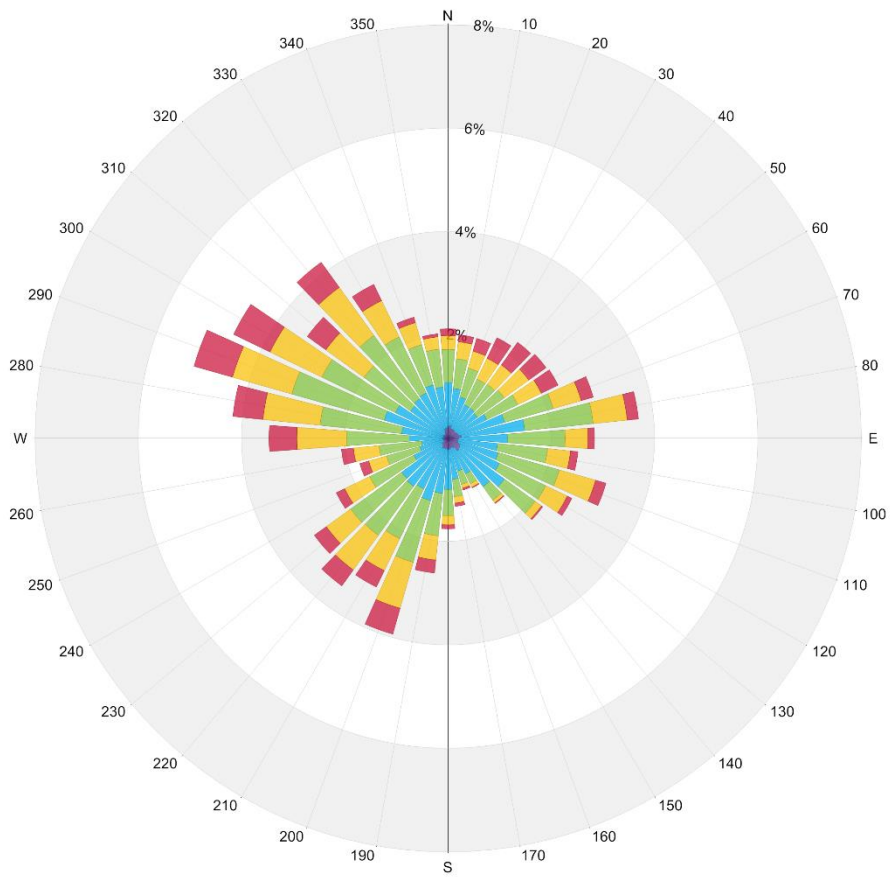
Figure No. 2

Project #1701641

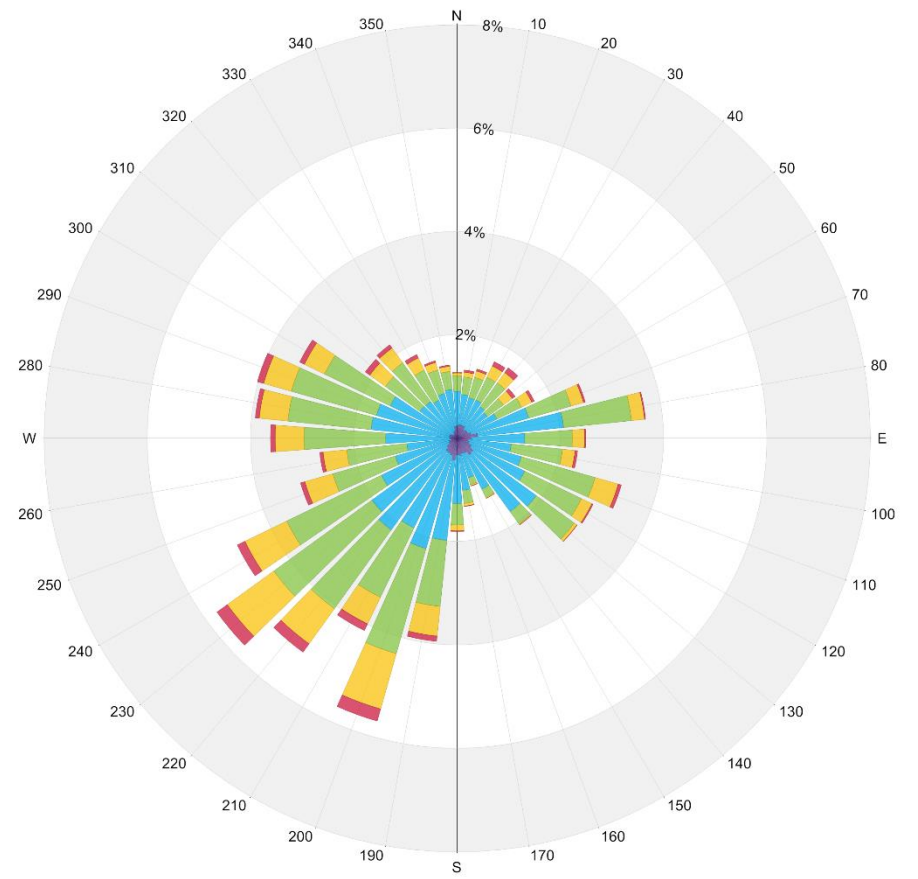
Date: July 27, 2017







Spring  
(March - May)



Summer  
(June - August)

Wind Speed (mph)	Probability (%)	
	Spring	Summer
Calm	2.4	2.7
1-5	6.4	8.9
6-10	28.5	38.1
11-15	32.9	35.1
16-20	19.7	12.6
>20	10.2	2.7

**Directional Distribution of Winds Approaching  
Boston Logan International Airport (1991 - 2016)**

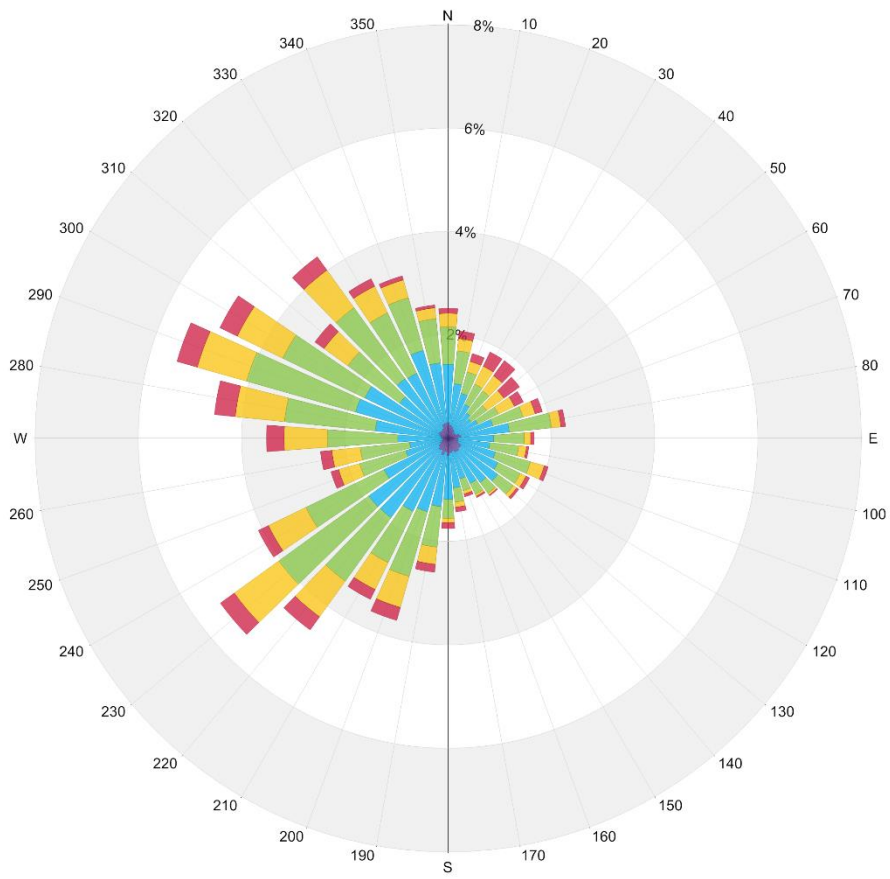
One Post Office Square - Boston, MA

Figure No. 2

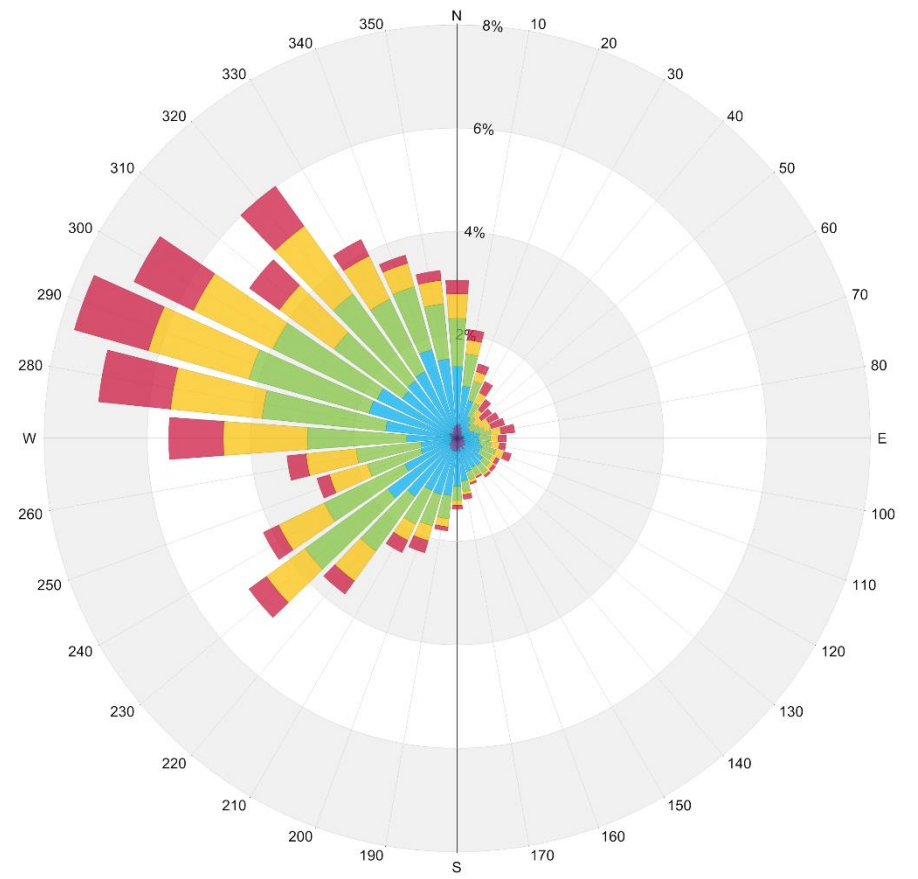
Project #1701641

Date: July 27, 2017





Fall  
(September - November)



Winter  
(December - February)

Wind Speed (mph)	Probability (%)	
	Fall	Winter
Calm	2.9	2.3
1-5	8.0	6.2
6-10	34.3	27.6
11-15	32.8	31.0
16-20	15.3	20.1
>20	6.7	12.8

**Directional Distribution of Winds Approaching  
Boston Logan International Airport (1991 - 2016)**

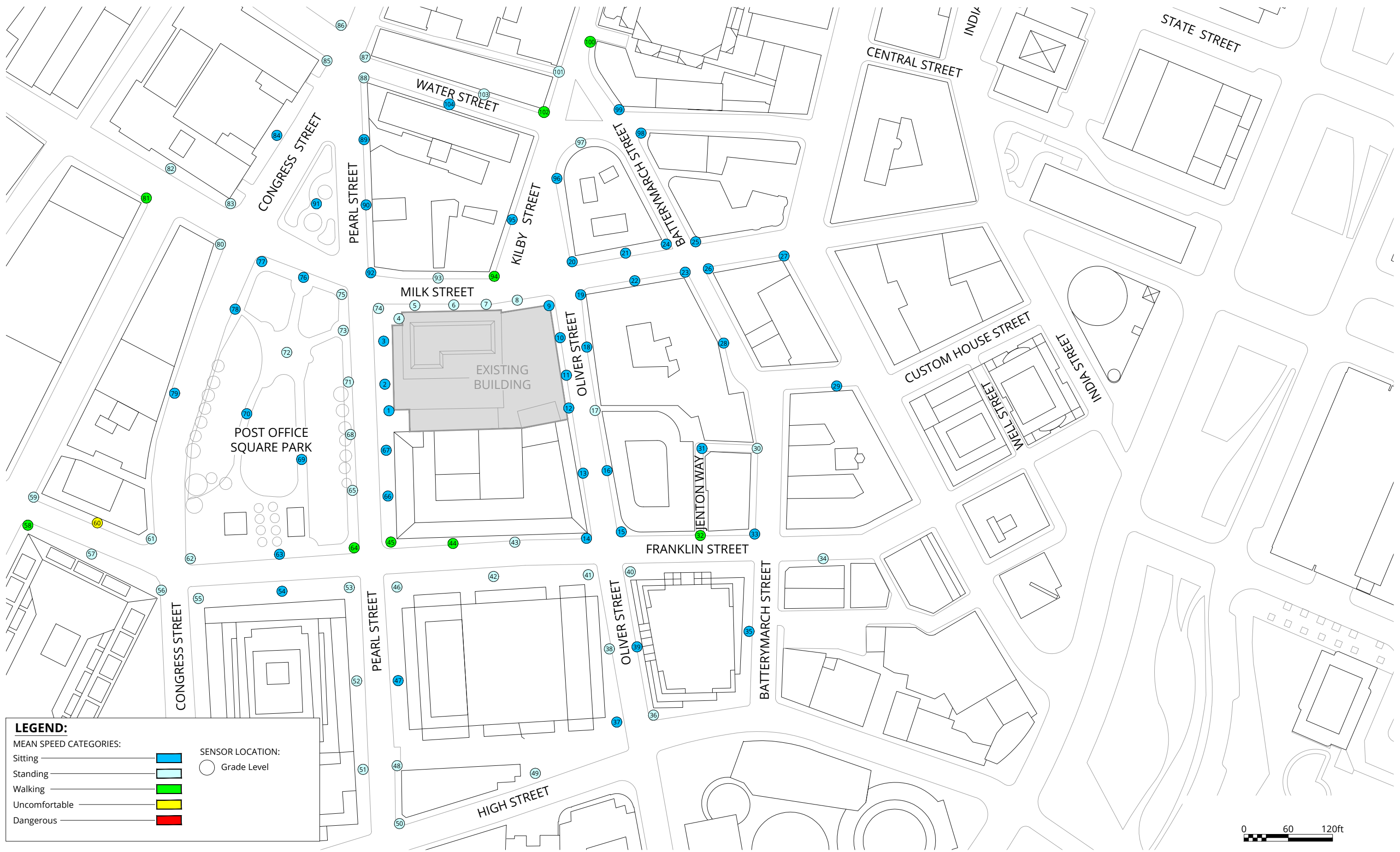
One Post Office Square - Boston, MA

Figure No. 2

Project #1701641

Date: July 27, 2017





**LEGEND:**

MEAN SPEED CATEGORIES:

- Sitting
- Standing
- Walking
- Uncomfortable
- Dangerous

SENSOR LOCATION:

- Grade Level

**Pedestrian Wind Conditions - Mean Speed**  
 No Build  
 Annual  
 One Post Office Square - Boston, MA



Drawn by: DBB Figure: 3a  
 Approx. Scale: 1"=120'  
 Date Revised: July 13, 2017

Project #1701641





**LEGEND:**

MEAN SPEED CATEGORIES:

- Sitting
- Standing
- Walking
- Uncomfortable
- Dangerous

SENSOR LOCATION:

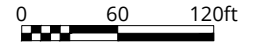
- Grade Level
- Podium Level
- Roof Level

Roof Plan  
Scale: 1" = 80'

Level 25 Plan  
Scale: 1" = 80'

Level 17 Plan  
Scale: 1" = 80'

Levels 3 & 4 Plan  
Scale: 1" = 80'







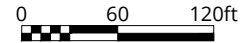
**LEGEND:**

EFFECTIVE GUST CATEGORIES:

- Acceptable
- Unacceptable

SENSOR LOCATION:

- Grade Level



**Pedestrian Wind Conditions - Mean Speed**  
 No Build  
 Annual  
 One Post Office Square - Boston, MA

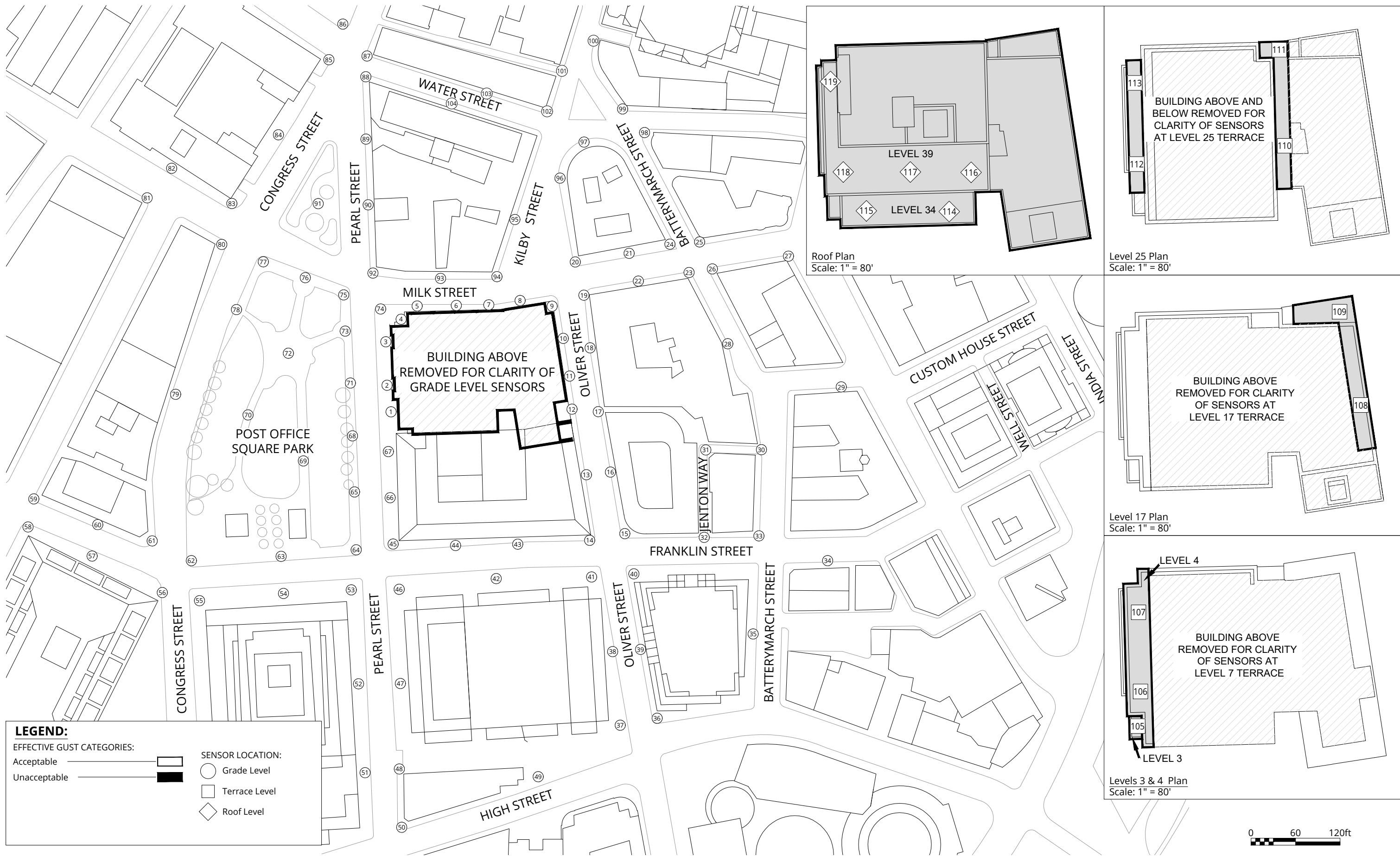


Drawn by: DBB | Figure: 4a  
 Approx. Scale: 1"=120'  
 Date Revised: July 13, 2017

Project #1701641







**LEGEND:**

EFFECTIVE GUST CATEGORIES:  
 Acceptable   
 Unacceptable

SENSOR LOCATION:  
 ○ Grade Level  
 □ Terrace Level  
 ◇ Roof Level

**Pedestrian Wind Conditions - Mean Speed**  
 Build  
 Annual  
 One Post Office Square - Boston, MA

True North

Drawn by: DBB Figure: 4b  
 Approx. Scale: 1"=120'  
 Project #1701641 Date Revised: July 13, 2017

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# TABLES

**Table 1: Mean Speed and Effective Gust Categories - Multiple Seasons**

Location	Configuration	Season	Mean Wind Speed			Effective Gust Wind Speed		
			Speed (mph)	% Change	Rating	Speed (mph)	% Change	Rating
1	A	Spring	12		Sitting	17		Acceptable
		Summer	9		Sitting	14		Acceptable
		Fall	11		Sitting	16		Acceptable
		Winter	12		Sitting	18		Acceptable
		Annual	11		Sitting	17		Acceptable
	B	Spring	9	-25%	Sitting	14	-18%	Acceptable
		Summer	7	-22%	Sitting	12	-14%	Acceptable
		Fall	8	-27%	Sitting	14	-12%	Acceptable
		Winter	10	-17%	Sitting	16	-11%	Acceptable
		Annual	9	-18%	Sitting	14	-18%	Acceptable
2	A	Spring	8		Sitting	13		Acceptable
		Summer	6		Sitting	10		Acceptable
		Fall	7		Sitting	12		Acceptable
		Winter	8		Sitting	14		Acceptable
		Annual	7		Sitting	13		Acceptable
	B	Spring	9	12%	Sitting	15	15%	Acceptable
		Summer	7	17%	Sitting	12	20%	Acceptable
		Fall	8	14%	Sitting	14	17%	Acceptable
		Winter	9	12%	Sitting	16	14%	Acceptable
		Annual	9	29%	Sitting	14		Acceptable
3	A	Spring	9		Sitting	16		Acceptable
		Summer	8		Sitting	14		Acceptable
		Fall	9		Sitting	15		Acceptable
		Winter	10		Sitting	16		Acceptable
		Annual	9		Sitting	15		Acceptable
	B	Spring	10	11%	Sitting	17		Acceptable
		Summer	8		Sitting	14		Acceptable
		Fall	9		Sitting	16		Acceptable
		Winter	10		Sitting	17		Acceptable
		Annual	9		Sitting	16		Acceptable
4	A	Spring	14		Standing	21		Acceptable
		Summer	12		Sitting	19		Acceptable
		Fall	13		Standing	20		Acceptable
		Winter	13		Standing	21		Acceptable
		Annual	13		Standing	20		Acceptable
	B	Spring	11	-21%	Sitting	18	-14%	Acceptable
		Summer	9	-25%	Sitting	15	-21%	Acceptable
		Fall	10	-23%	Sitting	16	-20%	Acceptable
		Winter	10	-23%	Sitting	17	-19%	Acceptable
		Annual	10	-23%	Sitting	17	-15%	Acceptable

**Table 1: Mean Speed and Effective Gust Categories - Multiple Seasons**

Location	Configuration	Season	Mean Wind Speed			Effective Gust Wind Speed		
			Speed (mph)	% Change	Rating	Speed (mph)	% Change	Rating
5	A	Spring	15		Standing	19		Acceptable
		Summer	11		Sitting	14		Acceptable
		Fall	14		Standing	18		Acceptable
		Winter	15		Standing	19		Acceptable
		Annual	14		Standing	18		Acceptable
	B	Spring	19	27%	Walking	24	26%	Acceptable
		Summer	13	18%	Standing	17	21%	Acceptable
		Fall	17	21%	Walking	22	22%	Acceptable
		Winter	18	20%	Walking	24	26%	Acceptable
		Annual	17	21%	Walking	22	22%	Acceptable
6	A	Spring	17		Walking	22		Acceptable
		Summer	12		Sitting	16		Acceptable
		Fall	15		Standing	20		Acceptable
		Winter	16		Walking	21		Acceptable
		Annual	15		Standing	20		Acceptable
	B	Spring	18		Walking	23		Acceptable
		Summer	13		Standing	17		Acceptable
		Fall	17	13%	Walking	21		Acceptable
		Winter	17		Walking	23		Acceptable
		Annual	17	13%	Walking	21		Acceptable
7	A	Spring	15		Standing	19		Acceptable
		Summer	11		Sitting	15		Acceptable
		Fall	14		Standing	18		Acceptable
		Winter	15		Standing	20		Acceptable
		Annual	14		Standing	18		Acceptable
	B	Spring	15		Standing	20		Acceptable
		Summer	11		Sitting	16		Acceptable
		Fall	14		Standing	18		Acceptable
		Winter	15		Standing	20		Acceptable
		Annual	14		Standing	19		Acceptable
8	A	Spring	13		Standing	20		Acceptable
		Summer	10		Sitting	16		Acceptable
		Fall	12		Sitting	18		Acceptable
		Winter	14		Standing	22		Acceptable
		Annual	13		Standing	20		Acceptable
	B	Spring	13		Standing	20		Acceptable
		Summer	10		Sitting	16		Acceptable
		Fall	12		Sitting	18		Acceptable
		Winter	14		Standing	21		Acceptable
		Annual	13		Standing	19		Acceptable

**Table 1: Mean Speed and Effective Gust Categories - Multiple Seasons**

Location	Configuration	Season	Mean Wind Speed			Effective Gust Wind Speed		
			Speed (mph)	% Change	Rating	Speed (mph)	% Change	Rating
9	A	Spring	9		Sitting	14		Acceptable
		Summer	7		Sitting	11		Acceptable
		Fall	9		Sitting	14		Acceptable
		Winter	11		Sitting	16		Acceptable
		Annual	9		Sitting	14		Acceptable
	B	Spring	15	67%	Standing	21	50%	Acceptable
		Summer	12	71%	Sitting	16	45%	Acceptable
		Fall	14	56%	Standing	19	36%	Acceptable
		Winter	17	55%	Walking	24	50%	Acceptable
		Annual	15	67%	Standing	21	50%	Acceptable
10	A	Spring	7		Sitting	12		Acceptable
		Summer	6		Sitting	9		Acceptable
		Fall	7		Sitting	11		Acceptable
		Winter	8		Sitting	13		Acceptable
		Annual	7		Sitting	12		Acceptable
	B	Spring	13	86%	Standing	20	67%	Acceptable
		Summer	10	67%	Sitting	15	67%	Acceptable
		Fall	12	71%	Sitting	18	64%	Acceptable
		Winter	15	88%	Standing	22	69%	Acceptable
		Annual	13	86%	Standing	20	67%	Acceptable
11	A	Spring	10		Sitting	14		Acceptable
		Summer	8		Sitting	11		Acceptable
		Fall	10		Sitting	13		Acceptable
		Winter	11		Sitting	15		Acceptable
		Annual	10		Sitting	14		Acceptable
	B	Spring	13	30%	Standing	20	43%	Acceptable
		Summer	10	25%	Sitting	15	36%	Acceptable
		Fall	12	20%	Sitting	18	38%	Acceptable
		Winter	15	36%	Standing	22	47%	Acceptable
		Annual	13	30%	Standing	19	36%	Acceptable
12	A	Spring	8		Sitting	13		Acceptable
		Summer	7		Sitting	10		Acceptable
		Fall	8		Sitting	12		Acceptable
		Winter	8		Sitting	13		Acceptable
		Annual	8		Sitting	12		Acceptable
	B	Spring	13	62%	Standing	19	46%	Acceptable
		Summer	10	43%	Sitting	15	50%	Acceptable
		Fall	12	50%	Sitting	18	50%	Acceptable
		Winter	13	62%	Standing	20	54%	Acceptable
		Annual	12	50%	Sitting	18	50%	Acceptable



**Table 1: Mean Speed and Effective Gust Categories - Multiple Seasons**

Location	Configuration	Season	Mean Wind Speed			Effective Gust Wind Speed		
			Speed (mph)	% Change	Rating	Speed (mph)	% Change	Rating
13	A	Spring	11		Sitting	17		Acceptable
		Summer	9		Sitting	14		Acceptable
		Fall	10		Sitting	15		Acceptable
		Winter	11		Sitting	16		Acceptable
		Annual	11		Sitting	15		Acceptable
	B	Spring	14	27%	Standing	20	18%	Acceptable
		Summer	11	22%	Sitting	15		Acceptable
		Fall	13	30%	Standing	19	27%	Acceptable
		Winter	14	27%	Standing	20	25%	Acceptable
		Annual	13	18%	Standing	19	27%	Acceptable
14	A	Spring	12		Sitting	18		Acceptable
		Summer	10		Sitting	16		Acceptable
		Fall	11		Sitting	18		Acceptable
		Winter	12		Sitting	19		Acceptable
		Annual	11		Sitting	18		Acceptable
	B	Spring	16	33%	Walking	21	17%	Acceptable
		Summer	11		Sitting	16		Acceptable
		Fall	15	36%	Standing	20	11%	Acceptable
		Winter	15	25%	Standing	21	11%	Acceptable
		Annual	14	27%	Standing	20	11%	Acceptable
15	A	Spring	13		Standing	19		Acceptable
		Summer	10		Sitting	15		Acceptable
		Fall	11		Sitting	17		Acceptable
		Winter	12		Sitting	19		Acceptable
		Annual	12		Sitting	18		Acceptable
	B	Spring	11	-15%	Sitting	17	-11%	Acceptable
		Summer	10		Sitting	14		Acceptable
		Fall	10		Sitting	15	-12%	Acceptable
		Winter	11		Sitting	17	-11%	Acceptable
		Annual	11		Sitting	16	-11%	Acceptable
16	A	Spring	9		Sitting	14		Acceptable
		Summer	7		Sitting	11		Acceptable
		Fall	8		Sitting	13		Acceptable
		Winter	9		Sitting	15		Acceptable
		Annual	9		Sitting	13		Acceptable
	B	Spring	12	33%	Sitting	18	29%	Acceptable
		Summer	9	29%	Sitting	13	18%	Acceptable
		Fall	11	38%	Sitting	17	31%	Acceptable
		Winter	12	33%	Sitting	18	20%	Acceptable
		Annual	11	22%	Sitting	17	31%	Acceptable

**Table 1: Mean Speed and Effective Gust Categories - Multiple Seasons**

Location	Configuration	Season	Mean Wind Speed			Effective Gust Wind Speed		
			Speed (mph)	% Change	Rating	Speed (mph)	% Change	Rating
17	A	Spring	15		Standing	21		Acceptable
		Summer	10		Sitting	15		Acceptable
		Fall	14		Standing	20		Acceptable
		Winter	14		Standing	20		Acceptable
		Annual	14		Standing	19		Acceptable
	B	Spring	15		Standing	21		Acceptable
		Summer	11		Sitting	16		Acceptable
		Fall	14		Standing	20		Acceptable
		Winter	17	21%	Walking	23	15%	Acceptable
		Annual	15		Standing	21	11%	Acceptable
18	A	Spring	9		Sitting	14		Acceptable
		Summer	8		Sitting	13		Acceptable
		Fall	9		Sitting	14		Acceptable
		Winter	10		Sitting	15		Acceptable
		Annual	9		Sitting	14		Acceptable
	B	Spring	17	89%	Walking	23	64%	Acceptable
		Summer	13	62%	Standing	18	38%	Acceptable
		Fall	16	78%	Walking	21	50%	Acceptable
		Winter	19	90%	Walking	26	73%	Acceptable
		Annual	17	89%	Walking	23	64%	Acceptable
19	A	Spring	10		Sitting	16		Acceptable
		Summer	9		Sitting	13		Acceptable
		Fall	10		Sitting	14		Acceptable
		Winter	11		Sitting	16		Acceptable
		Annual	10		Sitting	15		Acceptable
	B	Spring	15	50%	Standing	22	38%	Acceptable
		Summer	11	22%	Sitting	16	23%	Acceptable
		Fall	14	40%	Standing	20	43%	Acceptable
		Winter	14	27%	Standing	21	31%	Acceptable
		Annual	14	40%	Standing	20	33%	Acceptable
20	A	Spring	11		Sitting	17		Acceptable
		Summer	9		Sitting	14		Acceptable
		Fall	10		Sitting	16		Acceptable
		Winter	12		Sitting	18		Acceptable
		Annual	11		Sitting	16		Acceptable
	B	Spring	13	18%	Standing	20	18%	Acceptable
		Summer	10	11%	Sitting	16	14%	Acceptable
		Fall	12	20%	Sitting	18	12%	Acceptable
		Winter	13		Standing	20	11%	Acceptable
		Annual	13	18%	Standing	19	19%	Acceptable

**Table 1: Mean Speed and Effective Gust Categories - Multiple Seasons**

Location	Configuration	Season	Mean Wind Speed			Effective Gust Wind Speed		
			Speed (mph)	% Change	Rating	Speed (mph)	% Change	Rating
21	A	Spring	11		Sitting	17		Acceptable
		Summer	9		Sitting	14		Acceptable
		Fall	11		Sitting	16		Acceptable
		Winter	12		Sitting	18		Acceptable
		Annual	11		Sitting	17		Acceptable
	B	Spring	14	27%	Standing	19	12%	Acceptable
		Summer	11	22%	Sitting	16	14%	Acceptable
		Fall	13	18%	Standing	18	12%	Acceptable
		Winter	15	25%	Standing	21	17%	Acceptable
		Annual	13	18%	Standing	19	12%	Acceptable
22	A	Spring	10		Sitting	15		Acceptable
		Summer	8		Sitting	12		Acceptable
		Fall	9		Sitting	14		Acceptable
		Winter	10		Sitting	16		Acceptable
		Annual	9		Sitting	15		Acceptable
	B	Spring	14	40%	Standing	20	33%	Acceptable
		Summer	11	38%	Sitting	15	25%	Acceptable
		Fall	13	44%	Standing	18	29%	Acceptable
		Winter	15	50%	Standing	22	38%	Acceptable
		Annual	14	56%	Standing	20	33%	Acceptable
23	A	Spring	11		Sitting	16		Acceptable
		Summer	8		Sitting	13		Acceptable
		Fall	10		Sitting	15		Acceptable
		Winter	11		Sitting	17		Acceptable
		Annual	11		Sitting	16		Acceptable
	B	Spring	16	45%	Walking	22	38%	Acceptable
		Summer	12	50%	Sitting	16	23%	Acceptable
		Fall	14	40%	Standing	20	33%	Acceptable
		Winter	18	64%	Walking	24	41%	Acceptable
		Annual	16	45%	Walking	21	31%	Acceptable
24	A	Spring	10		Sitting	16		Acceptable
		Summer	8		Sitting	13		Acceptable
		Fall	9		Sitting	14		Acceptable
		Winter	10		Sitting	16		Acceptable
		Annual	9		Sitting	15		Acceptable
	B	Spring	15	50%	Standing	20	25%	Acceptable
		Summer	11	38%	Sitting	16	23%	Acceptable
		Fall	13	44%	Standing	19	36%	Acceptable
		Winter	17	70%	Walking	23	44%	Acceptable
		Annual	14	56%	Standing	20	33%	Acceptable

**Table 1: Mean Speed and Effective Gust Categories - Multiple Seasons**

Location	Configuration	Season	Mean Wind Speed			Effective Gust Wind Speed		
			Speed (mph)	% Change	Rating	Speed (mph)	% Change	Rating
25	A	Spring	12		Sitting	20		Acceptable
		Summer	9		Sitting	15		Acceptable
		Fall	11		Sitting	18		Acceptable
		Winter	13		Standing	20		Acceptable
		Annual	11		Sitting	18		Acceptable
	B	Spring	13		Standing	19		Acceptable
		Summer	10	11%	Sitting	15		Acceptable
		Fall	11		Sitting	18		Acceptable
		Winter	13		Standing	20		Acceptable
		Annual	12		Sitting	19		Acceptable
26	A	Spring	9		Sitting	15		Acceptable
		Summer	7		Sitting	12		Acceptable
		Fall	8		Sitting	14		Acceptable
		Winter	10		Sitting	16		Acceptable
		Annual	9		Sitting	14		Acceptable
	B	Spring	12	33%	Sitting	17	13%	Acceptable
		Summer	9	29%	Sitting	13		Acceptable
		Fall	11	38%	Sitting	16	14%	Acceptable
		Winter	13	30%	Standing	19	19%	Acceptable
		Annual	12	33%	Sitting	17	21%	Acceptable
27	A	Spring	12		Sitting	17		Acceptable
		Summer	9		Sitting	14		Acceptable
		Fall	10		Sitting	15		Acceptable
		Winter	11		Sitting	16		Acceptable
		Annual	11		Sitting	16		Acceptable
	B	Spring	13		Standing	19	12%	Acceptable
		Summer	11	22%	Sitting	15		Acceptable
		Fall	12	20%	Sitting	18	20%	Acceptable
		Winter	15	36%	Standing	21	31%	Acceptable
		Annual	13	18%	Standing	19	19%	Acceptable
28	A	Spring	7		Sitting	12		Acceptable
		Summer	6		Sitting	10		Acceptable
		Fall	7		Sitting	11		Acceptable
		Winter	7		Sitting	12		Acceptable
		Annual	7		Sitting	11		Acceptable
	B	Spring	8	14%	Sitting	12		Acceptable
		Summer	6		Sitting	10		Acceptable
		Fall	7		Sitting	11		Acceptable
		Winter	8	14%	Sitting	12		Acceptable
		Annual	7		Sitting	11		Acceptable

**Table 1: Mean Speed and Effective Gust Categories - Multiple Seasons**

Location	Configuration	Season	Mean Wind Speed			Effective Gust Wind Speed		
			Speed (mph)	% Change	Rating	Speed (mph)	% Change	Rating
29	A	Spring	6		Sitting	10		Acceptable
		Summer	5		Sitting	8		Acceptable
		Fall	6		Sitting	10		Acceptable
		Winter	7		Sitting	11		Acceptable
		Annual	6		Sitting	10		Acceptable
	B	Spring	6		Sitting	11		Acceptable
		Summer	5		Sitting	8		Acceptable
		Fall	6		Sitting	10		Acceptable
		Winter	7		Sitting	11		Acceptable
		Annual	6		Sitting	10		Acceptable
30	A	Spring	15		Standing	21		Acceptable
		Summer	11		Sitting	15		Acceptable
		Fall	13		Standing	19		Acceptable
		Winter	14		Standing	20		Acceptable
		Annual	13		Standing	19		Acceptable
	B	Spring	14		Standing	21		Acceptable
		Summer	10		Sitting	15		Acceptable
		Fall	13		Standing	19		Acceptable
		Winter	13		Standing	20		Acceptable
		Annual	13		Standing	19		Acceptable
31	A	Spring	8		Sitting	12		Acceptable
		Summer	6		Sitting	10		Acceptable
		Fall	7		Sitting	11		Acceptable
		Winter	8		Sitting	13		Acceptable
		Annual	8		Sitting	12		Acceptable
	B	Spring	7	-12%	Sitting	12		Acceptable
		Summer	6		Sitting	9		Acceptable
		Fall	7		Sitting	11		Acceptable
		Winter	7	-12%	Sitting	12		Acceptable
		Annual	7	-12%	Sitting	11		Acceptable
32	A	Spring	18		Walking	21		Acceptable
		Summer	15		Standing	16		Acceptable
		Fall	17		Walking	19		Acceptable
		Winter	20		Uncomfortable	22		Acceptable
		Annual	18		Walking	20		Acceptable
	B	Spring	18		Walking	21		Acceptable
		Summer	15		Standing	16		Acceptable
		Fall	17		Walking	19		Acceptable
		Winter	19		Walking	22		Acceptable
		Annual	18		Walking	20		Acceptable



**Table 1: Mean Speed and Effective Gust Categories - Multiple Seasons**

Location	Configuration	Season	Mean Wind Speed			Effective Gust Wind Speed		
			Speed (mph)	% Change	Rating	Speed (mph)	% Change	Rating
33	A	Spring	13		Standing	20		Acceptable
		Summer	11		Sitting	15		Acceptable
		Fall	11		Sitting	18		Acceptable
		Winter	12		Sitting	19		Acceptable
		Annual	12		Sitting	18		Acceptable
	B	Spring	13		Standing	19		Acceptable
		Summer	11		Sitting	15		Acceptable
		Fall	11		Sitting	17		Acceptable
		Winter	12		Sitting	19		Acceptable
		Annual	12		Sitting	18		Acceptable
34	A	Spring	15		Standing	19		Acceptable
		Summer	12		Sitting	16		Acceptable
		Fall	12		Sitting	17		Acceptable
		Winter	14		Standing	19		Acceptable
		Annual	13		Standing	18		Acceptable
	B	Spring	15		Standing	19		Acceptable
		Summer	13		Standing	17		Acceptable
		Fall	12		Sitting	17		Acceptable
		Winter	13		Standing	19		Acceptable
		Annual	13		Standing	18		Acceptable
35	A	Spring	9		Sitting	15		Acceptable
		Summer	8		Sitting	13		Acceptable
		Fall	8		Sitting	13		Acceptable
		Winter	9		Sitting	15		Acceptable
		Annual	9		Sitting	14		Acceptable
	B	Spring	9		Sitting	15		Acceptable
		Summer	8		Sitting	13		Acceptable
		Fall	8		Sitting	13		Acceptable
		Winter	9		Sitting	14		Acceptable
		Annual	9		Sitting	14		Acceptable
36	A	Spring	14		Standing	20		Acceptable
		Summer	11		Sitting	16		Acceptable
		Fall	12		Sitting	18		Acceptable
		Winter	13		Standing	20		Acceptable
		Annual	13		Standing	19		Acceptable
	B	Spring	14		Standing	19		Acceptable
		Summer	11		Sitting	16		Acceptable
		Fall	12		Sitting	17		Acceptable
		Winter	13		Standing	19		Acceptable
		Annual	13		Standing	18		Acceptable

**Table 1: Mean Speed and Effective Gust Categories - Multiple Seasons**

Location	Configuration	Season	Mean Wind Speed			Effective Gust Wind Speed		
			Speed (mph)	% Change	Rating	Speed (mph)	% Change	Rating
37	A	Spring	13		Standing	19		Acceptable
		Summer	10		Sitting	14		Acceptable
		Fall	12		Sitting	17		Acceptable
		Winter	13		Standing	19		Acceptable
		Annual	12		Sitting	18		Acceptable
	B	Spring	13		Standing	18		Acceptable
		Summer	10		Sitting	14		Acceptable
		Fall	12		Sitting	17		Acceptable
		Winter	13		Standing	18		Acceptable
		Annual	12		Sitting	17		Acceptable
38	A	Spring	15		Standing	22		Acceptable
		Summer	13		Standing	17		Acceptable
		Fall	14		Standing	20		Acceptable
		Winter	15		Standing	22		Acceptable
		Annual	14		Standing	20		Acceptable
	B	Spring	15		Standing	22		Acceptable
		Summer	12		Sitting	17		Acceptable
		Fall	14		Standing	20		Acceptable
		Winter	15		Standing	22		Acceptable
		Annual	14		Standing	21		Acceptable
39	A	Spring	12		Sitting	17		Acceptable
		Summer	9		Sitting	14		Acceptable
		Fall	11		Sitting	16		Acceptable
		Winter	13		Standing	19		Acceptable
		Annual	12		Sitting	17		Acceptable
	B	Spring	13		Standing	19	12%	Acceptable
		Summer	10	11%	Sitting	15		Acceptable
		Fall	12		Sitting	17		Acceptable
		Winter	14		Standing	20		Acceptable
		Annual	13		Standing	18		Acceptable
40	A	Spring	16		Walking	23		Acceptable
		Summer	12		Sitting	16		Acceptable
		Fall	15		Standing	21		Acceptable
		Winter	15		Standing	21		Acceptable
		Annual	15		Standing	21		Acceptable
	B	Spring	16		Walking	22		Acceptable
		Summer	11		Sitting	16		Acceptable
		Fall	15		Standing	21		Acceptable
		Winter	15		Standing	21		Acceptable
		Annual	15		Standing	20		Acceptable

**Table 1: Mean Speed and Effective Gust Categories - Multiple Seasons**

Location	Configuration	Season	Mean Wind Speed			Effective Gust Wind Speed		
			Speed (mph)	% Change	Rating	Speed (mph)	% Change	Rating
41	A	Spring	16		Walking	22		Acceptable
		Summer	12		Sitting	16		Acceptable
		Fall	15		Standing	20		Acceptable
		Winter	16		Walking	21		Acceptable
		Annual	15		Standing	20		Acceptable
	B	Spring	17		Walking	22		Acceptable
		Summer	12		Sitting	16		Acceptable
		Fall	16		Walking	21		Acceptable
		Winter	17		Walking	22		Acceptable
		Annual	16		Walking	21		Acceptable
42	A	Spring	16		Walking	22		Acceptable
		Summer	13		Standing	17		Acceptable
		Fall	14		Standing	20		Acceptable
		Winter	16		Walking	22		Acceptable
		Annual	15		Standing	20		Acceptable
	B	Spring	16		Walking	22		Acceptable
		Summer	13		Standing	17		Acceptable
		Fall	15		Standing	20		Acceptable
		Winter	16		Walking	22		Acceptable
		Annual	15		Standing	20		Acceptable
43	A	Spring	15		Standing	21		Acceptable
		Summer	12		Sitting	17		Acceptable
		Fall	14		Standing	19		Acceptable
		Winter	15		Standing	21		Acceptable
		Annual	14		Standing	20		Acceptable
	B	Spring	15		Standing	20		Acceptable
		Summer	12		Sitting	17		Acceptable
		Fall	13		Standing	19		Acceptable
		Winter	14		Standing	21		Acceptable
		Annual	14		Standing	19		Acceptable
44	A	Spring	17		Walking	22		Acceptable
		Summer	14		Standing	18		Acceptable
		Fall	15		Standing	19		Acceptable
		Winter	16		Walking	22		Acceptable
		Annual	16		Walking	20		Acceptable
	B	Spring	16		Walking	21		Acceptable
		Summer	14		Standing	17		Acceptable
		Fall	14		Standing	19		Acceptable
		Winter	15		Standing	20		Acceptable
		Annual	15		Standing	20		Acceptable

**Table 1: Mean Speed and Effective Gust Categories - Multiple Seasons**

Location	Configuration	Season	Mean Wind Speed			Effective Gust Wind Speed		
			Speed (mph)	% Change	Rating	Speed (mph)	% Change	Rating
45	A	Spring	16		Walking	24		Acceptable
		Summer	12		Sitting	18		Acceptable
		Fall	15		Standing	22		Acceptable
		Winter	17		Walking	25		Acceptable
		Annual	16		Walking	23		Acceptable
	B	Spring	16		Walking	23		Acceptable
		Summer	12		Sitting	17		Acceptable
		Fall	14		Standing	21		Acceptable
		Winter	17		Walking	25		Acceptable
		Annual	15		Standing	23		Acceptable
46	A	Spring	14		Standing	21		Acceptable
		Summer	10		Sitting	16		Acceptable
		Fall	13		Standing	20		Acceptable
		Winter	15		Standing	23		Acceptable
		Annual	14		Standing	21		Acceptable
	B	Spring	14		Standing	21		Acceptable
		Summer	11		Sitting	16		Acceptable
		Fall	13		Standing	20		Acceptable
		Winter	16		Walking	23		Acceptable
		Annual	14		Standing	21		Acceptable
47	A	Spring	12		Sitting	18		Acceptable
		Summer	9		Sitting	14		Acceptable
		Fall	11		Sitting	17		Acceptable
		Winter	14		Standing	20		Acceptable
		Annual	12		Sitting	18		Acceptable
	B	Spring	13		Standing	19		Acceptable
		Summer	10	11%	Sitting	14		Acceptable
		Fall	12		Sitting	18		Acceptable
		Winter	15		Standing	21		Acceptable
		Annual	13		Standing	19		Acceptable
48	A	Spring	14		Standing	21		Acceptable
		Summer	12		Sitting	17		Acceptable
		Fall	13		Standing	19		Acceptable
		Winter	14		Standing	21		Acceptable
		Annual	14		Standing	20		Acceptable
	B	Spring	14		Standing	21		Acceptable
		Summer	12		Sitting	17		Acceptable
		Fall	13		Standing	19		Acceptable
		Winter	15		Standing	21		Acceptable
		Annual	14		Standing	20		Acceptable

**Table 1: Mean Speed and Effective Gust Categories - Multiple Seasons**

Location	Configuration	Season	Mean Wind Speed			Effective Gust Wind Speed		
			Speed (mph)	% Change	Rating	Speed (mph)	% Change	Rating
49	A	Spring	14		Standing	21		Acceptable
		Summer	10		Sitting	16		Acceptable
		Fall	13		Standing	19		Acceptable
		Winter	14		Standing	21		Acceptable
		Annual	13		Standing	19		Acceptable
	B	Spring	14		Standing	21		Acceptable
		Summer	11		Sitting	16		Acceptable
		Fall	13		Standing	19		Acceptable
		Winter	14		Standing	21		Acceptable
		Annual	13		Standing	19		Acceptable
50	A	Spring	14		Standing	18		Acceptable
		Summer	11		Sitting	15		Acceptable
		Fall	13		Standing	17		Acceptable
		Winter	15		Standing	19		Acceptable
		Annual	14		Standing	18		Acceptable
	B	Spring	13		Standing	18		Acceptable
		Summer	11		Sitting	15		Acceptable
		Fall	13		Standing	17		Acceptable
		Winter	14		Standing	19		Acceptable
		Annual	13		Standing	17		Acceptable
51	A	Spring	13		Standing	19		Acceptable
		Summer	10		Sitting	14		Acceptable
		Fall	12		Sitting	18		Acceptable
		Winter	14		Standing	20		Acceptable
		Annual	13		Standing	18		Acceptable
	B	Spring	13		Standing	20		Acceptable
		Summer	10		Sitting	15		Acceptable
		Fall	12		Sitting	18		Acceptable
		Winter	14		Standing	20		Acceptable
		Annual	13		Standing	19		Acceptable
52	A	Spring	14		Standing	20		Acceptable
		Summer	11		Sitting	16		Acceptable
		Fall	13		Standing	19		Acceptable
		Winter	14		Standing	21		Acceptable
		Annual	13		Standing	19		Acceptable
	B	Spring	15		Standing	21		Acceptable
		Summer	12		Sitting	16		Acceptable
		Fall	14		Standing	19		Acceptable
		Winter	15		Standing	21		Acceptable
		Annual	14		Standing	19		Acceptable



**Table 1: Mean Speed and Effective Gust Categories - Multiple Seasons**

Location	Configuration	Season	Mean Wind Speed			Effective Gust Wind Speed		
			Speed (mph)	% Change	Rating	Speed (mph)	% Change	Rating
53	A	Spring	14		Standing	20		Acceptable
		Summer	10		Sitting	15		Acceptable
		Fall	13		Standing	19		Acceptable
		Winter	15		Standing	22		Acceptable
		Annual	13		Standing	20		Acceptable
	B	Spring	14		Standing	20		Acceptable
		Summer	11		Sitting	16		Acceptable
		Fall	13		Standing	19		Acceptable
		Winter	15		Standing	22		Acceptable
		Annual	14		Standing	20		Acceptable
54	A	Spring	11		Sitting	17		Acceptable
		Summer	8		Sitting	14		Acceptable
		Fall	10		Sitting	16		Acceptable
		Winter	12		Sitting	19		Acceptable
		Annual	11		Sitting	17		Acceptable
	B	Spring	11		Sitting	17		Acceptable
		Summer	8		Sitting	14		Acceptable
		Fall	10		Sitting	16		Acceptable
		Winter	12		Sitting	18		Acceptable
		Annual	10		Sitting	17		Acceptable
55	A	Spring	14		Standing	20		Acceptable
		Summer	12		Sitting	17		Acceptable
		Fall	13		Standing	18		Acceptable
		Winter	14		Standing	21		Acceptable
		Annual	13		Standing	19		Acceptable
	B	Spring	14		Standing	20		Acceptable
		Summer	12		Sitting	17		Acceptable
		Fall	13		Standing	18		Acceptable
		Winter	14		Standing	20		Acceptable
		Annual	13		Standing	19		Acceptable
56	A	Spring	17		Walking	23		Acceptable
		Summer	14		Standing	20		Acceptable
		Fall	14		Standing	20		Acceptable
		Winter	15		Standing	22		Acceptable
		Annual	15		Standing	21		Acceptable
	B	Spring	17		Walking	23		Acceptable
		Summer	14		Standing	20		Acceptable
		Fall	14		Standing	20		Acceptable
		Winter	15		Standing	22		Acceptable
		Annual	15		Standing	21		Acceptable

**Table 1: Mean Speed and Effective Gust Categories - Multiple Seasons**

Location	Configuration	Season	Mean Wind Speed			Effective Gust Wind Speed		
			Speed (mph)	% Change	Rating	Speed (mph)	% Change	Rating
57	A	Spring	14		Standing	24		Acceptable
		Summer	13		Standing	23		Acceptable
		Fall	14		Standing	24		Acceptable
		Winter	15		Standing	25		Acceptable
		Annual	14		Standing	24		Acceptable
	B	Spring	14		Standing	24		Acceptable
		Summer	13		Standing	23		Acceptable
		Fall	14		Standing	24		Acceptable
		Winter	15		Standing	26		Acceptable
		Annual	14		Standing	24		Acceptable
58	A	Spring	16		Walking	23		Acceptable
		Summer	14		Standing	20		Acceptable
		Fall	15		Standing	22		Acceptable
		Winter	18		Walking	25		Acceptable
		Annual	16		Walking	23		Acceptable
	B	Spring	16		Walking	23		Acceptable
		Summer	14		Standing	20		Acceptable
		Fall	15		Standing	22		Acceptable
		Winter	17		Walking	25		Acceptable
		Annual	16		Walking	23		Acceptable
59	A	Spring	14		Standing	21		Acceptable
		Summer	12		Sitting	18		Acceptable
		Fall	13		Standing	20		Acceptable
		Winter	15		Standing	22		Acceptable
		Annual	14		Standing	21		Acceptable
	B	Spring	14		Standing	21		Acceptable
		Summer	12		Sitting	18		Acceptable
		Fall	13		Standing	20		Acceptable
		Winter	15		Standing	22		Acceptable
		Annual	13		Standing	20		Acceptable
60	A	Spring	23		Uncomfortable	31		Acceptable
		Summer	20		Uncomfortable	27		Acceptable
		Fall	21		Uncomfortable	28		Acceptable
		Winter	23		Uncomfortable	31		Acceptable
		Annual	22		Uncomfortable	30		Acceptable
	B	Spring	23		Uncomfortable	31		Acceptable
		Summer	20		Uncomfortable	27		Acceptable
		Fall	21		Uncomfortable	28		Acceptable
		Winter	23		Uncomfortable	31		Acceptable
		Annual	22		Uncomfortable	29		Acceptable

**Table 1: Mean Speed and Effective Gust Categories - Multiple Seasons**

Location	Configuration	Season	Mean Wind Speed			Effective Gust Wind Speed		
			Speed (mph)	% Change	Rating	Speed (mph)	% Change	Rating
61	A	Spring	16		Walking	23		Acceptable
		Summer	14		Standing	20		Acceptable
		Fall	14		Standing	22		Acceptable
		Winter	16		Walking	24		Acceptable
		Annual	15		Standing	22		Acceptable
	B	Spring	16		Walking	23		Acceptable
		Summer	14		Standing	20		Acceptable
		Fall	14		Standing	22		Acceptable
		Winter	16		Walking	24		Acceptable
		Annual	15		Standing	22		Acceptable
62	A	Spring	15		Standing	21		Acceptable
		Summer	13		Standing	18		Acceptable
		Fall	13		Standing	19		Acceptable
		Winter	13		Standing	20		Acceptable
		Annual	13		Standing	20		Acceptable
	B	Spring	15		Standing	21		Acceptable
		Summer	13		Standing	18		Acceptable
		Fall	13		Standing	19		Acceptable
		Winter	13		Standing	20		Acceptable
		Annual	13		Standing	20		Acceptable
63	A	Spring	10		Sitting	16		Acceptable
		Summer	8		Sitting	12		Acceptable
		Fall	9		Sitting	15		Acceptable
		Winter	10		Sitting	16		Acceptable
		Annual	9		Sitting	15		Acceptable
	B	Spring	10		Sitting	16		Acceptable
		Summer	8		Sitting	12		Acceptable
		Fall	9		Sitting	14		Acceptable
		Winter	10		Sitting	16		Acceptable
		Annual	9		Sitting	15		Acceptable
64	A	Spring	17		Walking	24		Acceptable
		Summer	12		Sitting	17		Acceptable
		Fall	15		Standing	22		Acceptable
		Winter	17		Walking	25		Acceptable
		Annual	16		Walking	23		Acceptable
	B	Spring	16		Walking	23		Acceptable
		Summer	12		Sitting	18		Acceptable
		Fall	15		Standing	21		Acceptable
		Winter	17		Walking	25		Acceptable
		Annual	15		Standing	22		Acceptable

**Table 1: Mean Speed and Effective Gust Categories - Multiple Seasons**

Location	Configuration	Season	Mean Wind Speed			Effective Gust Wind Speed		
			Speed (mph)	% Change	Rating	Speed (mph)	% Change	Rating
65	A	Spring	14		Standing	22		Acceptable
		Summer	11		Sitting	17		Acceptable
		Fall	13		Standing	20		Acceptable
		Winter	15		Standing	23		Acceptable
		Annual	13		Standing	21		Acceptable
	B	Spring	14		Standing	22		Acceptable
		Summer	11		Sitting	18		Acceptable
		Fall	13		Standing	20		Acceptable
		Winter	15		Standing	24		Acceptable
		Annual	14		Standing	22		Acceptable
66	A	Spring	11		Sitting	19		Acceptable
		Summer	9		Sitting	14		Acceptable
		Fall	10		Sitting	17		Acceptable
		Winter	13		Standing	21		Acceptable
		Annual	11		Sitting	18		Acceptable
	B	Spring	12		Sitting	19		Acceptable
		Summer	9		Sitting	15		Acceptable
		Fall	11		Sitting	18		Acceptable
		Winter	14		Standing	21		Acceptable
		Annual	12		Sitting	19		Acceptable
67	A	Spring	11		Sitting	17		Acceptable
		Summer	9		Sitting	14		Acceptable
		Fall	10		Sitting	16		Acceptable
		Winter	12		Sitting	18		Acceptable
		Annual	11		Sitting	17		Acceptable
	B	Spring	11		Sitting	17		Acceptable
		Summer	9		Sitting	14		Acceptable
		Fall	11		Sitting	16		Acceptable
		Winter	13		Standing	20	11%	Acceptable
		Annual	11		Sitting	17		Acceptable
68	A	Spring	13		Standing	20		Acceptable
		Summer	11		Sitting	17		Acceptable
		Fall	12		Sitting	19		Acceptable
		Winter	14		Standing	22		Acceptable
		Annual	13		Standing	20		Acceptable
	B	Spring	13		Standing	20		Acceptable
		Summer	10		Sitting	16		Acceptable
		Fall	12		Sitting	19		Acceptable
		Winter	14		Standing	22		Acceptable
		Annual	13		Standing	20		Acceptable

**Table 1: Mean Speed and Effective Gust Categories - Multiple Seasons**

Location	Configuration	Season	Mean Wind Speed			Effective Gust Wind Speed		
			Speed (mph)	% Change	Rating	Speed (mph)	% Change	Rating
69	A	Spring	11		Sitting	17		Acceptable
		Summer	9		Sitting	14		Acceptable
		Fall	10		Sitting	16		Acceptable
		Winter	12		Sitting	18		Acceptable
		Annual	11		Sitting	17		Acceptable
	B	Spring	11		Sitting	17		Acceptable
		Summer	9		Sitting	14		Acceptable
		Fall	10		Sitting	16		Acceptable
		Winter	11		Sitting	18		Acceptable
		Annual	10		Sitting	16		Acceptable
70	A	Spring	11		Sitting	17		Acceptable
		Summer	9		Sitting	14		Acceptable
		Fall	10		Sitting	16		Acceptable
		Winter	11		Sitting	17		Acceptable
		Annual	10		Sitting	16		Acceptable
	B	Spring	11		Sitting	16		Acceptable
		Summer	9		Sitting	14		Acceptable
		Fall	10		Sitting	15		Acceptable
		Winter	11		Sitting	17		Acceptable
		Annual	10		Sitting	16		Acceptable
71	A	Spring	14		Standing	22		Acceptable
		Summer	12		Sitting	19		Acceptable
		Fall	13		Standing	21		Acceptable
		Winter	15		Standing	23		Acceptable
		Annual	13		Standing	22		Acceptable
	B	Spring	14		Standing	23		Acceptable
		Summer	12		Sitting	19		Acceptable
		Fall	13		Standing	21		Acceptable
		Winter	15		Standing	24		Acceptable
		Annual	14		Standing	22		Acceptable
72	A	Spring	14		Standing	22		Acceptable
		Summer	11		Sitting	17		Acceptable
		Fall	13		Standing	20		Acceptable
		Winter	15		Standing	22		Acceptable
		Annual	14		Standing	21		Acceptable
	B	Spring	14		Standing	21		Acceptable
		Summer	11		Sitting	18		Acceptable
		Fall	13		Standing	20		Acceptable
		Winter	15		Standing	22		Acceptable
		Annual	13		Standing	21		Acceptable



**Table 1: Mean Speed and Effective Gust Categories - Multiple Seasons**

Location	Configuration	Season	Mean Wind Speed			Effective Gust Wind Speed		
			Speed (mph)	% Change	Rating	Speed (mph)	% Change	Rating
73	A	Spring	15		Standing	23		Acceptable
		Summer	12		Sitting	19		Acceptable
		Fall	14		Standing	22		Acceptable
		Winter	16		Walking	24		Acceptable
		Annual	15		Standing	22		Acceptable
	B	Spring	16		Walking	24		Acceptable
		Summer	13		Standing	20		Acceptable
		Fall	15		Standing	22		Acceptable
		Winter	16		Walking	25		Acceptable
		Annual	15		Standing	23		Acceptable
74	A	Spring	14		Standing	20		Acceptable
		Summer	10		Sitting	16		Acceptable
		Fall	13		Standing	19		Acceptable
		Winter	13		Standing	20		Acceptable
		Annual	13		Standing	19		Acceptable
	B	Spring	16	14%	Walking	22		Acceptable
		Summer	12	20%	Sitting	16		Acceptable
		Fall	15	15%	Standing	20		Acceptable
		Winter	15	15%	Standing	22		Acceptable
		Annual	15	15%	Standing	20		Acceptable
75	A	Spring	14		Standing	22		Acceptable
		Summer	11		Sitting	18		Acceptable
		Fall	13		Standing	20		Acceptable
		Winter	14		Standing	22		Acceptable
		Annual	13		Standing	20		Acceptable
	B	Spring	13		Standing	21		Acceptable
		Summer	11		Sitting	18		Acceptable
		Fall	12		Sitting	20		Acceptable
		Winter	13		Standing	21		Acceptable
		Annual	13		Standing	20		Acceptable
76	A	Spring	12		Sitting	20		Acceptable
		Summer	10		Sitting	17		Acceptable
		Fall	11		Sitting	18		Acceptable
		Winter	13		Standing	20		Acceptable
		Annual	12		Sitting	19		Acceptable
	B	Spring	13		Standing	21		Acceptable
		Summer	11		Sitting	17		Acceptable
		Fall	12		Sitting	19		Acceptable
		Winter	13		Standing	21		Acceptable
		Annual	12		Sitting	20		Acceptable

**Table 1: Mean Speed and Effective Gust Categories - Multiple Seasons**

Location	Configuration	Season	Mean Wind Speed			Effective Gust Wind Speed		
			Speed (mph)	% Change	Rating	Speed (mph)	% Change	Rating
77	A	Spring	12		Sitting	19		Acceptable
		Summer	10		Sitting	15		Acceptable
		Fall	11		Sitting	18		Acceptable
		Winter	13		Standing	21		Acceptable
		Annual	12		Sitting	19		Acceptable
	B	Spring	13		Standing	21	11%	Acceptable
		Summer	10		Sitting	16		Acceptable
		Fall	12		Sitting	19		Acceptable
		Winter	13		Standing	21		Acceptable
		Annual	12		Sitting	20		Acceptable
78	A	Spring	12		Sitting	18		Acceptable
		Summer	9		Sitting	14		Acceptable
		Fall	11		Sitting	16		Acceptable
		Winter	12		Sitting	19		Acceptable
		Annual	11		Sitting	17		Acceptable
	B	Spring	12		Sitting	19		Acceptable
		Summer	10	11%	Sitting	15		Acceptable
		Fall	11		Sitting	17		Acceptable
		Winter	13		Standing	20		Acceptable
		Annual	12		Sitting	18		Acceptable
79	A	Spring	9		Sitting	15		Acceptable
		Summer	8		Sitting	12		Acceptable
		Fall	8		Sitting	13		Acceptable
		Winter	9		Sitting	14		Acceptable
		Annual	8		Sitting	14		Acceptable
	B	Spring	10	11%	Sitting	16		Acceptable
		Summer	8		Sitting	13		Acceptable
		Fall	9	12%	Sitting	14		Acceptable
		Winter	9		Sitting	15		Acceptable
		Annual	9	12%	Sitting	15		Acceptable
80	A	Spring	13		Standing	20		Acceptable
		Summer	10		Sitting	15		Acceptable
		Fall	12		Sitting	18		Acceptable
		Winter	15		Standing	22		Acceptable
		Annual	13		Standing	20		Acceptable
	B	Spring	14		Standing	21		Acceptable
		Summer	10		Sitting	16		Acceptable
		Fall	12		Sitting	19		Acceptable
		Winter	15		Standing	22		Acceptable
		Annual	13		Standing	20		Acceptable

**Table 1: Mean Speed and Effective Gust Categories - Multiple Seasons**

Location	Configuration	Season	Mean Wind Speed			Effective Gust Wind Speed		
			Speed (mph)	% Change	Rating	Speed (mph)	% Change	Rating
81	A	Spring	17		Walking	24		Acceptable
		Summer	13		Standing	18		Acceptable
		Fall	15		Standing	22		Acceptable
		Winter	19		Walking	26		Acceptable
		Annual	17		Walking	23		Acceptable
	B	Spring	17		Walking	24		Acceptable
		Summer	13		Standing	18		Acceptable
		Fall	16		Walking	22		Acceptable
		Winter	19		Walking	27		Acceptable
		Annual	17		Walking	24		Acceptable
82	A	Spring	13		Standing	21		Acceptable
		Summer	12		Sitting	19		Acceptable
		Fall	12		Sitting	20		Acceptable
		Winter	13		Standing	21		Acceptable
		Annual	13		Standing	20		Acceptable
	B	Spring	13		Standing	21		Acceptable
		Summer	11		Sitting	19		Acceptable
		Fall	12		Sitting	20		Acceptable
		Winter	13		Standing	22		Acceptable
		Annual	13		Standing	20		Acceptable
83	A	Spring	15		Standing	22		Acceptable
		Summer	13		Standing	19		Acceptable
		Fall	15		Standing	21		Acceptable
		Winter	16		Walking	23		Acceptable
		Annual	15		Standing	22		Acceptable
	B	Spring	15		Standing	23		Acceptable
		Summer	13		Standing	19		Acceptable
		Fall	15		Standing	21		Acceptable
		Winter	16		Walking	24		Acceptable
		Annual	15		Standing	22		Acceptable
84	A	Spring	10		Sitting	17		Acceptable
		Summer	8		Sitting	13		Acceptable
		Fall	10		Sitting	15		Acceptable
		Winter	11		Sitting	17		Acceptable
		Annual	10		Sitting	16		Acceptable
	B	Spring	10		Sitting	17		Acceptable
		Summer	8		Sitting	13		Acceptable
		Fall	10		Sitting	16		Acceptable
		Winter	11		Sitting	17		Acceptable
		Annual	10		Sitting	16		Acceptable

**Table 1: Mean Speed and Effective Gust Categories - Multiple Seasons**

Location	Configuration	Season	Mean Wind Speed			Effective Gust Wind Speed		
			Speed (mph)	% Change	Rating	Speed (mph)	% Change	Rating
85	A	Spring	16		Walking	23		Acceptable
		Summer	12		Sitting	17		Acceptable
		Fall	14		Standing	21		Acceptable
		Winter	17		Walking	24		Acceptable
		Annual	15		Standing	22		Acceptable
	B	Spring	16		Walking	23		Acceptable
		Summer	12		Sitting	17		Acceptable
		Fall	15		Standing	21		Acceptable
		Winter	16		Walking	24		Acceptable
		Annual	15		Standing	22		Acceptable
86	A	Spring	13		Standing	21		Acceptable
		Summer	10		Sitting	16		Acceptable
		Fall	12		Sitting	19		Acceptable
		Winter	14		Standing	22		Acceptable
		Annual	13		Standing	20		Acceptable
	B	Spring	13		Standing	21		Acceptable
		Summer	10		Sitting	16		Acceptable
		Fall	12		Sitting	19		Acceptable
		Winter	14		Standing	22		Acceptable
		Annual	13		Standing	20		Acceptable
87	A	Spring	14		Standing	21		Acceptable
		Summer	11		Sitting	16		Acceptable
		Fall	13		Standing	20		Acceptable
		Winter	15		Standing	22		Acceptable
		Annual	14		Standing	20		Acceptable
	B	Spring	14		Standing	21		Acceptable
		Summer	11		Sitting	16		Acceptable
		Fall	13		Standing	19		Acceptable
		Winter	15		Standing	22		Acceptable
		Annual	13		Standing	20		Acceptable
88	A	Spring	16		Walking	22		Acceptable
		Summer	12		Sitting	17		Acceptable
		Fall	14		Standing	20		Acceptable
		Winter	16		Walking	23		Acceptable
		Annual	15		Standing	22		Acceptable
	B	Spring	15		Standing	22		Acceptable
		Summer	12		Sitting	17		Acceptable
		Fall	14		Standing	20		Acceptable
		Winter	16		Walking	23		Acceptable
		Annual	15		Standing	21		Acceptable

**Table 1: Mean Speed and Effective Gust Categories - Multiple Seasons**

Location	Configuration	Season	Mean Wind Speed			Effective Gust Wind Speed		
			Speed (mph)	% Change	Rating	Speed (mph)	% Change	Rating
89	A	Spring	13		Standing	20		Acceptable
		Summer	10		Sitting	15		Acceptable
		Fall	12		Sitting	18		Acceptable
		Winter	14		Standing	22		Acceptable
		Annual	12		Sitting	20		Acceptable
	B	Spring	13		Standing	20		Acceptable
		Summer	10		Sitting	16		Acceptable
		Fall	12		Sitting	19		Acceptable
		Winter	14		Standing	22		Acceptable
		Annual	13		Standing	20		Acceptable
90	A	Spring	10		Sitting	16		Acceptable
		Summer	9		Sitting	14		Acceptable
		Fall	10		Sitting	15		Acceptable
		Winter	11		Sitting	17		Acceptable
		Annual	10		Sitting	16		Acceptable
	B	Spring	11		Sitting	17		Acceptable
		Summer	9		Sitting	14		Acceptable
		Fall	10		Sitting	15		Acceptable
		Winter	11		Sitting	17		Acceptable
		Annual	10		Sitting	16		Acceptable
91	A	Spring	12		Sitting	18		Acceptable
		Summer	10		Sitting	15		Acceptable
		Fall	11		Sitting	17		Acceptable
		Winter	12		Sitting	18		Acceptable
		Annual	11		Sitting	17		Acceptable
	B	Spring	13		Standing	19		Acceptable
		Summer	10		Sitting	16		Acceptable
		Fall	12		Sitting	18		Acceptable
		Winter	13		Standing	20	11%	Acceptable
		Annual	12		Sitting	18		Acceptable
92	A	Spring	11		Sitting	19		Acceptable
		Summer	10		Sitting	16		Acceptable
		Fall	11		Sitting	17		Acceptable
		Winter	12		Sitting	19		Acceptable
		Annual	11		Sitting	18		Acceptable
	B	Spring	12		Sitting	19		Acceptable
		Summer	10		Sitting	16		Acceptable
		Fall	11		Sitting	17		Acceptable
		Winter	12		Sitting	19		Acceptable
		Annual	11		Sitting	18		Acceptable



**Table 1: Mean Speed and Effective Gust Categories - Multiple Seasons**

Location	Configuration	Season	Mean Wind Speed			Effective Gust Wind Speed		
			Speed (mph)	% Change	Rating	Speed (mph)	% Change	Rating
93	A	Spring	14		Standing	21		Acceptable
		Summer	12		Sitting	17		Acceptable
		Fall	13		Standing	19		Acceptable
		Winter	14		Standing	20		Acceptable
		Annual	13		Standing	19		Acceptable
	B	Spring	15		Standing	21		Acceptable
		Summer	12		Sitting	17		Acceptable
		Fall	13		Standing	20		Acceptable
		Winter	14		Standing	21		Acceptable
		Annual	14		Standing	20		Acceptable
94	A	Spring	18		Walking	24		Acceptable
		Summer	13		Standing	18		Acceptable
		Fall	16		Walking	22		Acceptable
		Winter	18		Walking	24		Acceptable
		Annual	17		Walking	23		Acceptable
	B	Spring	19		Walking	25		Acceptable
		Summer	14		Standing	19		Acceptable
		Fall	18	12%	Walking	23		Acceptable
		Winter	19		Walking	25		Acceptable
		Annual	18		Walking	24		Acceptable
95	A	Spring	11		Sitting	18		Acceptable
		Summer	8		Sitting	13		Acceptable
		Fall	10		Sitting	16		Acceptable
		Winter	11		Sitting	18		Acceptable
		Annual	10		Sitting	17		Acceptable
	B	Spring	14	27%	Standing	21	17%	Acceptable
		Summer	10	25%	Sitting	16	23%	Acceptable
		Fall	12	20%	Sitting	19	19%	Acceptable
		Winter	15	36%	Standing	23	28%	Acceptable
		Annual	13	30%	Standing	21	24%	Acceptable
96	A	Spring	12		Sitting	19		Acceptable
		Summer	9		Sitting	14		Acceptable
		Fall	11		Sitting	18		Acceptable
		Winter	13		Standing	21		Acceptable
		Annual	11		Sitting	19		Acceptable
	B	Spring	16	33%	Walking	22	16%	Acceptable
		Summer	12	33%	Sitting	17	21%	Acceptable
		Fall	14	27%	Standing	20	11%	Acceptable
		Winter	17	31%	Walking	24	14%	Acceptable
		Annual	15	36%	Standing	21	11%	Acceptable

**Table 1: Mean Speed and Effective Gust Categories - Multiple Seasons**

Location	Configuration	Season	Mean Wind Speed			Effective Gust Wind Speed		
			Speed (mph)	% Change	Rating	Speed (mph)	% Change	Rating
97	A	Spring	13		Standing	20		Acceptable
		Summer	10		Sitting	15		Acceptable
		Fall	12		Sitting	18		Acceptable
		Winter	14		Standing	21		Acceptable
		Annual	13		Standing	19		Acceptable
	B	Spring	16	23%	Walking	22		Acceptable
		Summer	12	20%	Sitting	16		Acceptable
		Fall	14	17%	Standing	20	11%	Acceptable
		Winter	17	21%	Walking	23		Acceptable
		Annual	15	15%	Standing	21	11%	Acceptable
98	A	Spring	13		Standing	20		Acceptable
		Summer	10		Sitting	15		Acceptable
		Fall	12		Sitting	18		Acceptable
		Winter	13		Standing	20		Acceptable
		Annual	12		Sitting	19		Acceptable
	B	Spring	12		Sitting	19		Acceptable
		Summer	9		Sitting	14		Acceptable
		Fall	11		Sitting	17		Acceptable
		Winter	13		Standing	19		Acceptable
		Annual	12		Sitting	18		Acceptable
99	A	Spring	13		Standing	20		Acceptable
		Summer	10		Sitting	15		Acceptable
		Fall	12		Sitting	18		Acceptable
		Winter	13		Standing	20		Acceptable
		Annual	12		Sitting	18		Acceptable
	B	Spring	14		Standing	21		Acceptable
		Summer	11		Sitting	15		Acceptable
		Fall	13		Standing	19		Acceptable
		Winter	15	15%	Standing	21		Acceptable
		Annual	14	17%	Standing	20	11%	Acceptable
100	A	Spring	20		Uncomfortable	29		Acceptable
		Summer	15		Standing	21		Acceptable
		Fall	19		Walking	26		Acceptable
		Winter	21		Uncomfortable	29		Acceptable
		Annual	19		Walking	27		Acceptable
	B	Spring	19		Walking	27		Acceptable
		Summer	14		Standing	19		Acceptable
		Fall	17	-11%	Walking	25		Acceptable
		Winter	20		Uncomfortable	27		Acceptable
		Annual	18		Walking	25		Acceptable

**Table 1: Mean Speed and Effective Gust Categories - Multiple Seasons**

Location	Configuration	Season	Mean Wind Speed			Effective Gust Wind Speed		
			Speed (mph)	% Change	Rating	Speed (mph)	% Change	Rating
101	A	Spring	15		Standing	22		Acceptable
		Summer	10		Sitting	15		Acceptable
		Fall	14		Standing	20		Acceptable
		Winter	15		Standing	21		Acceptable
		Annual	14		Standing	20		Acceptable
	B	Spring	14		Standing	21		Acceptable
		Summer	10		Sitting	15		Acceptable
		Fall	13		Standing	19		Acceptable
		Winter	14		Standing	21		Acceptable
		Annual	13		Standing	19		Acceptable
102	A	Spring	19		Walking	26		Acceptable
		Summer	14		Standing	19		Acceptable
		Fall	18		Walking	24		Acceptable
		Winter	19		Walking	27		Acceptable
		Annual	18		Walking	25		Acceptable
	B	Spring	19		Walking	26		Acceptable
		Summer	13		Standing	19		Acceptable
		Fall	17		Walking	23		Acceptable
		Winter	18		Walking	26		Acceptable
		Annual	17		Walking	24		Acceptable
103	A	Spring	13		Standing	20		Acceptable
		Summer	10		Sitting	15		Acceptable
		Fall	12		Sitting	18		Acceptable
		Winter	14		Standing	21		Acceptable
		Annual	13		Standing	19		Acceptable
	B	Spring	12		Sitting	19		Acceptable
		Summer	9		Sitting	14		Acceptable
		Fall	11		Sitting	17		Acceptable
		Winter	13		Standing	20		Acceptable
		Annual	12		Sitting	18		Acceptable
104	A	Spring	13		Standing	20		Acceptable
		Summer	9		Sitting	14		Acceptable
		Fall	12		Sitting	18		Acceptable
		Winter	14		Standing	21		Acceptable
		Annual	12		Sitting	19		Acceptable
	B	Spring	13		Standing	19		Acceptable
		Summer	9		Sitting	14		Acceptable
		Fall	12		Sitting	18		Acceptable
		Winter	13		Standing	20		Acceptable
		Annual	12		Sitting	18		Acceptable

**Table 1: Mean Speed and Effective Gust Categories - Multiple Seasons**

Location	Configuration	Season	Mean Wind Speed			Effective Gust Wind Speed		
			Speed (mph)	% Change	Rating	Speed (mph)	% Change	Rating
105	A	N/A						
	B	Spring	8		Sitting	14		Acceptable
		Summer	7		Sitting	13		Acceptable
		Fall	8		Sitting	13		Acceptable
		Winter	8		Sitting	14		Acceptable
Annual		8		Sitting	13		Acceptable	
106	A	N/A						
	B	Spring	8		Sitting	12		Acceptable
		Summer	6		Sitting	10		Acceptable
		Fall	7		Sitting	11		Acceptable
		Winter	8		Sitting	13		Acceptable
Annual		7		Sitting	12		Acceptable	
107	A	N/A						
	B	Spring	10		Sitting	17		Acceptable
		Summer	8		Sitting	13		Acceptable
		Fall	10		Sitting	16		Acceptable
		Winter	10		Sitting	17		Acceptable
Annual		10		Sitting	16		Acceptable	
108	A	N/A						
	B	Spring	8		Sitting	13		Acceptable
		Summer	6		Sitting	9		Acceptable
		Fall	7		Sitting	12		Acceptable
		Winter	8		Sitting	13		Acceptable
Annual		7		Sitting	12		Acceptable	
109	A	N/A						
	B	Spring	19		Walking	27		Acceptable
		Summer	14		Standing	20		Acceptable
		Fall	18		Walking	25		Acceptable
		Winter	20		Uncomfortable	29		Acceptable
Annual		18		Walking	26		Acceptable	
110	A	N/A						
	B	Spring	10		Sitting	16		Acceptable
		Summer	7		Sitting	12		Acceptable
		Fall	9		Sitting	14		Acceptable
		Winter	10		Sitting	16		Acceptable
Annual		9		Sitting	15		Acceptable	

**Table 1: Mean Speed and Effective Gust Categories - Multiple Seasons**

Location	Configuration	Season	Mean Wind Speed			Effective Gust Wind Speed		
			Speed (mph)	% Change	Rating	Speed (mph)	% Change	Rating
111	A	N/A						
	B	Spring	20		Uncomfortable	26		Acceptable
		Summer	14		Standing	18		Acceptable
		Fall	18		Walking	23		Acceptable
		Winter	19		Walking	25		Acceptable
Annual	18		Walking	23		Acceptable		
112	A	N/A						
	B	Spring	17		Walking	25		Acceptable
		Summer	13		Standing	19		Acceptable
		Fall	15		Standing	23		Acceptable
		Winter	19		Walking	28		Acceptable
Annual	17		Walking	25		Acceptable		
113	A	N/A						
	B	Spring	15		Standing	21		Acceptable
		Summer	13		Standing	19		Acceptable
		Fall	14		Standing	20		Acceptable
		Winter	14		Standing	21		Acceptable
Annual	14		Standing	20		Acceptable		
114	A	N/A						
	B	Spring	13		Standing	20		Acceptable
		Summer	11		Sitting	17		Acceptable
		Fall	13		Standing	19		Acceptable
		Winter	13		Standing	19		Acceptable
Annual	12		Sitting	19		Acceptable		
115	A	N/A						
	B	Spring	14		Standing	20		Acceptable
		Summer	11		Sitting	16		Acceptable
		Fall	12		Sitting	18		Acceptable
		Winter	14		Standing	21		Acceptable
Annual	13		Standing	19		Acceptable		
116	A	N/A						
	B	Spring	14		Standing	22		Acceptable
		Summer	12		Sitting	18		Acceptable
		Fall	13		Standing	20		Acceptable
		Winter	13		Standing	21		Acceptable
Annual	13		Standing	20		Acceptable		



**Table 1: Mean Speed and Effective Gust Categories - Multiple Seasons**

Location	Configuration	Season	Mean Wind Speed			Effective Gust Wind Speed		
			Speed (mph)	% Change	Rating	Speed (mph)	% Change	Rating
117	A	N/A						
	B	Spring	16		Walking	23		Acceptable
		Summer	13		Standing	19		Acceptable
		Fall	15		Standing	22		Acceptable
		Winter	16		Walking	24		Acceptable
Annual	15		Standing	22		Acceptable		
118	A	N/A						
	B	Spring	19		Walking	29		Acceptable
		Summer	15		Standing	23		Acceptable
		Fall	18		Walking	27		Acceptable
		Winter	21		Uncomfortable	32		Unacceptable
Annual	19		Walking	29		Acceptable		
119	A	N/A						
	B	Spring	11		Sitting	17		Acceptable
		Summer	9		Sitting	15		Acceptable
		Fall	10		Sitting	17		Acceptable
		Winter	11		Sitting	18		Acceptable
Annual	10		Sitting	17		Acceptable		

Configurations	Mean Wind Criteria Speed (mph)	Effective Gust Criteria (mph)
A No Build	≤ 12 Comfortable for Sitting	≤ 31 Acceptable
B Build	13 - 15 Comfortable for Standing	> 31 Unacceptable
	16 - 19 Comfortable for Walking	
	20 - 27 Uncomfortable for Walking	
	> 27 Dangerous Conditions	

1) Wind Speeds are for a 1% probability of exceedance; and,

2) % Change is based on comparison with Configuration A and only those that are greater than 10% are listed

*Appendix I*

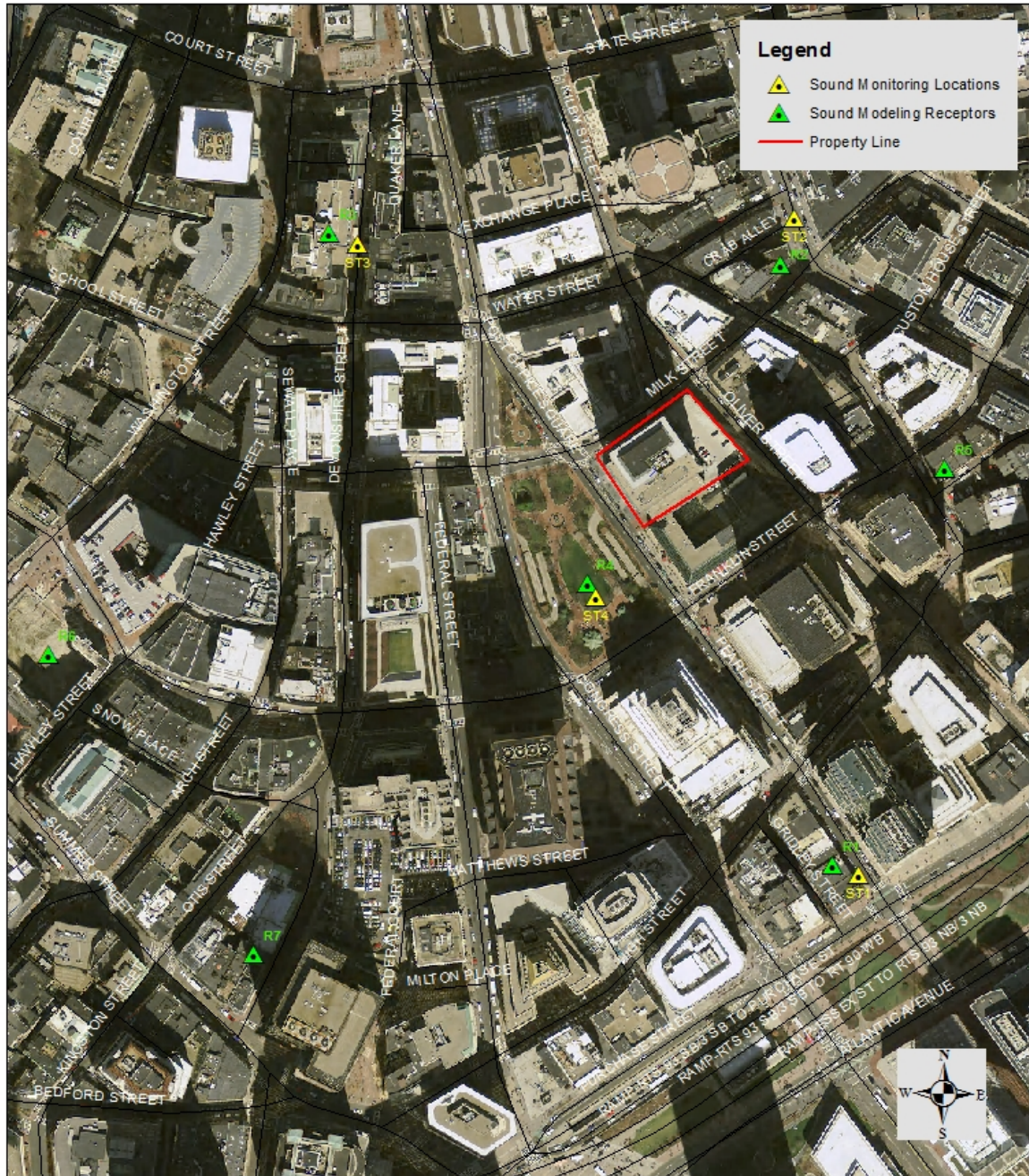
# Noise Analysis

# APPENDIX I NOISE

## ONE POST OFFICE SQUARE PROJECT NOTIFICATION FORM

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| 3 | Cadna Noise Modeling Results          |



Sound Monitoring & Modeling Locations  
 One Post Office Square  
 Boston, MA

**TECH ENVIRONMENTAL**  
 FOCUSED KNOWLEDGE. REAL SOLUTIONS.

## Cadna Noise Modeling Results

### City of Boston Noise Ordinance Analysis

NIGHTTIME RESULTS & CITY OF BOSTON ANALYSIS	31.5	63	125	250	500	1000	2000	4000	8000	A-Wtd	Complies Night?
137 Pearl Street	40	37	38	33	27	26	20	7	-21	31	YES
120 Milk Street	46	44	46	42	37	36	33	25	15	41	YES
One Devonshire Place	38	34	33	28	22	20	14	5	-19	26	YES
Leventhal Park	44	43	48	41	36	38	33	22	5	41	YES
76 Battery March St	42	38	38	31	23	21	15	6	-8	28	YES
One Franklin Street	34	31	30	25	20	19	13	1	-35	23	YES
289 Devonshire Street	36	34	38	34	27	26	20	3	-38	31	YES
<i>Max Impact</i>	<b>46.2</b>	<b>43.8</b>	<b>48.0</b>	<b>42.4</b>	<b>37.4</b>	<b>37.5</b>	<b>32.9</b>	<b>24.9</b>	<b>14.5</b>		
<i>Max Exceedance</i>	NA	NA	NA	NA	NA	NA	NA	NA	NA		

### MassDEP Noise Policy Analysis

NIGHTTIME RESULTS & MASSDEP ANALYSIS (< +10 dBA)	Impact Level (dBA)	Backgrou nd Level (dBA)	Total Level (dBA)	Increase (dBA)	Complies Night?
137 Pearl Street	31.0	58.3	58.3	+0.0	YES
120 Milk Street	41.3	62.6	62.6	+0.0	YES
One Devonshire Place	25.6	57.7	57.7	+0.0	YES
Leventhal Park	41.4	57.3	57.4	+0.1	YES
76 Battery March St	27.7	62.6	62.6	+0.0	YES
One Franklin Street	23.5	57.7	57.7	+0.0	YES
289 Devonshire Street	31.1	58.3	58.3	+0.0	YES



*Appendix J*

# Climate Change Preparedness and Resiliency Checklist for New Construction

# Appendix J

## Climate Change Resiliency and Preparedness Checklist for New Construction

### A.1 - Project Information

Project Name:	One Post Office Square
Project Address Primary:	One Post Office Square, Boston, MA 02109
Project Address Additional:	
Project Contact (name / Title / Company / email / phone):	David Brunell / Vice President / JLL / One Post Office Square, Boston, MA 02109

### A.2 - Team Description

Owner / Developer:	MorganStanley/JLL/ALP
Architect:	Gensler
Engineer (building systems):	RDK + FP
Sustainability / LEED:	Paladino
Permitting:	TetraTech
Construction Management:	
Climate Change Expert:	Tech Environmental

### A.3 - Project Permitting and Phase

At what phase is the project – most recent completed submission at the time of this response?

<input checked="" type="checkbox"/> PNF / Expanded PNF	Draft / Final Project Impact Report Submission	BRA Board Approved	Notice of Project Change
<input type="checkbox"/> Planned Development Area	BRA Final Design Approved	Under Construction	Construction just completed:

### A.4 - Building Classification and Description

List the principal Building Uses:	Commercial, Retail, Food Service, Conference Space, Fitness Club
List the First Floor Uses:	Retail, Food Service

What is the principal Construction Type – select most appropriate type?

<input type="checkbox"/> Wood Frame	<input type="checkbox"/> Masonry	<input checked="" type="checkbox"/> Steel Frame	<input type="checkbox"/> Concrete
-------------------------------------	----------------------------------	-------------------------------------------------	-----------------------------------

Describe the building?

Site Area:	41,300 SF	Building Area:	Approx. 1 million SF
Building Height:	515 Ft.	Number of Stories:	41 Floors
First Floor Elevation (reference Boston City Base):	20 feet Elev.	Are there below grade spaces/levels, if yes how many:	No

**A.5 - Green Building**

Which LEED Rating System(s) and version has or will your project use (by area for multiple rating systems)?

Select by Primary Use:	<input checked="" type="checkbox"/> New Construction	Core & Shell	Healthcare	Schools
	Retail	Homes Midrise	Homes	Other
Select LEED Outcome:	Certified	Silver	<input checked="" type="checkbox"/> Gold	Platinum

Will the project be USGBC Registered and / or USGBC Certified?

Registered:	No	Certified:	No

**A.6 - Building Energy**

What are the base and peak operating energy loads for the building?

Electric - base / peak:	13,000 (kW)	Heating - base / peak:	16,000 (MMBtu/hr)
What is the planned building Energy Use Intensity:	43.3 (kBtu/SF)	Cooling - base / peak:	2,000 (Tons/hr)

What are the peak energy demands of your critical systems in the event of a service interruption?

Electric:	750 (kW)	Heating:	0 (MMBtu/hr)
		Cooling:	0 (Tons/hr)

What is nature and source of your back-up / emergency generators?

Electrical Generation:	750 (kW)	Fuel Source:	Diesel
System Type and Number of Units:	<input checked="" type="checkbox"/> Combustion Engine	Gas Turbine	Combine Heat and Power (Units)

**B - Extreme Weather and Heat Events**

Climate change will result in more extreme weather events including higher year round average temperatures, higher peak temperatures, and more periods of extended peak temperatures. The section explores how a project responds to higher temperatures and heat waves.

**B.1 - Analysis**

What is the full expected life of the project?

Select most appropriate:	10 Years	25 Years	<input checked="" type="checkbox"/> 50 Years	75 Years
--------------------------	----------	----------	----------------------------------------------	----------

What is the full expected operational life of key building systems (e.g. heating, cooling, and ventilation)?

Select most appropriate:	10 Years	<input checked="" type="checkbox"/> 25 Years	50 Years	75 Years
--------------------------	----------	----------------------------------------------	----------	----------

What time span of future Climate Conditions was considered?

Select most appropriate:	10 Years	25 Years	<input checked="" type="checkbox"/> 50 Years	75 Years
--------------------------	----------	----------	----------------------------------------------	----------

Analysis Conditions - What range of temperatures will be used for project planning – Low/High?

8 / 91 Deg.
-------------

What Extreme Heat Event characteristics will be used for project planning – Peak High, Duration, and Frequency?

95 Deg.	5 Days	6 Events / yr.
---------	--------	----------------

What Drought characteristics will be used for project planning – Duration and Frequency?

30-90 Days	0.2 Events / yr.
------------	------------------

What Extreme Rain Event characteristics will be used for project planning – Seasonal Rain Fall, Peak Rain Fall, and Frequency of Events per year?

45 Inches / yr.	4 Inches	0.5 Events / yr.
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What Extreme Wind Storm Event characteristics will be used for project planning – Peak Wind Speed, Duration of Storm Event, and Frequency of Events per year?

130 mph Peak Wind	10 Hours	0.25 Events / yr.
-------------------	----------	-------------------

**B.2 - Mitigation Strategies**

What will be the overall energy performance, based on use, of the project and how will performance be determined?

Building energy use below code: 

6.1%
------

How is performance determined: 

Energy model, ASHRAE 90.1-2013 Appendix G Base Code
-----------------------------------------------------

What specific measures will the project employ to reduce building energy consumption?

Select all appropriate:

High performance building envelope	<input checked="" type="checkbox"/> High performance lighting & controls	Building day	<input checked="" type="checkbox"/> EnergyStar equip. / appliances
<input checked="" type="checkbox"/> High performance HVAC equipment	<input checked="" type="checkbox"/> Energy recovery ventilation	No active cooling	No active heating

Describe any added measures: 

Chilled beam mechanical system
--------------------------------

What are the insulation (R) values for building envelope elements?

Roof:	R = 30	Walls / Curtain Wall Assembly:	R = R11 + R7.5ci
Foundation:	R = 1980 Existing	Basement / Slab:	R = 1980 Existing
Windows:	R = / U = 0.28 to 0.38	Doors:	R = / U = 0.7

What specific measures will the project employ to reduce building energy demands on the utilities and infrastructure?

On-site clean energy / CHP system(s)	Building-wide power dimming	Thermal energy storage systems	Ground source heat pump
On-site Solar PV	On-site Solar Thermal	Wind power	<input checked="" type="checkbox"/> None

Describe any added measures: 

--

Will the project employ Distributed Energy / Smart Grid Infrastructure and /or Systems?

Select all appropriate:

Connected to a local electrical micro-grid	Building will be Smart Grid ready	Connected to distributed steam, hot, chilled water	Distributed thermal energy ready
--------------------------------------------	-----------------------------------	----------------------------------------------------	----------------------------------

Will the building remain operable without utility power for an extended period?

	No	If yes, for how long:	Days
If Yes, is building "Islandable?"			
If Yes, describe strategies:			

Describe any non-mechanical strategies that will support building functionality and use during an extended interruption(s) of utility services and infrastructure:

Select all appropriate:	Solar oriented – longer south walls	Prevailing winds oriented	External shading devices	Tuned glazing,
	Building cool zones	Operable windows	Natural ventilation	Building shading
	Potable water for drinking / food preparation	Potable water for sinks / sanitary systems	Waste water storage capacity	High Performance Building Envelope
Describe any added measures:				

What measures will the project employ to reduce urban heat-island effect?

Select all appropriate:	High reflective paving materials	Shade trees & shrubs	<input checked="" type="checkbox"/> High reflective roof materials	Vegetated roofs
Describe other strategies:				

What measures will the project employ to accommodate rain events and more rain fall?

Select all appropriate:	On-site retention systems & ponds	Infiltration galleries & areas	vegetated water capture systems	Vegetated roofs
Describe other strategies:				

What measures will the project employ to accommodate extreme storm events and high winds?

Select all appropriate:	Hardened building structure & elements	<input checked="" type="checkbox"/> Buried utilities & hardened infrastructure	Hazard removal & protective landscapes	Soft & permeable surfaces (water infiltration)
Describe other strategies:				

### C - Sea-Level Rise and Storms

Rising Sea-Levels and more frequent Extreme Storms increase the probability of coastal and river flooding and enlarging the extent of the 100 Year Flood Plain. This section explores if a project is or might be subject to Sea-Level Rise and Storm impacts.

#### C.1 - Location Description and Classification:

Do you believe the building to susceptible to flooding now or during the full expected life of the building?

No
----

Describe site conditions?

Site Elevation – Low/High Points:	Boston City Base 20 Elev.( Ft.)
-----------------------------------	------------------------------------



Building Proximity to Water:

Is the site or building located in any of the following?

Coastal Zone:

Velocity Zone:

Flood Zone:

Area Prone to Flooding:

Will the 2013 Preliminary FEMA Flood Insurance Rate Maps or future floodplain delineation updates due to Climate Change result in a change of the classification of the site or building location?

2013 FEMA Prelim. FIRMs:

Future floodplain delineation updates:

What is the project or building proximity to nearest Coastal, Velocity or Flood Zone or Area Prone to Flooding?

*If you answered YES to any of the above Location Description and Classification questions, please complete the following questions. Otherwise you have completed the questionnaire; thank you!*

### C - Sea-Level Rise and Storms

This section explores how a project responds to Sea-Level Rise and / or increase in storm frequency or severity.

#### C.2 - Analysis

How were impacts from higher sea levels and more frequent and extreme storm events analyzed:

Sea Level Rise:

Frequency of storms:

#### C.3 - Building Flood Proofing

Describe any strategies to limit storm and flood damage and to maintain functionality during an extended periods of disruption.

What will be the Building Flood Proof Elevation and First Floor Elevation:

Flood Proof Elevation:

First Floor Elevation:

Will the project employ temporary measures to prevent building flooding (e.g. barricades, flood gates):

If Yes, to what elevation

If Yes, describe:

What measures will be taken to ensure the integrity of critical building systems during a flood or severe storm event:

Systems located above 1 <sup>st</sup> Floor.	Water tight utility conduits	Waste water back flow prevention	Storm water back flow prevention
----------------------------------------------	------------------------------	----------------------------------	----------------------------------

Were the differing effects of fresh water and salt water flooding considered:

Will the project site / building(s) be accessible during periods of inundation or limited access to transportation:

If yes, to what height above 100 Year Floodplain:

Will the project employ hard and / or soft landscape elements as velocity barriers to reduce wind or wave impacts?

Yes / No
----------

If Yes, describe:

--

Will the building remain occupiable without utility power during an extended period of inundation:

Yes / No
----------

If Yes, for how long:

days
------

Describe any additional strategies to addressing sea level rise and or sever storm impacts:

--

#### C.4 - Building Resilience and Adaptability

Describe any strategies that would support rapid recovery after a weather event and accommodate future building changes that respond to climate change:

Will the building be able to withstand severe storm impacts and endure temporary inundation?

Select appropriate:

Yes / No	Hardened / Resilient Ground Floor Construction	Temporary shutters and or barricades	Resilient site design, materials and construction
----------	------------------------------------------------	--------------------------------------	---------------------------------------------------

Can the site and building be reasonably modified to increase Building Flood Proof Elevation?

Select appropriate:

Yes / No	Surrounding site elevation can be raised	Building ground floor can be raised	Construction been engineered
----------	------------------------------------------	-------------------------------------	------------------------------

Describe additional strategies:

--

Has the building been planned and designed to accommodate future resiliency enhancements?

Select appropriate:

Yes / No	Solar PV	Solar Thermal	Clean Energy / CHP System(s)
	Potable water storage	Wastewater storage	Back up energy systems & fuel

Describe any specific or additional strategies:

--

Thank you for completing the Boston Climate Change Resilience and Preparedness Checklist!

For questions or comments about this checklist or Climate Change Resiliency and Preparedness best practices, please contact: [John.Dalzell@boston.gov](mailto:John.Dalzell@boston.gov)

*Appendix K*

# LEED Checklist

# Appendix K

## One Post Office Square

### LEED v4 SCORECARD

Paladino+

One Post Office Square

LEED v4 BD+C: Core and Shell  
June 9, 2017

53	30	28	<b>Total Project Score</b>	<b>Possible Points</b>	<b>110</b>
----	----	----	----------------------------	------------------------	------------

Certified: 40 to 49 points Silver: 50 to 59 points Gold: 60 to 79 points Platinum: 80 to 110 points

<b>1</b>	<b>0</b>	<b>0</b>	<b>Integrative Process</b>	<b>Possible Points</b>	<b>1</b>
E	M	D			
1			Credit Integrative Process		1

<b>17</b>	<b>0</b>	<b>3</b>	<b>Location and Transportation</b>	<b>Possible Points</b>	<b>20</b>
E	M	D			
		NA	Credit LEED for Neighborhood Development Location		20
2			Credit Sensitive Land Protection		2
		3	Credit High Priority Site		3
6			Credit Surrounding Density and Diverse Uses		6
6			Credit Access to Quality Transit		6
1			Credit Bicycle Facilities		1
1			Credit Reduced Parking Footprint		1
1			Credit Green Vehicles		1

<b>3</b>	<b>7</b>	<b>1</b>	<b>Sustainable Sites</b>	<b>Possible Points</b>	<b>11</b>
E	M	D			
Y			Prereq Construction Activity Pollution Prevention		Req'd
1			Credit Site Assessment		1
	2		Credit Site Development - Protect or Restore Habitat		2
	1		Credit Open Space		1
	2	1	Credit Rainwater Management		3
1	1		Credit Heat Island Reduction		2
	1		Credit Light Pollution Reduction		1
1			Credit Tenant Design and Construction Guidelines		1

<b>6</b>	<b>5</b>	<b>0</b>	<b>Water Efficiency</b>	<b>Possible Points</b>	<b>11</b>
E	M	D			
Y			Prereq Outdoor Water Use Reduction		Req'd
Y			Prereq Indoor Water Use Reduction		Req'd
Y			Prereq Building-Level Water Metering		Req'd
	2		Credit Outdoor Water Use Reduction		2
4	2		Credit Indoor Water Use Reduction		6
1	1		Credit Cooling Tower Water Use		2
1			Credit Water Metering		1


<b>7</b>	<b>10</b>	<b>16</b>	<b>Energy and Atmosphere</b>	<b>Possible Points</b>	<b>33</b>
E	M	D			
Y			Prereq Fundamental Commissioning and Verification		Req'd
Y			Prereq Minimum Energy Performance		Req'd
Y			Prereq Building-Level Energy Metering		Req'd
Y			Prereq Fundamental Refrigerant Management		Req'd
3	3		Credit Enhanced Commissioning		6
3	2	13	Credit Optimize Energy Performance		18
1			Credit Advanced Energy Metering		1
	2		Credit Demand Response		2
		3	Credit Renewable Energy Production		3
	1		Credit Enhanced Refrigerant Management		1
	2		Credit Green Power and Carbon Offsets		2

<b>5</b>	<b>6</b>	<b>2</b>	<b>Materials and Resources</b>	<b>Possible Points</b>	<b>14</b>
E	M	D			
Y			Prereq Storage and Collection of Recyclables		Req'd
Y			Prereq Construction and Demolition Waste Management Planning		Req'd
2	3		Credit Building Life-Cycle Impact Reduction		6
1	1		Credit Building Product and Disclosure Optimization - EPDs		2
	1	1	Credit Building Product Disclosure and Optimization - Sourcing		2
	1	1	Credit Building Product Disclosure and Optimization - Ingredients		2
2			Credit Construction and Demolition Waste Management		2

<b>6</b>	<b>1</b>	<b>3</b>	<b>Indoor Environmental Quality</b>	<b>Possible Points</b>	<b>10</b>
E	M	D			
Y			Prereq Minimum Indoor Air Quality Performance		Req'd
Y			Prereq Environmental Tobacco Smoke Control		Req'd
2			Credit Enhanced Indoor Air Quality Strategies		2
3			Credit Low-Emitting Materials		3
1			Credit Construction Indoor Air Quality Management Plan		1
		3	Credit Daylight		3
	1		Credit Quality Views		1

<b>6</b>	<b>0</b>	<b>0</b>	<b>Innovation</b>	<b>Possible Points</b>	<b>6</b>
E	M	D			
1			Credit Innovation		1
1			Credit Innovation		1
1			Credit Innovation		1
1			Credit Innovation		1
1			Credit Innovation		1
1			Credit LEED Accredited Professional		1

<b>2</b>	<b>1</b>	<b>3</b>	<b>Regional Priority</b>	<b>Possible Points</b>	<b>4</b>
E	M	D			
1			Credit Regional Priority: Indoor Water Use Reduction (4 points)		1
	1		Credit Regional Priority: Rainwater Management (2 points)		1
1			Credit Regional Priority: Building Life Cycle Impact Reduction (2 points)		1
		1	Credit Regional Priority: Optimize energy performance (8 points)		1
		1	Credit Regional Priority: High Priority Site (2 points)		1
		1	Credit Regional Priority: Renewable Energy production (2 points)		1

**E** Credits easy to achieve  
**M** Credits are moderately difficult to achieve  
**D** Credits difficult to achieve or not applicable  
 The requirements for these credit points are included within the Project Sustainability Requirements.

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*Appendix L*

# Distribution List and Public Notices



## EPNF Circulation List

Boston Public Library  
South Boston Branch  
646 East Broadway

Boston City Council  
1 City Hall Square, Suite 550  
Boston, MA 02201-2043

Boston Redevelopment Authority  
One City Hall Square, Ninth Floor  
Boston, Massachusetts 02201

City of Boston  
Conservation Commission  
1 City Hall Square  
Room 709  
Boston, MA 02201

Boston Public Health Commission  
1010 Massachusetts Ave, 6th Floor Boston,  
MA 02118

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*Appendix M*

# Air Quality Study

# APPENDIX M AIR QUALITY

## ONE POST OFFICE SQUARE PROJECT NOTIFICATION FORM

<u>Pages</u>	<u>Contents</u>
2-4	AERMOD Model Output
5	Garage Emissions Analysis Calculations - PM Peak Hour
6	MOVES2014 Output for Garage Analysis
7	Boiler Emissions
8	Generator Emissions
9-121	Microscale Analysis

\*\*\* MODELOPTs: NonDEFAULT CONC FLAT FLGPOL NOCHKD SCREEN NODRYDPLT NOWETDPLT URBAN NoUrbTran

\*\*\* MODEL SETUP OPTIONS SUMMARY \*\*\*

\*\*Model Is Setup For Calculation of Average CONCentration Values.

-- DEPOSITION LOGIC --

\*\*NO GAS DEPOSITION Data Provided.

\*\*NO PARTICLE DEPOSITION Data Provided.

\*\*Model Uses NO DRY DEPLETION. DRYDPLT = F

\*\*Model Uses NO WET DEPLETION. WETDPLT = F

\*\*Model Uses URBAN Dispersion Algorithm for the SBL for 3 Source(s),  
for Total of 1 Urban Area(s):

Urban Population = 12838.0 ; Urban Roughness Length = 1.000 m

\*\*Non-DEFAULT option to ignore morning transition from nighttime urban boundary layer (NoUrbTran) selected.

\*\*Model Allows User-Specified Options:

1. Stack-tip Downwash.
2. Model Assumes Receptors on FLAT Terrain.
3. Use Calms Processing Routine.
4. Use Missing Data Processing Routine.
5. No Exponential Decay.
6. Urban Roughness Length of 1.0 Meter Used.

\*\*Other Options Specified:

NOCHKD - Suppresses checking of date sequence in meteorology files

SCREEN - Use screening option

which forces calculation of centerline values

\*\*Model Accepts FLAGPOLE Receptor Heights.

\*\*The User Specified a Pollutant Type of: CO

\*\*Model Calculates 1 Short Term Average(s) of: 1-HR

\*\*This Run Includes: 3 Source(s); 4 Source Group(s); and 370 Receptor(s)

with: 1 POINT(s), including  
0 POINTCAP(s) and 0 POINTHOR(s)  
and: 2 VOLUME source(s)  
and: 0 AREA type source(s)  
and: 0 LINE source(s)  
and: 0 OPENPIT source(s)  
and: 0 BUOYANT LINE source(s) with 0 line(s)

\*\*Model Set To Continue RUNning After the Setup Testing.

\*\*The AERMET Input Meteorological Data Version Date: 16216

\*\*Output Options Selected:

Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)

Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)

Model Outputs Separate Summary File of High Ranked Values (SUMMFILE Keyword)

\*\*NOTE: The Following Flags May Appear Following CONC Values: c for Calm Hours  
m for Missing Hours  
b for Both Calm and Missing Hours



10	01	10	10	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	100.	10.0	255.2	2.0
10	01	11	11	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	110.	10.0	255.2	2.0
10	01	12	12	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	120.	10.0	255.2	2.0
10	01	13	13	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	130.	10.0	255.2	2.0
10	01	14	14	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	140.	10.0	255.2	2.0
10	01	15	15	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	150.	10.0	255.2	2.0
10	01	16	16	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	160.	10.0	255.2	2.0
10	01	17	17	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	170.	10.0	255.2	2.0
10	01	18	18	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	180.	10.0	255.2	2.0
10	01	19	19	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	190.	10.0	255.2	2.0
10	01	20	20	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	200.	10.0	255.2	2.0
10	01	21	21	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	210.	10.0	255.2	2.0
10	01	22	22	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	220.	10.0	255.2	2.0
10	01	23	23	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	230.	10.0	255.2	2.0
10	01	24	24	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	240.	10.0	255.2	2.0

First hour of profile data

YR	MO	DY	HR	HEIGHT	F	WDIR	WSPD	AMB_TMP	sigmaA	sigmaW	sigmaV
10	01	01	01	10.0	1	10.	0.50	255.3	99.0	-99.00	-99.00

F indicates top of profile (=1) or below (=0)

\*\*\* AERMOD - VERSION 16216r \*\*\*    \*\*\* One Post Office Square Project    \*\*\*    09/27/17  
 \*\*\* AERMET - VERSION 16216 \*\*\*    \*\*\* CO 1-Hour Screening Modeling    \*\*\*    12:14:26  
 PAGE 4

\*\*\* MODELOPTs:    NonDEFAULT    CONC    FLAT    FLGPOL    NOCHKD    SCREEN    NODRYDPLT    NOWETDPLT    URBAN    NoUrbTran

\*\*\* THE SUMMARY OF HIGHEST 1-HR RESULTS \*\*\*

GROUP ID	AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	GRID-ID
ALL	HIGH 1ST HIGH VALUE IS 3691.90843	ON 10090403: AT ( 330805.20, 4691448.90,	5.00, 5.00, 1.52)	DC	
GARAGE	HIGH 1ST HIGH VALUE IS 1297.63996	ON 10020502: AT ( 330805.20, 4691448.90,	5.00, 5.00, 1.52)	DC	
BOILERS	HIGH 1ST HIGH VALUE IS 221.55040	ON 10112101: AT ( 330805.20, 4691448.90,	5.00, 5.00, 1.52)	DC	
GENERATR	HIGH 1ST HIGH VALUE IS 2919.24955	ON 10120501: AT ( 330771.20, 4691486.90,	5.00, 5.00, 1.52)	DC	

\*\*\* RECEPTOR TYPES:    GC = GRIDCART  
                           GP = GRIDPOLR  
                           DC = DISCCART  
                           DP = DISCPOLR

\*\*\* AERMOD - VERSION 16216r \*\*\*    \*\*\* One Post Office Square Project    \*\*\*    09/27/17  
 \*\*\* AERMET - VERSION 16216 \*\*\*    \*\*\* CO 1-Hour Screening Modeling    \*\*\*    12:14:26  
 PAGE 5

\*\*\* MODELOPTs:    NonDEFAULT    CONC    FLAT    FLGPOL    NOCHKD    SCREEN    NODRYDPLT    NOWETDPLT    URBAN    NoUrbTran

\*\*\* Message Summary : AERMOD Model Execution \*\*\*

----- Summary of Total Messages -----

A Total of            0 Fatal Error Message(s)  
 A Total of            3 Warning Message(s)  
 A Total of            0 Informational Message(s)  
 A Total of            18504 Hours Were Processed



A Total of 0 Calm Hours Identified

A Total of 0 Missing Hours Identified ( 0.00 Percent)

\*\*\*\*\* FATAL ERROR MESSAGES \*\*\*\*\*

\*\*\* NONE \*\*\*

INDOOR GARAGE ANALYSIS PROGRAM

PROJECT: MATTAPAN STATION GARAGE PEAK PM HOUR - YEAR: 2017

DISTANCE IN: 555 METERS  
DISTANCE OUT: 555 METERS

NUMBER OF LANES: 1 LANE(S)  
TOTAL VOLUME: 187 VEH/HOUR (150 EXITING, 37 ENTERING)

CO RATE: 4.998 GRAMS CO/MILE

SPEED IN GARAGE: 5.0 M.P.H.

VENT CFM: 6,000 CFM

TOTAL CO EMISSIONS = 5.37 GRAMS/MIN = 0.089 GRAMS/SEC  
TOTAL VENTILATION = 170 CU. M/MIN

PEAK 1-HOUR CO CONCENTRATION FROM VEHICLES: 2.95 PPM

MOVES2014 OUTPUT

Road Type ID	Link Length (miles)	Link Volume (Vehicles/Hr)	Link Avg Speed (Miles/Hr)	Pollutant	Emission Factor (Grams/veh-mi)
5	0.34	143	5	CO	4.9976
5	0.34	187	5	CO	4.9976

BOILER EMISSIONS

	<b>4 mmbTU/hr</b>							
	<b>5 units</b>							
	5	X	$\frac{4 \text{ mmbTU}}{1 \text{ hr}}$	=	$\frac{20 \text{ mmbTU}}{\text{hr}}$			
<b>NG heating value:</b>	1,020 BTU							
	ft3							
<b>AP-42 CO emission factor:</b>	0.084 lbs							
	mmbTU							
	$\frac{20 \text{ mmbTU}}{1 \text{ hr}}$	X	$\frac{1 \text{ ft}^3}{0.00102 \text{ mmbTU}}$	=	$\frac{19608 \text{ ft}^3}{\text{hr}}$			
	$\frac{20 \text{ mmbTU}}{1 \text{ hr}}$	X	$\frac{0.084 \text{ lbs}}{1 \text{ mmbTU}}$	=	$\frac{1.68 \text{ lbs}}{\text{hr}}$			
	$\frac{1.68 \text{ lb}}{1 \text{ hr}}$	X	$\frac{454 \text{ g}}{1 \text{ lb}}$	X	$\frac{1 \text{ hr}}{3600 \text{ sec}}$	=	$\frac{0.21 \text{ g}}{\text{sec}}$	

GENERATOR EMISSIONS

EXISTING

AP42 3.3 Gasoline and Diesel Industrial Engines					
CO uncontrolled diesel emission factor (Table 3.3-1)				6.68E-03 lb/bhp-hr	
<b>Hotel Generator</b>					
Rating=	300 kW		402 bhp		
CO emissions=	2.69	lb hr	=	0.34	g sec
<b>Tenant Generator</b>					
Rating=	1250 kW		1676 bhp		
CO emissions=	11.20	lb hr	=	1.41	g sec
<b>Tower Generator</b>					
Rating=	510 kW		684 bhp		
CO emissions=	4.57	lb hr	=	0.58	g sec

NEW

<b>Engine Information</b>		One P.O Square new Tower Genset			
Engine Make:		CAT			
Engine Model:		C27			
Fuel Type:		Low-Sulfur Diesel			
Engine Rating:		1005.8	bhp	750	kW
Fuel Consumption:		53.6	gal/hr		
Density of Diesel Fuel:		7.001	lbs/gal		
Engine Operating Hours:		8760	Hours/year		
<b>Emission Factors (Engine):</b>			<b>Source:</b>		
CO Emission Rate:	0.25	g/bhp-hr	Provided by manufacturer		
$\frac{0.25 \text{ grams CO}}{1 \text{ bhp-hr}}$	X	$\frac{1006 \text{ bhp}}{1 \text{ engine}}$	X	$\frac{1 \text{ pound}}{453.59 \text{ grams}}$	= $\frac{0.55 \text{ lbs}}{\text{hour}}$ = $\frac{0.070 \text{ g}}{\text{sec}}$

TOTAL GENERATOR CO EMISSIONS: 19.01 LB/HR  
2.39 G/SEC

Run Began on 8/30/2017 at 14:00:09

JOB: ONE POST OFFICE SQUARE - INTERS. #52

RUN: 2024 BUILD AM PEAK HOUR

DATE : 08/30/ 0  
TIME : 14:00:09

The MODE flag has been set to C for calculating CO averages.

## SITE &amp; METEOROLOGICAL VARIABLES

-----  
VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 321. CM  
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 0.0 PPM

## LINK VARIABLES

-----  
LINK DESCRIPTION \* LINK COORDINATES (M) \* LENGTH BRG TYPE VPH EF H W V/C QUEUE  
\* X1 Y1 X2 Y2 \* (M) (DEG) (G/MI) (M) (M) (VEH)  
-----  
1. QUEUE STATE WBL \* 330630.7 \*\*\*\*\* 330657.4 \*\*\*\*\* \* 27. 79. AG 10. 100.0 0.0 3.7 0.78 4.5  
2. QUEUE STATE WBTR \* 330629.3 \*\*\*\*\* 330762.8 \*\*\*\*\* \* 136. 80. AG 21. 100.0 0.0 7.3 1.12 22.6  
3. FREE STATE WB \* 330619.7 \*\*\*\*\* 330904.0 \*\*\*\*\* \* 289. 80. AG 712. 2.0 0.0 17.0  
4. QUEUE CONGRESS NB \* 330621.8 \*\*\*\*\* 330625.1 \*\*\*\*\* \* 17. 169. AG 16. 100.0 0.0 6.0 0.31 2.8  
5. FREE CONGRESS NB1 \* 330619.2 \*\*\*\*\* 330649.7 \*\*\*\*\* \* 155. 169. AG 313. 2.0 0.0 12.0  
6. FREE CONGRESS NB1 \* 330649.7 \*\*\*\*\* 330747.9 \*\*\*\*\* \* 169. 144. AG 313. 2.0 0.0 12.0  
7. QUEUE CONGRESS SBTR \* 330605.5 \*\*\*\*\* 330597.1 \*\*\*\*\* \* 44. 349. AG 16. 100.0 0.0 6.5 0.81 7.3  
8. QUEUE CONGRESS SBR2 \* 330599.4 \*\*\*\*\* 330576.5 \*\*\*\*\* \* 125. 349. AG 8. 100.0 0.0 3.9 1.04 20.8  
9. FREE CONGRESS SB1 \* 330605.3 \*\*\*\*\* 330560.4 \*\*\*\*\* \* 250. 350. AG 1266. 2.0 0.0 15.4  
10. FREE CONGRESS SB1 \* 330560.4 \*\*\*\*\* 330529.3 \*\*\*\*\* \* 87. 339. AG 1266. 2.0 0.0 15.4  
11. FREE CONGRESS NB2 \* 330616.0 \*\*\*\*\* 330572.1 \*\*\*\*\* \* 252. 350. AG 416. 2.0 0.0 15.8  
12. FREE CONGRESS NB2 \* 330572.1 \*\*\*\*\* 330544.8 \*\*\*\*\* \* 85. 341. AG 416. 2.0 0.0 15.8  
13. FREE CONGRESS SB2 \* 330611.0 \*\*\*\*\* 330642.9 \*\*\*\*\* \* 155. 168. AG 758. 2.0 0.0 12.0  
14. FREE CONGRESS SB2 \* 330642.9 \*\*\*\*\* 330650.4 \*\*\*\*\* \* 77. 174. AG 758. 2.0 0.0 12.0  
15. FREE CONGRESS SB2 \* 330650.4 \*\*\*\*\* 330666.5 \*\*\*\*\* \* 76. 168. AG 758. 2.0 0.0 12.0  
16. FREE STATE WB2 \* 330603.1 \*\*\*\*\* 330534.8 \*\*\*\*\* \* 68. 270. AG 877. 2.0 0.0 15.0  
17. FREE STATE WB2 \* 330534.8 \*\*\*\*\* 330462.8 \*\*\*\*\* \* 75. 287. AG 877. 2.0 0.0 15.0  
18. FREE STATE WB2 \* 330462.8 \*\*\*\*\* 330379.1 \*\*\*\*\* \* 96. 299. AG 877. 2.0 0.0 15.0  
19. FREE STATE WB2 \* 330379.1 \*\*\*\*\* 330363.3 \*\*\*\*\* \* 68. 347. AG 877. 2.0 0.0 15.0  
20. FREE DEVONSHIRE SB \* 330606.9 \*\*\*\*\* 330576.0 \*\*\*\*\* \* 46. 222. AG 240. 2.0 0.0 11.0  
21. FREE DEVONSHIRE SB \* 330576.0 \*\*\*\*\* 330565.4 \*\*\*\*\* \* 275. 182. AG 240. 2.0 0.0 11.0  
-----  
PAGE 2

JOB: ONE POST OFFICE SQUARE - INTERS. #52

RUN: 2024 BUILD AM PEAK HOUR

DATE : 08/30/ 0  
TIME : 14:00:09

## ADDITIONAL QUEUE LINK PARAMETERS

-----  
LINK DESCRIPTION \* CYCLE RED CLEARANCE APPROACH SATURATION IDLE SIGNAL ARRIVAL  
\* LENGTH TIME LOSST TIME VOL FLOW RATE EM FAC TYPE RATE  
\* (SEC) (SEC) (SEC) (VPH) (VPH) (gm/hr)  
-----  
1. QUEUE STATE WBL \* 110 83 7.0 193 1524 5.13 2 3  
2. QUEUE STATE WBTR \* 110 83 7.0 519 1418 5.13 2 3  
4. QUEUE CONGRESS NB \* 110 65 4.0 313 1444 5.13 2 3  
7. QUEUE CONGRESS SBTR \* 110 65 4.0 805 1398 5.13 2 3  
8. QUEUE CONGRESS SBR2 \* 110 65 4.0 461 1254 5.13 2 3  
-----

## RECEPTOR LOCATIONS

-----  
RECEPTOR \* COORDINATES (M) \*  
\* X Y Z \*  
-----  
1. \* 330647.7 \*\*\*\*\* 1.8 \*  
2. \* 330677.2 \*\*\*\*\* 1.8 \*  
3. \* 330706.8 \*\*\*\*\* 1.8 \*  
4. \* 330736.3 \*\*\*\*\* 1.8 \*  
5. \* 330765.8 \*\*\*\*\* 1.8 \*  
6. \* 330787.4 \*\*\*\*\* 1.8 \*  
7. \* 330757.9 \*\*\*\*\* 1.8 \*  
8. \* 330728.4 \*\*\*\*\* 1.8 \*  
9. \* 330698.8 \*\*\*\*\* 1.8 \*  
10. \* 330669.3 \*\*\*\*\* 1.8 \*  
11. \* 330639.8 \*\*\*\*\* 1.8 \*  
12. \* 330631.1 \*\*\*\*\* 1.8 \*  
13. \* 330637.0 \*\*\*\*\* 1.8 \*  
14. \* 330642.9 \*\*\*\*\* 1.8 \*  
15. \* 330648.9 \*\*\*\*\* 1.8 \*  
16. \* 330654.8 \*\*\*\*\* 1.8 \*  
17. \* 330655.4 \*\*\*\*\* 1.8 \*  
18. \* 330592.2 \*\*\*\*\* 1.8 \*  
19. \* 330586.8 \*\*\*\*\* 1.8 \*  
20. \* 330581.4 \*\*\*\*\* 1.8 \*  
21. \* 330576.1 \*\*\*\*\* 1.8 \*  
22. \* 330570.7 \*\*\*\*\* 1.8 \*  
23. \* 330595.6 \*\*\*\*\* 1.8 \*  
24. \* 330600.8 \*\*\*\*\* 1.8 \*  
25. \* 330606.1 \*\*\*\*\* 1.8 \*  
26. \* 330611.3 \*\*\*\*\* 1.8 \*  
27. \* 330616.5 \*\*\*\*\* 1.8 \*  
28. \* 330621.7 \*\*\*\*\* 1.8 \*  
29. \* 330636.9 \*\*\*\*\* 1.8 \*  
30. \* 330630.7 \*\*\*\*\* 1.8 \*  
31. \* 330624.5 \*\*\*\*\* 1.8 \*  
32. \* 330618.3 \*\*\*\*\* 1.8 \*  
33. \* 330612.2 \*\*\*\*\* 1.8 \*  
34. \* 330573.1 \*\*\*\*\* 1.8 \*  
35. \* 330543.1 \*\*\*\*\* 1.8 \*  
36. \* 330532.6 \*\*\*\*\* 1.8 \*  
37. \* 330503.9 \*\*\*\*\* 1.8 \*  
38. \* 330475.2 \*\*\*\*\* 1.8 \*  
39. \* 330494.5 \*\*\*\*\* 1.8 \*  
40. \* 330523.2 \*\*\*\*\* 1.8 \*  
-----

JOB: ONE POST OFFICE SQUARE - INTERS. #52

RUN: 2024 BUILD AM PEAK HOUR

DATE : 08/30/ 0  
TIME : 14:00:09

## RECEPTOR LOCATIONS

-----  
RECEPTOR \* COORDINATES (M) \*  
\* X Y Z \*  
-----  
41. \* 330535.9 \*\*\*\*\* 1.8 \*  
42. \* 330565.9 \*\*\*\*\* 1.8 \*  
43. \* 330595.9 \*\*\*\*\* 1.8 \*  
-----

PAGE 3



44. \* 330590.8 \*\*\*\*\* 1.8 \*  
 45. \* 330581.5 \*\*\*\*\* 1.8 \*  
 46. \* 330580.4 \*\*\*\*\* 1.8 \*  
 47. \* 330579.2 \*\*\*\*\* 1.8 \*  
 48. \* 330578.1 \*\*\*\*\* 1.8 \*  
 49. \* 330576.9 \*\*\*\*\* 1.8 \*  
 50. \* 330565.6 \*\*\*\*\* 1.8 \*  
 51. \* 330566.7 \*\*\*\*\* 1.8 \*  
 52. \* 330567.9 \*\*\*\*\* 1.8 \*  
 53. \* 330569.0 \*\*\*\*\* 1.8 \*  
 54. \* 330570.2 \*\*\*\*\* 1.8 \*  
 55. \* 330571.9 \*\*\*\*\* 1.8 \*  
 56. \* 330592.1 \*\*\*\*\* 1.8 \*

JOB: ONE POST OFFICE SQUARE - INTERS. #52      RUN: 2024 BUILD AM PEAK HOUR

MODEL RESULTS  
 -----

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

WIND ANGLE (DEGR)	CONCENTRATION (PPM)																			
	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
10.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
20.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
30.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
40.	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
50.	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
60.	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
70.	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
80.	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
90.	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
100.	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
110.	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
120.	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
130.	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
140.	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
150.	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
160.	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
170.	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
180.	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
190.	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210.	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220.	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230.	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240.	0.0	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250.	0.0	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
260.	0.0	0.0	0.0	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
270.	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
280.	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
290.	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
310.	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
320.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
330.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
340.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
350.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1

JOB: ONE POST OFFICE SQUARE - INTERS. #52      RUN: 2024 BUILD AM PEAK HOUR

MODEL RESULTS  
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REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

WIND ANGLE (DEGR)	CONCENTRATION (PPM)																			
	REC1	REC2	REC23	REC24	REC25	REC26	REC27	REC28	REC29	REC30	REC31	REC32	REC33	REC34	REC35	REC36	REC37	REC38	REC39	REC40
0.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0
10.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0
20.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0
30.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0
40.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0
50.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0
60.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0
70.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0
80.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0
90.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0
100.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0
110.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0
120.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0
130.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0
140.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0
150.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1
160.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1
170.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1
180.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
190.	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
200.	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
210.	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
220.	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
230.	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
240.	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
250.	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
260.	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0</								





Run Began on 8/30/2017 at 14:19:09

JOB: ONE POST OFFICE SQUARE - INTERS. #52

RUN: 2024 BUILD PM PEAK HOUR

DATE : 08/30/ 0  
TIME : 14:19:09

The MODE flag has been set to C for calculating CO averages.

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 321. CM  
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 0.0 PPM

LINK VARIABLES

LINK DESCRIPTION	* X1	Y1	X2	Y2	* LENGTH (M)	BRG TYPE (DEG)	VPH	EF (G/MI)	H (M)	W (M)	V/C	QUEUE (VEH)
1. QUEUE STATE WBL	* 330630.7	*****	330650.1	*****	* 20.	79. AG	10.	100.0	0.0	3.7	0.52	3.3
2. QUEUE STATE WBTR	* 330629.3	*****	330997.5	*****	* 374.	80. AG	20.	100.0	0.0	7.3	1.37	62.4
3. FREE STATE WB	* 330619.7	*****	330904.0	*****	* 289.	80. AG	881.	2.0	0.0	17.0		
4. QUEUE CONGRESS NB	* 330621.8	*****	330629.8	*****	* 41.	169. AG	17.	100.0	0.0	6.0	0.72	6.8
5. FREE CONGRESS NB1	* 330619.2	*****	330649.7	*****	* 155.	169. AG	735.	2.0	0.0	12.0		
6. FREE CONGRESS NB1	* 330649.7	*****	330747.9	*****	* 169.	144. AG	735.	2.0	0.0	12.0		
7. QUEUE CONGRESS SBTR	* 330605.5	*****	330598.2	*****	* 38.	349. AG	17.	100.0	0.0	6.5	0.71	6.3
8. QUEUE CONGRESS SBR2	* 330599.4	*****	330592.8	*****	* 36.	349. AG	8.	100.0	0.0	3.9	0.76	6.0
9. FREE CONGRESS SB1	* 330605.3	*****	330560.4	*****	* 250.	350. AG	996.	2.0	0.0	15.4		
10. FREE CONGRESS SB1	* 330560.4	*****	330529.3	*****	* 87.	339. AG	996.	2.0	0.0	15.4		
11. FREE CONGRESS NB2	* 330616.0	*****	330572.1	*****	* 252.	350. AG	942.	2.0	0.0	15.8		
12. FREE CONGRESS NB2	* 330572.1	*****	330544.8	*****	* 85.	341. AG	942.	2.0	0.0	15.8		
13. FREE CONGRESS SB2	* 330611.0	*****	330642.9	*****	* 155.	168. AG	625.	2.0	0.0	12.0		
14. FREE CONGRESS SB2	* 330642.9	*****	330650.4	*****	* 77.	174. AG	625.	2.0	0.0	12.0		
15. FREE CONGRESS SB2	* 330650.4	*****	330666.5	*****	* 76.	168. AG	625.	2.0	0.0	12.0		
16. FREE STATE WB2	* 330603.1	*****	330534.8	*****	* 68.	270. AG	848.	2.0	0.0	15.0		
17. FREE STATE WB2	* 330534.8	*****	330462.8	*****	* 75.	287. AG	848.	2.0	0.0	15.0		
18. FREE STATE WB2	* 330462.8	*****	330379.1	*****	* 96.	299. AG	848.	2.0	0.0	15.0		
19. FREE STATE WB2	* 330379.1	*****	330363.3	*****	* 68.	347. AG	848.	2.0	0.0	15.0		
20. FREE DEVONSHIRE SB	* 330606.9	*****	330576.0	*****	* 46.	222. AG	197.	2.0	0.0	11.0		
21. FREE DEVONSHIRE SB	* 330576.0	*****	330565.4	*****	* 275.	182. AG	197.	2.0	0.0	11.0		

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JOB: ONE POST OFFICE SQUARE - INTERS. #52

RUN: 2024 BUILD PM PEAK HOUR

DATE : 08/30/ 0  
TIME : 14:19:09

ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	* CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM FAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE
1. QUEUE STATE WBL	* 110	81	7.0	146	1560	5.13	2	3
2. QUEUE STATE WBTR	* 110	81	7.0	735	1472	5.13	2	3
4. QUEUE CONGRESS NB	* 110	67	4.0	735	1516	5.13	2	3
7. QUEUE CONGRESS SBTR	* 110	67	4.0	676	1426	5.13	2	3
8. QUEUE CONGRESS SBR2	* 110	67	4.0	320	1254	5.13	2	3

RECEPTOR LOCATIONS

RECEPTOR	* X	Y	Z	*
1.	* 330647.7	*****	1.8	*
2.	* 330677.2	*****	1.8	*
3.	* 330706.8	*****	1.8	*
4.	* 330736.3	*****	1.8	*
5.	* 330765.8	*****	1.8	*
6.	* 330787.4	*****	1.8	*
7.	* 330757.9	*****	1.8	*
8.	* 330728.4	*****	1.8	*
9.	* 330698.8	*****	1.8	*
10.	* 330669.3	*****	1.8	*
11.	* 330639.8	*****	1.8	*
12.	* 330631.1	*****	1.8	*
13.	* 330637.0	*****	1.8	*
14.	* 330642.9	*****	1.8	*
15.	* 330648.9	*****	1.8	*
16.	* 330654.8	*****	1.8	*
17.	* 330655.4	*****	1.8	*
18.	* 330592.2	*****	1.8	*
19.	* 330586.8	*****	1.8	*
20.	* 330581.4	*****	1.8	*
21.	* 330576.1	*****	1.8	*
22.	* 330570.7	*****	1.8	*
23.	* 330595.6	*****	1.8	*
24.	* 330600.8	*****	1.8	*
25.	* 330606.1	*****	1.8	*
26.	* 330611.3	*****	1.8	*
27.	* 330616.5	*****	1.8	*
28.	* 330621.7	*****	1.8	*
29.	* 330636.9	*****	1.8	*
30.	* 330630.7	*****	1.8	*
31.	* 330624.5	*****	1.8	*
32.	* 330618.3	*****	1.8	*
33.	* 330612.2	*****	1.8	*
34.	* 330573.1	*****	1.8	*
35.	* 330543.1	*****	1.8	*
36.	* 330532.6	*****	1.8	*
37.	* 330503.9	*****	1.8	*
38.	* 330475.2	*****	1.8	*
39.	* 330494.5	*****	1.8	*
40.	* 330523.2	*****	1.8	*

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JOB: ONE POST OFFICE SQUARE - INTERS. #52

RUN: 2024 BUILD PM PEAK HOUR

DATE : 08/30/ 0  
TIME : 14:19:09

RECEPTOR LOCATIONS

RECEPTOR	* X	Y	Z	*
41.	* 330535.9	*****	1.8	*
42.	* 330565.9	*****	1.8	*
43.	* 330595.9	*****	1.8	*









Run Began on 8/31/2017 at 12:15:44

JOB: ONE POST OFFICE SQUARE - INTERS. #52

RUN: 2024 BUILD-MITIGATED AM PEAK HOUR

DATE : 08/31/ 0  
TIME : 12:15:44

The MODE flag has been set to C for calculating CO averages.

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 321. CM  
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 0.0 PPM

LINK VARIABLES

LINK DESCRIPTION	* X1	Y1	X2	Y2	* LENGTH (M)	BRG TYPE (DEG)	VPH	EF (G/MI)	H (M)	W (M)	V/C	QUEUE (VEH)
1. QUEUE STATE WBL	* 330630.7	*****	330657.4	*****	* 27.	79. AG	10.	100.0	0.0	3.7	0.78	4.5
2. QUEUE STATE WBTR	* 330629.3	*****	330762.8	*****	* 136.	80. AG	21.	100.0	0.0	7.3	1.12	22.6
3. FREE STATE WB	* 330619.7	*****	330904.0	*****	* 289.	80. AG	712.	2.0	0.0	17.0		
4. QUEUE CONGRESS NB	* 330621.8	*****	330625.1	*****	* 17.	169. AG	16.	100.0	0.0	6.0	0.31	2.8
5. FREE CONGRESS NB1	* 330619.2	*****	330649.7	*****	* 155.	169. AG	313.	2.0	0.0	12.0		
6. FREE CONGRESS NB1	* 330649.7	*****	330747.9	*****	* 169.	144. AG	313.	2.0	0.0	12.0		
7. QUEUE CONGRESS SBTR	* 330605.5	*****	330597.1	*****	* 44.	349. AG	16.	100.0	0.0	6.5	0.81	7.3
8. QUEUE CONGRESS SBR2	* 330599.4	*****	330576.5	*****	* 125.	349. AG	8.	100.0	0.0	3.9	1.04	20.8
9. FREE CONGRESS SB1	* 330605.3	*****	330560.4	*****	* 250.	350. AG	1266.	2.0	0.0	15.4		
10. FREE CONGRESS SB1	* 330560.4	*****	330529.3	*****	* 87.	339. AG	1266.	2.0	0.0	15.4		
11. FREE CONGRESS NB2	* 330616.0	*****	330572.1	*****	* 252.	350. AG	416.	2.0	0.0	15.8		
12. FREE CONGRESS NB2	* 330572.1	*****	330544.8	*****	* 85.	341. AG	416.	2.0	0.0	15.8		
13. FREE CONGRESS SB2	* 330611.0	*****	330642.9	*****	* 155.	168. AG	758.	2.0	0.0	12.0		
14. FREE CONGRESS SB2	* 330642.9	*****	330650.4	*****	* 77.	174. AG	758.	2.0	0.0	12.0		
15. FREE CONGRESS SB2	* 330650.4	*****	330666.5	*****	* 76.	168. AG	758.	2.0	0.0	12.0		
16. FREE STATE WB2	* 330603.1	*****	330534.8	*****	* 68.	270. AG	877.	2.0	0.0	15.0		
17. FREE STATE WB2	* 330534.8	*****	330462.8	*****	* 75.	287. AG	877.	2.0	0.0	15.0		
18. FREE STATE WB2	* 330462.8	*****	330379.1	*****	* 96.	299. AG	877.	2.0	0.0	15.0		
19. FREE STATE WB2	* 330379.1	*****	330363.3	*****	* 68.	347. AG	877.	2.0	0.0	15.0		
20. FREE DEVONSHIRE SB	* 330606.9	*****	330576.0	*****	* 46.	222. AG	240.	2.0	0.0	11.0		
21. FREE DEVONSHIRE SB	* 330576.0	*****	330565.4	*****	* 275.	182. AG	240.	2.0	0.0	11.0		

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JOB: ONE POST OFFICE SQUARE - INTERS. #52

RUN: 2024 BUILD-MITIGATED AM PEAK HOUR

DATE : 08/31/ 0  
TIME : 12:15:44

ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	* CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM FAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE
1. QUEUE STATE WBL	* 110	83	7.0	193	1524	5.13	2	3
2. QUEUE STATE WBTR	* 110	83	7.0	519	1418	5.13	2	3
4. QUEUE CONGRESS NB	* 110	65	4.0	313	1444	5.13	2	3
7. QUEUE CONGRESS SBTR	* 110	65	4.0	805	1398	5.13	2	3
8. QUEUE CONGRESS SBR2	* 110	65	4.0	461	1254	5.13	2	3

RECEPTOR LOCATIONS

RECEPTOR	* X	Y	Z	*
1.	* 330647.7	*****	1.8	*
2.	* 330677.2	*****	1.8	*
3.	* 330706.8	*****	1.8	*
4.	* 330736.3	*****	1.8	*
5.	* 330765.8	*****	1.8	*
6.	* 330787.4	*****	1.8	*
7.	* 330757.9	*****	1.8	*
8.	* 330728.4	*****	1.8	*
9.	* 330698.8	*****	1.8	*
10.	* 330669.3	*****	1.8	*
11.	* 330639.8	*****	1.8	*
12.	* 330631.1	*****	1.8	*
13.	* 330637.0	*****	1.8	*
14.	* 330642.9	*****	1.8	*
15.	* 330648.9	*****	1.8	*
16.	* 330654.8	*****	1.8	*
17.	* 330655.4	*****	1.8	*
18.	* 330592.2	*****	1.8	*
19.	* 330586.8	*****	1.8	*
20.	* 330581.4	*****	1.8	*
21.	* 330576.1	*****	1.8	*
22.	* 330570.7	*****	1.8	*
23.	* 330595.6	*****	1.8	*
24.	* 330600.8	*****	1.8	*
25.	* 330606.1	*****	1.8	*
26.	* 330611.3	*****	1.8	*
27.	* 330616.5	*****	1.8	*
28.	* 330621.7	*****	1.8	*
29.	* 330636.9	*****	1.8	*
30.	* 330630.7	*****	1.8	*
31.	* 330624.5	*****	1.8	*
32.	* 330618.3	*****	1.8	*
33.	* 330612.2	*****	1.8	*
34.	* 330573.1	*****	1.8	*
35.	* 330543.1	*****	1.8	*
36.	* 330532.6	*****	1.8	*
37.	* 330503.9	*****	1.8	*
38.	* 330475.2	*****	1.8	*
39.	* 330494.5	*****	1.8	*
40.	* 330523.2	*****	1.8	*

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JOB: ONE POST OFFICE SQUARE - INTERS. #52

RUN: 2024 BUILD-MITIGATED AM PEAK HOUR

DATE : 08/31/ 0  
TIME : 12:15:44

RECEPTOR LOCATIONS

RECEPTOR	* X	Y	Z	*
41.	* 330535.9	*****	1.8	*
42.	* 330565.9	*****	1.8	*
43.	* 330595.9	*****	1.8	*

44. \* 330590.8 \*\*\*\*\* 1.8 \*  
45. \* 330581.5 \*\*\*\*\* 1.8 \*  
46. \* 330580.4 \*\*\*\*\* 1.8 \*  
47. \* 330579.2 \*\*\*\*\* 1.8 \*  
48. \* 330578.1 \*\*\*\*\* 1.8 \*  
49. \* 330576.9 \*\*\*\*\* 1.8 \*  
50. \* 330565.6 \*\*\*\*\* 1.8 \*  
51. \* 330566.7 \*\*\*\*\* 1.8 \*  
52. \* 330567.9 \*\*\*\*\* 1.8 \*  
53. \* 330569.0 \*\*\*\*\* 1.8 \*  
54. \* 330570.2 \*\*\*\*\* 1.8 \*  
55. \* 330571.9 \*\*\*\*\* 1.8 \*  
56. \* 330592.1 \*\*\*\*\* 1.8 \*

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JOB: ONE POST OFFICE SQUARE - INTERS. #52 RUN: 2024 BUILD-MITIGATED AM PEAK HOUR

MODEL RESULTS  
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REMARKS : In search of the angle corresponding to  
the maximum concentration, only the first  
angle, of the angles with same maximum  
concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

WIND * CONCENTRATION	
ANGLE * (PPM)	
(DEGR) * REC1 REC2 REC3 REC4 REC5 REC6 REC7 REC8 REC9 REC10 REC11 REC12 REC13 REC14 REC15 REC16 REC17 REC18 REC19 REC20	
0.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1
10.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1
20.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1
30.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1
40.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.2 0.2 0.2 0.2 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1
50.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.2 0.2 0.2 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1
60.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.2 0.2 0.2 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1
70.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.2 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1
80.	* 0.2 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1
90.	* 0.2 0.2 0.2 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1
100.	* 0.2 0.2 0.2 0.2 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1
110.	* 0.2 0.2 0.2 0.2 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1
120.	* 0.2 0.2 0.2 0.2 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1
130.	* 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1
140.	* 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1
150.	* 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1
160.	* 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1
170.	* 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1
180.	* 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1
190.	* 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
200.	* 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
210.	* 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
220.	* 0.2 0.2 0.2 0.2 0.2 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
230.	* 0.2 0.2 0.2 0.2 0.2 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
240.	* 0.0 0.2 0.2 0.2 0.2 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
250.	* 0.0 0.2 0.2 0.2 0.2 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
260.	* 0.0 0.0 0.0 0.2 0.2 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
270.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.2 0.2 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
280.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.2 0.2 0.2 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
290.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.2 0.2 0.2 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
300.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.2 0.2 0.2 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
310.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.2 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
320.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
330.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
340.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1
350.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1
MAX	* 0.2 0.2 0.2 0.2 0.2 0.1 0.2 0.2 0.2 0.2 0.2 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1
DEGR.	* 80 90 90 100 220 40 270 40 40 40 40 0 0 0 0 0 0 0 0 0

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JOB: ONE POST OFFICE SQUARE - INTERS. #52 RUN: 2024 BUILD-MITIGATED AM PEAK HOUR

MODEL RESULTS  
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REMARKS : In search of the angle corresponding to  
the maximum concentration, only the first  
angle, of the angles with same maximum  
concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

WIND * CONCENTRATION	
ANGLE * (PPM)	
(DEGR) * REC21 REC22 REC23 REC24 REC25 REC26 REC27 REC28 REC29 REC30 REC31 REC32 REC33 REC34 REC35 REC36 REC37 REC38 REC39 REC40	
0.	* 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.1 0.1 0.0 0.0
10.	* 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.1 0.1 0.0 0.0
20.	* 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.1 0.1 0.0 0.0
30.	* 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.1 0.1 0.0 0.0
40.	* 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.1 0.1 0.0 0.0
50.	* 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0
60.	* 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.0 0.0
70.	* 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.0 0.0
80.	* 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0
90.	* 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.0 0.0
100.	* 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.2 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0
110.	* 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.1 0.1 0.0
120.	* 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.1 0.0
130.	* 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.1 0.0
140.	* 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.1 0.0
150.	* 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.1 0.1
160.	* 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.1 0.1
170.	* 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.1 0.1
180.	* 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1
190.	* 0.0 0.0 0.0 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1
200.	* 0.0 0.0 0.0 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1
210.	* 0.0 0.0 0.0 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1
220.	* 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1
230.	* 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1
240.	* 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1
250.	* 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1
260.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1
270.	* 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.1 0.1
280.	* 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.1 0.1
290.	* 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.0 0.1
300.	* 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.0 0.0
310.	* 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.1 0.0 0.0
320.	* 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.1 0.0 0.0
330.	* 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.1 0.0 0.0
340.	* 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.0 0.0
350.	* 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.2 0.1 0.1 0.0 0.1 0.0 0.0

MAX \* 0.1 0.1 0.1 0.1 0.1 0.1 0.2 0.1 0.1 0.1 0.2 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1  
DEGR. \* 0 0 190 190 190 200 220 100 0 0 0 0 350 0 0 50 0 0 110 150

JOB: ONE POST OFFICE SQUARE - INTERS. #52 RUN: 2024 BUILD-MITIGATED AM PEAK HOUR PAGE 6

MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

Table with columns: WIND ANGLE (DEGR), CONCENTRATION (PPM), and receptors REC41-REC56. Rows show concentration values for angles from 0 to 350 degrees.

THE HIGHEST CONCENTRATION OF 0.20 PPM OCCURRED AT RECEPTOR REC56.

JOB: ONE POST OFFICE SQUARE - INTERS. #52 RUN: 2024 BUILD-MITIGATED AM PEAK HOUR PAGE 7

DATE : 08/31/ 0 TIME : 12:15:44

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

Matrix table with columns: LINK #, CO/LINK (PPM), ANGLE (DEGREES), and receptors REC1-REC20. Rows show concentration values for various links and angles.

JOB: ONE POST OFFICE SQUARE - INTERS. #52 RUN: 2024 BUILD-MITIGATED AM PEAK HOUR PAGE 8

DATE : 08/31/ 0 TIME : 12:15:44

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

Matrix table with columns: LINK #, CO/LINK (PPM), ANGLE (DEGREES), and receptors REC21-REC40. Rows show concentration values for various links and angles.



Run Began on 8/31/2017 at 12:25:44

JOB: ONE POST OFFICE SQUARE - INTERS. #52

RUN: 2024 BUILD-MITIGATED PM PEAK HOUR

DATE : 08/31/ 0  
TIME : 12:25:44

The MODE flag has been set to C for calculating CO averages.

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 321. CM  
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 0.0 PPM

LINK VARIABLES

LINK DESCRIPTION	* X1	Y1	X2	Y2	* LENGTH (M)	BRG TYPE (DEG)	VPH	EF (G/MI)	H (M)	W (M)	V/C	QUEUE (VEH)
1. QUEUE STATE WBL	* 330630.7	*****	330650.1	*****	* 20.	79. AG	10.	100.0	0.0	3.7	0.52	3.3
2. QUEUE STATE WBTR	* 330629.3	*****	330997.5	*****	* 374.	80. AG	20.	100.0	0.0	7.3	1.37	62.4
3. FREE STATE WB	* 330619.7	*****	330904.0	*****	* 289.	80. AG	881.	2.0	0.0	17.0		
4. QUEUE CONGRESS NB	* 330621.8	*****	330629.8	*****	* 41.	169. AG	17.	100.0	0.0	6.0	0.72	6.8
5. FREE CONGRESS NB1	* 330619.2	*****	330649.7	*****	* 155.	169. AG	735.	2.0	0.0	12.0		
6. FREE CONGRESS NB1	* 330649.7	*****	330747.9	*****	* 169.	144. AG	735.	2.0	0.0	12.0		
7. QUEUE CONGRESS SBTR	* 330605.5	*****	330598.2	*****	* 38.	349. AG	17.	100.0	0.0	6.5	0.71	6.3
8. QUEUE CONGRESS SBR2	* 330599.4	*****	330592.8	*****	* 36.	349. AG	8.	100.0	0.0	3.9	0.76	6.0
9. FREE CONGRESS SB1	* 330605.3	*****	330560.4	*****	* 250.	350. AG	996.	2.0	0.0	15.4		
10. FREE CONGRESS SB1	* 330560.4	*****	330529.3	*****	* 87.	339. AG	996.	2.0	0.0	15.4		
11. FREE CONGRESS NB2	* 330616.0	*****	330572.1	*****	* 252.	350. AG	942.	2.0	0.0	15.8		
12. FREE CONGRESS NB2	* 330572.1	*****	330544.8	*****	* 85.	341. AG	942.	2.0	0.0	15.8		
13. FREE CONGRESS SB2	* 330611.0	*****	330642.9	*****	* 155.	168. AG	625.	2.0	0.0	12.0		
14. FREE CONGRESS SB2	* 330642.9	*****	330650.4	*****	* 77.	174. AG	625.	2.0	0.0	12.0		
15. FREE CONGRESS SB2	* 330650.4	*****	330666.5	*****	* 76.	168. AG	625.	2.0	0.0	12.0		
16. FREE STATE WB2	* 330603.1	*****	330534.8	*****	* 68.	270. AG	848.	2.0	0.0	15.0		
17. FREE STATE WB2	* 330534.8	*****	330462.8	*****	* 75.	287. AG	848.	2.0	0.0	15.0		
18. FREE STATE WB2	* 330462.8	*****	330379.1	*****	* 96.	299. AG	848.	2.0	0.0	15.0		
19. FREE STATE WB2	* 330379.1	*****	330363.3	*****	* 68.	347. AG	848.	2.0	0.0	15.0		
20. FREE DEVONSHIRE SB	* 330606.9	*****	330576.0	*****	* 46.	222. AG	197.	2.0	0.0	11.0		
21. FREE DEVONSHIRE SB	* 330576.0	*****	330565.4	*****	* 275.	182. AG	197.	2.0	0.0	11.0		

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JOB: ONE POST OFFICE SQUARE - INTERS. #52

RUN: 2024 BUILD-MITIGATED PM PEAK HOUR

DATE : 08/31/ 0  
TIME : 12:25:44

ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	* CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM PAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE
1. QUEUE STATE WBL	* 110	81	7.0	146	1560	5.13	2	3
2. QUEUE STATE WBTR	* 110	81	7.0	735	1472	5.13	2	3
4. QUEUE CONGRESS NB	* 110	67	4.0	735	1516	5.13	2	3
7. QUEUE CONGRESS SBTR	* 110	67	4.0	676	1426	5.13	2	3
8. QUEUE CONGRESS SBR2	* 110	67	4.0	320	1254	5.13	2	3

RECEPTOR LOCATIONS

RECEPTOR	* X	Y	Z	*
1.	* 330647.7	*****	1.8	*
2.	* 330677.2	*****	1.8	*
3.	* 330706.8	*****	1.8	*
4.	* 330736.3	*****	1.8	*
5.	* 330765.8	*****	1.8	*
6.	* 330787.4	*****	1.8	*
7.	* 330757.9	*****	1.8	*
8.	* 330728.4	*****	1.8	*
9.	* 330698.8	*****	1.8	*
10.	* 330669.3	*****	1.8	*
11.	* 330639.8	*****	1.8	*
12.	* 330631.1	*****	1.8	*
13.	* 330637.0	*****	1.8	*
14.	* 330642.9	*****	1.8	*
15.	* 330648.9	*****	1.8	*
16.	* 330654.8	*****	1.8	*
17.	* 330655.4	*****	1.8	*
18.	* 330592.2	*****	1.8	*
19.	* 330586.8	*****	1.8	*
20.	* 330581.4	*****	1.8	*
21.	* 330576.1	*****	1.8	*
22.	* 330570.7	*****	1.8	*
23.	* 330595.6	*****	1.8	*
24.	* 330600.8	*****	1.8	*
25.	* 330606.1	*****	1.8	*
26.	* 330611.3	*****	1.8	*
27.	* 330616.5	*****	1.8	*
28.	* 330621.7	*****	1.8	*
29.	* 330636.9	*****	1.8	*
30.	* 330630.7	*****	1.8	*
31.	* 330624.5	*****	1.8	*
32.	* 330618.3	*****	1.8	*
33.	* 330612.2	*****	1.8	*
34.	* 330573.1	*****	1.8	*
35.	* 330543.1	*****	1.8	*
36.	* 330532.6	*****	1.8	*
37.	* 330503.9	*****	1.8	*
38.	* 330475.2	*****	1.8	*
39.	* 330494.5	*****	1.8	*
40.	* 330523.2	*****	1.8	*

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JOB: ONE POST OFFICE SQUARE - INTERS. #52

RUN: 2024 BUILD-MITIGATED PM PEAK HOUR

DATE : 08/31/ 0  
TIME : 12:25:44

RECEPTOR LOCATIONS

RECEPTOR	* X	Y	Z	*
41.	* 330535.9	*****	1.8	*
42.	* 330565.9	*****	1.8	*
43.	* 330595.9	*****	1.8	*









Run Began on 8/30/2017 at 9:41:22

JOB: ONE POST OFFICE SQUARE - INTERS. #52

RUN: 2017 EXISTING AM PEAK HOUR

DATE : 08/30/ 0  
TIME : 09:41:22

The MODE flag has been set to C for calculating CO averages.

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 321. CM  
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 0.0 PPM

LINK VARIABLES

LINK DESCRIPTION	* X1	Y1	X2	Y2	* LENGTH (M)	BRG TYPE (DEG)	VPH	EF (G/MI)	H (M)	W (M)	V/C	QUEUE (VEH)
1. QUEUE STATE WBL	* 330630.7	*****	330656.0	*****	* 26.	79. AG	19.	100.0	0.0	3.7	0.75	4.3
2. QUEUE STATE WBTR	* 330629.3	*****	330728.8	*****	* 101.	80. AG	39.	100.0	0.0	7.3	1.07	16.9
3. FREE STATE WB	* 330619.7	*****	330904.0	*****	* 289.	80. AG	692.	2.8	0.0	17.0		
4. QUEUE CONGRESS NB	* 330621.8	*****	330624.9	*****	* 16.	169. AG	31.	100.0	0.0	6.0	0.29	2.7
5. FREE CONGRESS NB1	* 330619.2	*****	330649.7	*****	* 155.	169. AG	296.	2.8	0.0	12.0		
6. FREE CONGRESS NB1	* 330649.7	*****	330747.9	*****	* 169.	144. AG	296.	2.8	0.0	12.0		
7. QUEUE CONGRESS SBTR	* 330605.5	*****	330597.5	*****	* 41.	349. AG	31.	100.0	0.0	6.5	0.77	6.9
8. QUEUE CONGRESS SBR2	* 330599.4	*****	330586.7	*****	* 69.	349. AG	15.	100.0	0.0	3.9	0.99	11.5
9. FREE CONGRESS SB1	* 330605.3	*****	330560.4	*****	* 250.	350. AG	1204.	2.8	0.0	15.4		
10. FREE CONGRESS SB1	* 330560.4	*****	330529.3	*****	* 87.	339. AG	1204.	2.8	0.0	15.4		
11. FREE CONGRESS NB2	* 330616.0	*****	330572.1	*****	* 252.	350. AG	396.	2.8	0.0	15.8		
12. FREE CONGRESS NB2	* 330572.1	*****	330544.8	*****	* 85.	341. AG	396.	2.8	0.0	15.8		
13. FREE CONGRESS SB2	* 330611.0	*****	330642.9	*****	* 155.	168. AG	714.	2.8	0.0	12.0		
14. FREE CONGRESS SB2	* 330642.9	*****	330650.4	*****	* 77.	174. AG	714.	2.8	0.0	12.0		
15. FREE CONGRESS SB2	* 330650.4	*****	330666.5	*****	* 76.	168. AG	714.	2.8	0.0	12.0		
16. FREE STATE WB2	* 330603.1	*****	330534.8	*****	* 68.	270. AG	847.	2.8	0.0	15.0		
17. FREE STATE WB2	* 330534.8	*****	330462.8	*****	* 75.	287. AG	847.	2.8	0.0	15.0		
18. FREE STATE WB2	* 330462.8	*****	330379.1	*****	* 96.	299. AG	847.	2.8	0.0	15.0		
19. FREE STATE WB2	* 330379.1	*****	330363.3	*****	* 68.	347. AG	847.	2.8	0.0	15.0		
20. FREE DEVONSHIRE SB	* 330606.9	*****	330576.0	*****	* 46.	222. AG	235.	2.8	0.0	11.0		
21. FREE DEVONSHIRE SB	* 330576.0	*****	330565.4	*****	* 275.	182. AG	235.	2.8	0.0	11.0		

PAGE 2

JOB: ONE POST OFFICE SQUARE - INTERS. #52

RUN: 2017 EXISTING AM PEAK HOUR

DATE : 08/30/ 0  
TIME : 09:41:22

ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	* CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM PAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE
1. QUEUE STATE WBL	* 110	83	7.0	186	1524	9.62	2	3
2. QUEUE STATE WBTR	* 110	83	7.0	506	1453	9.62	2	3
4. QUEUE CONGRESS NB	* 110	65	4.0	296	1444	9.62	2	3
7. QUEUE CONGRESS SBTR	* 110	65	4.0	763	1395	9.62	2	3
8. QUEUE CONGRESS SBR2	* 110	65	4.0	441	1254	9.62	2	3

RECEPTOR LOCATIONS

RECEPTOR	* X	Y	Z	*
1.	* 330647.7	*****	1.8	*
2.	* 330677.2	*****	1.8	*
3.	* 330706.8	*****	1.8	*
4.	* 330736.3	*****	1.8	*
5.	* 330765.8	*****	1.8	*
6.	* 330787.4	*****	1.8	*
7.	* 330757.9	*****	1.8	*
8.	* 330728.4	*****	1.8	*
9.	* 330698.8	*****	1.8	*
10.	* 330669.3	*****	1.8	*
11.	* 330639.8	*****	1.8	*
12.	* 330631.1	*****	1.8	*
13.	* 330637.0	*****	1.8	*
14.	* 330642.9	*****	1.8	*
15.	* 330648.9	*****	1.8	*
16.	* 330654.8	*****	1.8	*
17.	* 330655.4	*****	1.8	*
18.	* 330592.2	*****	1.8	*
19.	* 330586.8	*****	1.8	*
20.	* 330581.4	*****	1.8	*
21.	* 330576.1	*****	1.8	*
22.	* 330570.7	*****	1.8	*
23.	* 330595.6	*****	1.8	*
24.	* 330600.8	*****	1.8	*
25.	* 330606.1	*****	1.8	*
26.	* 330611.3	*****	1.8	*
27.	* 330616.5	*****	1.8	*
28.	* 330621.7	*****	1.8	*
29.	* 330636.9	*****	1.8	*
30.	* 330630.7	*****	1.8	*
31.	* 330624.5	*****	1.8	*
32.	* 330618.3	*****	1.8	*
33.	* 330612.2	*****	1.8	*
34.	* 330573.1	*****	1.8	*
35.	* 330543.1	*****	1.8	*
36.	* 330532.6	*****	1.8	*
37.	* 330503.9	*****	1.8	*
38.	* 330475.2	*****	1.8	*
39.	* 330494.5	*****	1.8	*
40.	* 330523.2	*****	1.8	*

PAGE 3

JOB: ONE POST OFFICE SQUARE - INTERS. #52

RUN: 2017 EXISTING AM PEAK HOUR

DATE : 08/30/ 0  
TIME : 09:41:22

RECEPTOR LOCATIONS

RECEPTOR	* X	Y	Z	*
41.	* 330535.9	*****	1.8	*
42.	* 330565.9	*****	1.8	*
43.	* 330595.9	*****	1.8	*

44.	*	330590.8	*****	1.8	*
45.	*	330581.5	*****	1.8	*
46.	*	330580.4	*****	1.8	*
47.	*	330579.2	*****	1.8	*
48.	*	330578.1	*****	1.8	*
49.	*	330576.9	*****	1.8	*
50.	*	330565.6	*****	1.8	*
51.	*	330566.7	*****	1.8	*
52.	*	330567.9	*****	1.8	*
53.	*	330569.0	*****	1.8	*
54.	*	330570.2	*****	1.8	*
55.	*	330571.9	*****	1.8	*
56.	*	330592.1	*****	1.8	*

JOB: ONE POST OFFICE SQUARE - INTERS. #52 RUN: 2017 EXISTING AM PEAK HOUR

MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

WIND ANGLE (DEGR)	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0.	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2
10.	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2
20.	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1
30.	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1
40.	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1
50.	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1
60.	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1
70.	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1
80.	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1
90.	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1
100.	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1
110.	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1
120.	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1
130.	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1
140.	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2
150.	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3
160.	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2
170.	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
180.	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
190.	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0
200.	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0
210.	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0
220.	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230.	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240.	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250.	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
260.	0.0	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
270.	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
280.	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
290.	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0
310.	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
320.	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.4	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0
330.	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.4	0.2	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0
340.	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
350.	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1

JOB: ONE POST OFFICE SQUARE - INTERS. #52 RUN: 2017 EXISTING AM PEAK HOUR

MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

WIND ANGLE (DEGR)	REC1	REC2	REC23	REC24	REC25	REC26	REC27	REC28	REC29	REC30	REC31	REC32	REC33	REC34	REC35	REC36	REC37	REC38	REC39	REC40
0.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0
10.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.0	0.1	0.1	0.0	0.0
20.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.0	0.1	0.1	0.0	0.0
30.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.0
40.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0
50.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0
60.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0
70.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0
80.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0
90.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0
100.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1
110.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1
120.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1
130.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1
140.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1
150.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1
160.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1
170.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1
180.	0.1	0.1	0.2	0.2	0.2	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
190.	0.0	0.0	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
200.	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
210.	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
220.	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
230.	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
240.	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
250.	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
260.	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
270.	0.0	0.0	0.1	0																







Run Began on 8/30/2017 at 9:58:54

JOB: ONE POST OFFICE SQUARE - INTERS. #52

RUN: 2017 EXISTING PM PEAK HOUR

DATE : 08/30/ 0  
TIME : 09:58:54

The MODE flag has been set to C for calculating CO averages.

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 321. CM  
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 0.0 PPM

LINK VARIABLES

LINK DESCRIPTION	* X1	Y1	X2	Y2	* LENGTH (M)	BRG TYPE (DEG)	VPH	EF (G/MI)	H (M)	W (M)	V/C	QUEUE (VEH)
1. QUEUE STATE WBL	* 330630.7	*****	330649.1	*****	* 19.	79. AG	19.	100.0	0.0	3.7	0.49	3.1
2. QUEUE STATE WBTR	* 330629.3	*****	330674.9	*****	* 46.	80. AG	38.	100.0	0.0	7.3	0.96	7.7
3. FREE STATE WB	* 330619.7	*****	330904.0	*****	* 289.	80. AG	652.	2.8	0.0	17.0		
4. QUEUE CONGRESS NB	* 330621.8	*****	330629.4	*****	* 39.	169. AG	31.	100.0	0.0	6.0	0.69	6.6
5. FREE CONGRESS NB1	* 330619.2	*****	330649.7	*****	* 155.	169. AG	705.	2.8	0.0	12.0		
6. FREE CONGRESS NB1	* 330649.7	*****	330747.9	*****	* 169.	144. AG	705.	2.8	0.0	12.0		
7. QUEUE CONGRESS SBTR	* 330605.5	*****	330598.5	*****	* 36.	349. AG	31.	100.0	0.0	6.5	0.68	6.1
8. QUEUE CONGRESS SBR2	* 330599.4	*****	330593.2	*****	* 34.	349. AG	16.	100.0	0.0	3.9	0.72	5.7
9. FREE CONGRESS SB1	* 330605.3	*****	330560.4	*****	* 250.	350. AG	956.	2.8	0.0	15.4		
10. FREE CONGRESS SB1	* 330560.4	*****	330529.3	*****	* 87.	339. AG	956.	2.8	0.0	15.4		
11. FREE CONGRESS NB2	* 330616.0	*****	330572.1	*****	* 252.	350. AG	890.	2.8	0.0	15.8		
12. FREE CONGRESS NB2	* 330572.1	*****	330544.8	*****	* 85.	341. AG	890.	2.8	0.0	15.8		
13. FREE CONGRESS SB2	* 330611.0	*****	330642.9	*****	* 155.	168. AG	601.	2.8	0.0	12.0		
14. FREE CONGRESS SB2	* 330642.9	*****	330650.4	*****	* 77.	174. AG	601.	2.8	0.0	12.0		
15. FREE CONGRESS SB2	* 330650.4	*****	330666.5	*****	* 76.	168. AG	601.	2.8	0.0	12.0		
16. FREE STATE WB2	* 330603.1	*****	330534.8	*****	* 68.	270. AG	817.	2.8	0.0	15.0		
17. FREE STATE WB2	* 330534.8	*****	330462.8	*****	* 75.	287. AG	817.	2.8	0.0	15.0		
18. FREE STATE WB2	* 330462.8	*****	330379.1	*****	* 96.	299. AG	817.	2.8	0.0	15.0		
19. FREE STATE WB2	* 330379.1	*****	330363.3	*****	* 68.	347. AG	817.	2.8	0.0	15.0		
20. FREE DEVONSHIRE SB	* 330606.9	*****	330576.0	*****	* 46.	222. AG	190.	2.8	0.0	11.0		
21. FREE DEVONSHIRE SB	* 330576.0	*****	330565.4	*****	* 275.	182. AG	190.	2.8	0.0	11.0		

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JOB: ONE POST OFFICE SQUARE - INTERS. #52

RUN: 2017 EXISTING PM PEAK HOUR

DATE : 08/30/ 0  
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ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	* CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM PAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE
1. QUEUE STATE WBL	* 110	81	7.0	139	1560	9.62	2	3
2. QUEUE STATE WBTR	* 110	81	7.0	513	1477	9.62	2	3
4. QUEUE CONGRESS NB	* 110	67	4.0	705	1516	9.62	2	3
7. QUEUE CONGRESS SBTR	* 110	67	4.0	652	1425	9.62	2	3
8. QUEUE CONGRESS SBR2	* 110	67	4.0	304	1254	9.62	2	3

RECEPTOR LOCATIONS

RECEPTOR	* X	Y	Z	*
1.	* 330647.7	*****	1.8	*
2.	* 330677.2	*****	1.8	*
3.	* 330706.8	*****	1.8	*
4.	* 330736.3	*****	1.8	*
5.	* 330765.8	*****	1.8	*
6.	* 330787.4	*****	1.8	*
7.	* 330757.9	*****	1.8	*
8.	* 330728.4	*****	1.8	*
9.	* 330698.8	*****	1.8	*
10.	* 330669.3	*****	1.8	*
11.	* 330639.8	*****	1.8	*
12.	* 330631.1	*****	1.8	*
13.	* 330637.0	*****	1.8	*
14.	* 330642.9	*****	1.8	*
15.	* 330648.9	*****	1.8	*
16.	* 330654.8	*****	1.8	*
17.	* 330655.4	*****	1.8	*
18.	* 330592.2	*****	1.8	*
19.	* 330586.8	*****	1.8	*
20.	* 330581.4	*****	1.8	*
21.	* 330576.1	*****	1.8	*
22.	* 330570.7	*****	1.8	*
23.	* 330595.6	*****	1.8	*
24.	* 330600.8	*****	1.8	*
25.	* 330606.1	*****	1.8	*
26.	* 330611.3	*****	1.8	*
27.	* 330616.5	*****	1.8	*
28.	* 330621.7	*****	1.8	*
29.	* 330636.9	*****	1.8	*
30.	* 330630.7	*****	1.8	*
31.	* 330624.5	*****	1.8	*
32.	* 330618.3	*****	1.8	*
33.	* 330612.2	*****	1.8	*
34.	* 330573.1	*****	1.8	*
35.	* 330543.1	*****	1.8	*
36.	* 330532.6	*****	1.8	*
37.	* 330503.9	*****	1.8	*
38.	* 330475.2	*****	1.8	*
39.	* 330494.5	*****	1.8	*
40.	* 330523.2	*****	1.8	*

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JOB: ONE POST OFFICE SQUARE - INTERS. #52

RUN: 2017 EXISTING PM PEAK HOUR

DATE : 08/30/ 0  
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RECEPTOR LOCATIONS

RECEPTOR	* X	Y	Z	*
41.	* 330535.9	*****	1.8	*
42.	* 330565.9	*****	1.8	*
43.	* 330595.9	*****	1.8	*

44. \* 330590.8 \*\*\*\*\* 1.8 \*  
 45. \* 330581.5 \*\*\*\*\* 1.8 \*  
 46. \* 330580.4 \*\*\*\*\* 1.8 \*  
 47. \* 330579.2 \*\*\*\*\* 1.8 \*  
 48. \* 330578.1 \*\*\*\*\* 1.8 \*  
 49. \* 330576.9 \*\*\*\*\* 1.8 \*  
 50. \* 330565.6 \*\*\*\*\* 1.8 \*  
 51. \* 330566.7 \*\*\*\*\* 1.8 \*  
 52. \* 330567.9 \*\*\*\*\* 1.8 \*  
 53. \* 330569.0 \*\*\*\*\* 1.8 \*  
 54. \* 330570.2 \*\*\*\*\* 1.8 \*  
 55. \* 330571.9 \*\*\*\*\* 1.8 \*  
 56. \* 330592.1 \*\*\*\*\* 1.8 \*

JOB: ONE POST OFFICE SQUARE - INTERS. #52 RUN: 2017 EXISTING PM PEAK HOUR

MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

WIND ANGLE (DEGR)	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0.	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.3	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.1
10.	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2
20.	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.2
30.	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.2
40.	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.2
50.	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.2
60.	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.2
70.	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.2
80.	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.1
90.	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2
100.	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.2
110.	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2
120.	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.2
130.	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.2
140.	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2
150.	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.1
160.	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1
170.	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
180.	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1
190.	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
200.	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
210.	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0
220.	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0
230.	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0
240.	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
250.	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
260.	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
270.	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.0	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0
280.	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.0	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0
290.	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0
300.	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0
310.	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0
320.	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.4	0.2	0.2	0.1	0.1	0.1	0.2	0.0	0.0
330.	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.4	0.3	0.2	0.1	0.1	0.2	0.2	0.0	0.0
340.	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1
350.	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

MAX DEGR.	90	200	80	80	80	0	0	270	0	320	330	320	160	170	330	320	0.2	0.3	0.3	0.2
MAX DEGR.	90	200	80	80	80	0	0	270	0	320	330	320	160	170	330	320	0.2	0.3	0.3	0.2

JOB: ONE POST OFFICE SQUARE - INTERS. #52 RUN: 2017 EXISTING PM PEAK HOUR

MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

WIND ANGLE (DEGR)	REC1	REC2	REC23	REC24	REC25	REC26	REC27	REC28	REC29	REC30	REC31	REC32	REC33	REC34	REC35	REC36	REC37	REC38	REC39	REC40
0.	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0
10.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0
20.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0
30.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0
40.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0
50.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0
60.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0
70.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0
80.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0
90.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0
100.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.1	0.1	0.2	0.0	0.0	0.0	0.1	0.1	0.0	0.1
110.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1
120.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1
130.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.1
140.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.1
150.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.1
160.	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1
170.	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1
180.	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
190.	0.0	0.0	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
200.	0.0	0.0	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
210.	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
220.	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
230.	0.0	0.0	0.2	0.2	0.2	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
240.	0.0	0.0	0.2	0.2	0.2	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
250.	0.0	0.0	0.2	0.2	0.2	0.2	0.3													





Run Began on 8/30/2017 at 10:36:11

JOB: ONE POST OFFICE SQUARE - INTERS. #52

RUN: 2024 NO-BUILD AM PEAK HOUR

DATE : 08/30/ 0  
TIME : 10:36:11

The MODE flag has been set to C for calculating CO averages.

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 321. CM  
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 0.0 PPM

LINK VARIABLES

LINK DESCRIPTION	* X1	Y1	X2	Y2	* LENGTH (M)	BRG TYPE (DEG)	VPH	EF (G/MI)	H (M)	W (M)	V/C	QUEUE (VEH)
1. QUEUE STATE WBL	* 330630.7	*****	330656.9	*****	* 27.	79. AG	10.	100.0	0.0	3.7	0.77	4.5
2. QUEUE STATE WBTR	* 330629.3	*****	330762.8	*****	* 136.	80. AG	21.	100.0	0.0	7.3	1.12	22.6
3. FREE STATE WB	* 330619.7	*****	330904.0	*****	* 289.	80. AG	710.	2.0	0.0	17.0		
4. QUEUE CONGRESS NB	* 330621.8	*****	330625.1	*****	* 17.	169. AG	16.	100.0	0.0	6.0	0.30	2.8
5. FREE CONGRESS NB1	* 330619.2	*****	330649.7	*****	* 155.	169. AG	310.	2.0	0.0	12.0		
6. FREE CONGRESS NB1	* 330649.7	*****	330747.9	*****	* 169.	144. AG	310.	2.0	0.0	12.0		
7. QUEUE CONGRESS SBTR	* 330605.5	*****	330597.2	*****	* 43.	349. AG	16.	100.0	0.0	6.5	0.80	7.1
8. QUEUE CONGRESS SBR2	* 330599.4	*****	330576.5	*****	* 125.	349. AG	8.	100.0	0.0	3.9	1.04	20.8
9. FREE CONGRESS SB1	* 330605.3	*****	330560.4	*****	* 250.	350. AG	1251.	2.0	0.0	15.4		
10. FREE CONGRESS SB1	* 330560.4	*****	330529.3	*****	* 87.	339. AG	1251.	2.0	0.0	15.4		
11. FREE CONGRESS NB2	* 330616.0	*****	330572.1	*****	* 252.	350. AG	414.	2.0	0.0	15.8		
12. FREE CONGRESS NB2	* 330572.1	*****	330544.8	*****	* 85.	341. AG	414.	2.0	0.0	15.8		
13. FREE CONGRESS SB2	* 330611.0	*****	330642.9	*****	* 155.	168. AG	741.	2.0	0.0	12.0		
14. FREE CONGRESS SB2	* 330642.9	*****	330650.4	*****	* 77.	174. AG	741.	2.0	0.0	12.0		
15. FREE CONGRESS SB2	* 330650.4	*****	330666.5	*****	* 76.	168. AG	741.	2.0	0.0	12.0		
16. FREE STATE WB2	* 330603.1	*****	330534.8	*****	* 68.	270. AG	876.	2.0	0.0	15.0		
17. FREE STATE WB2	* 330534.8	*****	330462.8	*****	* 75.	287. AG	876.	2.0	0.0	15.0		
18. FREE STATE WB2	* 330462.8	*****	330379.1	*****	* 96.	299. AG	876.	2.0	0.0	15.0		
19. FREE STATE WB2	* 330379.1	*****	330363.3	*****	* 68.	347. AG	876.	2.0	0.0	15.0		
20. FREE DEVONSHIRE SB	* 330606.9	*****	330576.0	*****	* 46.	222. AG	240.	2.0	0.0	11.0		
21. FREE DEVONSHIRE SB	* 330576.0	*****	330565.4	*****	* 275.	182. AG	240.	2.0	0.0	11.0		

PAGE 2

JOB: ONE POST OFFICE SQUARE - INTERS. #52

RUN: 2024 NO-BUILD AM PEAK HOUR

DATE : 08/30/ 0  
TIME : 10:36:11

ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	* CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM PAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE
1. QUEUE STATE WBL	* 110	83	7.0	191	1524	5.13	2	3
2. QUEUE STATE WBTR	* 110	83	7.0	519	1418	5.13	2	3
4. QUEUE CONGRESS NB	* 110	65	4.0	310	1444	5.13	2	3
7. QUEUE CONGRESS SBTR	* 110	65	4.0	790	1396	5.13	2	3
8. QUEUE CONGRESS SBR2	* 110	65	4.0	461	1254	5.13	2	3

RECEPTOR LOCATIONS

RECEPTOR	* X	Y	Z	*
1.	* 330647.7	*****	1.8	*
2.	* 330677.2	*****	1.8	*
3.	* 330706.8	*****	1.8	*
4.	* 330736.3	*****	1.8	*
5.	* 330765.8	*****	1.8	*
6.	* 330787.4	*****	1.8	*
7.	* 330757.9	*****	1.8	*
8.	* 330728.4	*****	1.8	*
9.	* 330698.8	*****	1.8	*
10.	* 330669.3	*****	1.8	*
11.	* 330639.8	*****	1.8	*
12.	* 330631.1	*****	1.8	*
13.	* 330637.0	*****	1.8	*
14.	* 330642.9	*****	1.8	*
15.	* 330648.9	*****	1.8	*
16.	* 330654.8	*****	1.8	*
17.	* 330655.4	*****	1.8	*
18.	* 330592.2	*****	1.8	*
19.	* 330586.8	*****	1.8	*
20.	* 330581.4	*****	1.8	*
21.	* 330576.1	*****	1.8	*
22.	* 330570.7	*****	1.8	*
23.	* 330595.6	*****	1.8	*
24.	* 330600.8	*****	1.8	*
25.	* 330606.1	*****	1.8	*
26.	* 330611.3	*****	1.8	*
27.	* 330616.5	*****	1.8	*
28.	* 330621.7	*****	1.8	*
29.	* 330636.9	*****	1.8	*
30.	* 330630.7	*****	1.8	*
31.	* 330624.5	*****	1.8	*
32.	* 330618.3	*****	1.8	*
33.	* 330612.2	*****	1.8	*
34.	* 330573.1	*****	1.8	*
35.	* 330543.1	*****	1.8	*
36.	* 330532.6	*****	1.8	*
37.	* 330503.9	*****	1.8	*
38.	* 330475.2	*****	1.8	*
39.	* 330494.5	*****	1.8	*
40.	* 330523.2	*****	1.8	*

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JOB: ONE POST OFFICE SQUARE - INTERS. #52

RUN: 2024 NO-BUILD AM PEAK HOUR

DATE : 08/30/ 0  
TIME : 10:36:11

RECEPTOR LOCATIONS

RECEPTOR	* X	Y	Z	*
41.	* 330535.9	*****	1.8	*
42.	* 330565.9	*****	1.8	*
43.	* 330595.9	*****	1.8	*









Run Began on 8/30/2017 at 10:45:34

JOB: ONE POST OFFICE SQUARE - INTERS. #52

RUN: 2024 NO-BUILD PM PEAK HOUR

DATE : 08/30/ 0  
TIME : 10:45:34

The MODE flag has been set to C for calculating CO averages.

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 321. CM  
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 0.0 PPM

LINK VARIABLES

LINK DESCRIPTION	* X1	Y1	X2	Y2	* LENGTH (M)	BRG TYPE (DEG)	VPH	EF (G/MI)	H (M)	W (M)	V/C	QUEUE (VEH)
1. QUEUE STATE WBL	* 330630.7	*****	330650.1	*****	* 20.	79. AG	10.	100.0	0.0	3.7	0.52	3.3
2. QUEUE STATE WBTR	* 330629.3	*****	330963.0	*****	* 339.	80. AG	20.	100.0	0.0	7.3	1.33	56.5
3. FREE STATE WB	* 330619.7	*****	330904.0	*****	* 289.	80. AG	860.	2.0	0.0	17.0		
4. QUEUE CONGRESS NB	* 330621.8	*****	330629.8	*****	* 41.	169. AG	17.	100.0	0.0	6.0	0.72	6.8
5. FREE CONGRESS NB1	* 330619.2	*****	330649.7	*****	* 155.	169. AG	735.	2.0	0.0	12.0		
6. FREE CONGRESS NB1	* 330649.7	*****	330747.9	*****	* 169.	144. AG	735.	2.0	0.0	12.0		
7. QUEUE CONGRESS SBTR	* 330605.5	*****	330598.2	*****	* 38.	349. AG	17.	100.0	0.0	6.5	0.70	6.3
8. QUEUE CONGRESS SBR2	* 330599.4	*****	330592.8	*****	* 36.	349. AG	8.	100.0	0.0	3.9	0.76	6.0
9. FREE CONGRESS SB1	* 330605.3	*****	330560.4	*****	* 250.	350. AG	993.	2.0	0.0	15.4		
10. FREE CONGRESS SB1	* 330560.4	*****	330529.3	*****	* 87.	339. AG	993.	2.0	0.0	15.4		
11. FREE CONGRESS NB2	* 330616.0	*****	330572.1	*****	* 252.	350. AG	925.	2.0	0.0	15.8		
12. FREE CONGRESS NB2	* 330572.1	*****	330544.8	*****	* 85.	341. AG	925.	2.0	0.0	15.8		
13. FREE CONGRESS SB2	* 330611.0	*****	330642.9	*****	* 155.	168. AG	622.	2.0	0.0	12.0		
14. FREE CONGRESS SB2	* 330642.9	*****	330650.4	*****	* 77.	174. AG	622.	2.0	0.0	12.0		
15. FREE CONGRESS SB2	* 330650.4	*****	330666.5	*****	* 76.	168. AG	622.	2.0	0.0	12.0		
16. FREE STATE WB2	* 330603.1	*****	330534.8	*****	* 68.	270. AG	844.	2.0	0.0	15.0		
17. FREE STATE WB2	* 330534.8	*****	330462.8	*****	* 75.	287. AG	844.	2.0	0.0	15.0		
18. FREE STATE WB2	* 330462.8	*****	330379.1	*****	* 96.	299. AG	844.	2.0	0.0	15.0		
19. FREE STATE WB2	* 330379.1	*****	330363.3	*****	* 68.	347. AG	844.	2.0	0.0	15.0		
20. FREE DEVONSHIRE SB	* 330606.9	*****	330576.0	*****	* 46.	222. AG	197.	2.0	0.0	11.0		
21. FREE DEVONSHIRE SB	* 330576.0	*****	330565.4	*****	* 275.	182. AG	197.	2.0	0.0	11.0		

PAGE 2

JOB: ONE POST OFFICE SQUARE - INTERS. #52

RUN: 2024 NO-BUILD PM PEAK HOUR

DATE : 08/30/ 0  
TIME : 10:45:34

ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	* CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM PAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE
1. QUEUE STATE WBL	* 110	81	7.0	146	1560	5.13	2	3
2. QUEUE STATE WBTR	* 110	81	7.0	714	1476	5.13	2	3
4. QUEUE CONGRESS NB	* 110	67	4.0	735	1516	5.13	2	3
7. QUEUE CONGRESS SBTR	* 110	67	4.0	673	1426	5.13	2	3
8. QUEUE CONGRESS SBR2	* 110	67	4.0	320	1254	5.13	2	3

RECEPTOR LOCATIONS

RECEPTOR	* X	Y	Z	*
1.	* 330647.7	*****	1.8	*
2.	* 330677.2	*****	1.8	*
3.	* 330706.8	*****	1.8	*
4.	* 330736.3	*****	1.8	*
5.	* 330765.8	*****	1.8	*
6.	* 330787.4	*****	1.8	*
7.	* 330757.9	*****	1.8	*
8.	* 330728.4	*****	1.8	*
9.	* 330698.8	*****	1.8	*
10.	* 330669.3	*****	1.8	*
11.	* 330639.8	*****	1.8	*
12.	* 330631.1	*****	1.8	*
13.	* 330637.0	*****	1.8	*
14.	* 330642.9	*****	1.8	*
15.	* 330648.9	*****	1.8	*
16.	* 330654.8	*****	1.8	*
17.	* 330655.4	*****	1.8	*
18.	* 330592.2	*****	1.8	*
19.	* 330586.8	*****	1.8	*
20.	* 330581.4	*****	1.8	*
21.	* 330576.1	*****	1.8	*
22.	* 330570.7	*****	1.8	*
23.	* 330595.6	*****	1.8	*
24.	* 330600.8	*****	1.8	*
25.	* 330606.1	*****	1.8	*
26.	* 330611.3	*****	1.8	*
27.	* 330616.5	*****	1.8	*
28.	* 330621.7	*****	1.8	*
29.	* 330636.9	*****	1.8	*
30.	* 330630.7	*****	1.8	*
31.	* 330624.5	*****	1.8	*
32.	* 330618.3	*****	1.8	*
33.	* 330612.2	*****	1.8	*
34.	* 330573.1	*****	1.8	*
35.	* 330543.1	*****	1.8	*
36.	* 330532.6	*****	1.8	*
37.	* 330503.9	*****	1.8	*
38.	* 330475.2	*****	1.8	*
39.	* 330494.5	*****	1.8	*
40.	* 330523.2	*****	1.8	*

PAGE 3

JOB: ONE POST OFFICE SQUARE - INTERS. #52

RUN: 2024 NO-BUILD PM PEAK HOUR

DATE : 08/30/ 0  
TIME : 10:45:34

RECEPTOR LOCATIONS

RECEPTOR	* X	Y	Z	*
41.	* 330535.9	*****	1.8	*
42.	* 330565.9	*****	1.8	*
43.	* 330595.9	*****	1.8	*









Run Began on 9/01/2017 at 15:49:20

JOB: ONE POST OFFICE SQUARE - INTERS. #914

RUN: 2024 BUILD AM PEAK HOUR

DATE : 09/01/ 0  
TIME : 15:49:20

The MODE flag has been set to C for calculating CO averages.

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 321. CM  
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 0.0 PPM

LINK VARIABLES

LINK DESCRIPTION	*	X1	Y1	X2	Y2	*	LENGTH (M)	BRG TYPE (DEG)	VPH	EF (G/MI)	H (M)	W (M)	V/C QUEUE (VEH)
1. UNSIG QUEUE WATER EB*	*	330724.6	*****	330717.2	*****	*	8.	255. AG	92.	3.9	0.0	3.0	
2. UNSIG QUEUE WATER WB*	*	330733.2	*****	330738.5	*****	*	6.	57. AG	21.	3.9	0.0	3.0	
3. FREE WATER EB	*	330727.3	*****	330644.6	*****	*	85.	256. AG	92.	2.0	0.0	9.1	
4. FREE WATER EB	*	330644.6	*****	330565.7	*****	*	79.	270. AG	92.	2.0	0.0	9.1	
5. FREE WATER EB	*	330565.7	*****	330504.6	*****	*	62.	280. AG	92.	2.0	0.0	9.1	
6. FREE WATER EB	*	330504.6	*****	330465.1	*****	*	74.	212. AG	92.	2.0	0.0	9.1	
7. FREE WATER WB	*	330730.1	*****	330829.3	*****	*	117.	58. AG	21.	2.0	0.0	9.1	
8. FREE WATER WB	*	330829.3	*****	330797.2	*****	*	102.	342. AG	21.	2.0	0.0	9.1	
9. FREE WATER WB	*	330797.2	*****	330885.8	*****	*	90.	80. AG	21.	2.0	0.0	9.1	
10. FREE KILBY NB	*	330732.4	*****	330940.0	*****	*	314.	139. AG	198.	2.0	0.0	9.1	
11. FREE KILBY NB2	*	330730.7	*****	330688.1	*****	*	138.	342. AG	187.	2.0	0.0	9.1	
12. FREE KILBY NB2	*	330688.1	*****	330614.5	*****	*	74.	262. AG	187.	2.0	0.0	9.1	
13. FREE KILBY NB2	*	330614.5	*****	330534.9	*****	*	80.	267. AG	187.	2.0	0.0	9.1	
14. FREE KILBY NB2	*	330534.9	*****	330502.4	*****	*	34.	285. AG	187.	2.0	0.0	9.1	
15. FREE WATER EB2	*	330734.3	*****	330761.2	*****	*	30.	64. AG	72.	2.0	0.0	9.1	
16. FREE WATER EB2	*	330761.2	*****	330872.3	*****	*	126.	118. AG	72.	2.0	0.0	9.1	
17. FREE WATER EB2	*	330872.3	*****	330939.7	*****	*	130.	149. AG	72.	2.0	0.0	9.1	
18. FREE WATER EB2	*	330939.7	*****	330981.4	*****	*	44.	71. AG	72.	2.0	0.0	9.1	
19. FREE KILBY SB	*	330731.2	*****	330749.4	*****	*	71.	165. AG	52.	2.0	0.0	9.1	
20. FREE KILBY SB	*	330749.4	*****	330908.8	*****	*	215.	48. AG	52.	2.0	0.0	9.1	
21. FREE KILBY SB	*	330908.8	*****	330876.2	*****	*	44.	312. AG	52.	2.0	0.0	9.1	

PAGE 2

JOB: ONE POST OFFICE SQUARE - INTERS. #914

RUN: 2024 BUILD AM PEAK HOUR

DATE : 09/01/ 0  
TIME : 15:49:20

ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	*	CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM PAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE
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RECEPTOR LOCATIONS

RECEPTOR	*	X	Y	Z	*
1.	*	330726.8	*****	1.8	*
2.	*	330699.4	*****	1.8	*
3.	*	330670.3	*****	1.8	*
4.	*	330644.6	*****	1.8	*
5.	*	330644.0	*****	1.8	*
6.	*	330673.1	*****	1.8	*
7.	*	330702.2	*****	1.8	*
8.	*	330723.9	*****	1.8	*
9.	*	330753.0	*****	1.8	*
10.	*	330778.4	*****	1.8	*
11.	*	330803.8	*****	1.8	*
12.	*	330806.4	*****	1.8	*
13.	*	330781.0	*****	1.8	*
14.	*	330734.3	*****	1.8	*
15.	*	330755.7	*****	1.8	*
16.	*	330777.6	*****	1.8	*
17.	*	330757.7	*****	1.8	*
18.	*	330740.1	*****	1.8	*
19.	*	330717.0	*****	1.8	*
20.	*	330707.8	*****	1.8	*
21.	*	330698.5	*****	1.8	*
22.	*	330701.8	*****	1.8	*
23.	*	330711.0	*****	1.8	*
24.	*	330720.3	*****	1.8	*
25.	*	330729.6	*****	1.8	*
26.	*	330765.6	*****	1.8	*
27.	*	330789.8	*****	1.8	*
28.	*	330809.8	*****	1.8	*
29.	*	330816.1	*****	1.8	*
30.	*	330789.6	*****	1.8	*
31.	*	330763.1	*****	1.8	*
32.	*	330742.2	*****	1.8	*
33.	*	330743.3	*****	1.8	*
34.	*	330751.0	*****	1.8	*
35.	*	330751.9	*****	1.8	*
36.	*	330774.3	*****	1.8	*
37.	*	330796.4	*****	1.8	*
38.	*	330818.6	*****	1.8	*
39.	*	330823.0	*****	1.8	*
40.	*	330800.8	*****	1.8	*
41.	*	330782.1	*****	1.8	*
42.	*	330756.3	*****	1.8	*
43.	*	330744.9	*****	1.8	*
44.	*	330737.3	*****	1.8	*
45.	*	330729.6	*****	1.8	*

PAGE 3

JOB: ONE POST OFFICE SQUARE - INTERS. #914

RUN: 2024 BUILD AM PEAK HOUR

MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

WIND \* CONCENTRATION  
ANGLE \* (PPM)





4	*	0.0	0.0	0.0	0.0	0.0
5	*	0.0	0.0	0.0	0.0	0.0
6	*	0.0	0.0	0.0	0.0	0.0
7	*	0.0	0.0	0.0	0.0	0.0
8	*	0.0	0.0	0.0	0.0	0.0
9	*	0.0	0.0	0.0	0.0	0.0
10	*	0.0	0.0	0.0	0.0	0.0
11	*	0.0	0.0	0.0	0.0	0.0
12	*	0.0	0.0	0.0	0.0	0.0
13	*	0.0	0.0	0.0	0.0	0.0
14	*	0.0	0.0	0.0	0.0	0.0
15	*	0.0	0.0	0.0	0.0	0.0
16	*	0.0	0.0	0.0	0.0	0.0
17	*	0.0	0.0	0.0	0.0	0.0
18	*	0.0	0.0	0.0	0.0	0.0
19	*	0.0	0.0	0.0	0.0	0.0
20	*	0.0	0.0	0.0	0.0	0.0
21	*	0.0	0.0	0.0	0.0	0.0

Run Began on 9/01/2017 at 15:55:25

JOB: ONE POST OFFICE SQUARE - INTERS. #914

RUN: 2024 BUILD PM PEAK HOUR

DATE : 09/01/ 0  
TIME : 15:55:25

The MODE flag has been set to C for calculating CO averages.

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 321. CM  
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 0.0 PPM

LINK VARIABLES

LINK DESCRIPTION	*	X1	Y1	X2	Y2	LENGTH (M)	BRG TYPE (DEG)	VPH	EF (G/MI)	H (M)	W (M)	V/C QUEUE (VEH)
1. UNSIG QUEUE WATER EB*	*	330724.6	*****	330711.9	*****	13.	255. AG	160.	3.9	0.0	3.0	
2. UNSIG QUEUE WATER WB*	*	330733.2	*****	330736.0	*****	3.	55. AG	9.	3.9	0.0	3.0	
3. FREE WATER EB	*	330727.3	*****	330644.6	*****	85.	256. AG	151.	2.0	0.0	9.1	
4. FREE WATER EB	*	330644.6	*****	330565.7	*****	79.	270. AG	151.	2.0	0.0	9.1	
5. FREE WATER EB	*	330565.7	*****	330504.6	*****	62.	280. AG	151.	2.0	0.0	9.1	
6. FREE WATER EB	*	330504.6	*****	330465.1	*****	74.	212. AG	151.	2.0	0.0	9.1	
7. FREE WATER WB	*	330730.1	*****	330829.3	*****	117.	58. AG	9.	2.0	0.0	9.1	
8. FREE WATER WB	*	330829.3	*****	330797.2	*****	102.	342. AG	9.	2.0	0.0	9.1	
9. FREE WATER WB	*	330797.2	*****	330885.8	*****	90.	80. AG	9.	2.0	0.0	9.1	
10. FREE KILBY NB	*	330732.4	*****	330940.0	*****	314.	139. AG	275.	2.0	0.0	9.1	
11. FREE KILBY NB2	*	330730.7	*****	330688.1	*****	138.	342. AG	297.	2.0	0.0	9.1	
12. FREE KILBY NB2	*	330688.1	*****	330614.5	*****	74.	262. AG	297.	2.0	0.0	9.1	
13. FREE KILBY NB2	*	330614.5	*****	330534.9	*****	80.	267. AG	297.	2.0	0.0	9.1	
14. FREE KILBY NB2	*	330534.9	*****	330502.4	*****	34.	285. AG	297.	2.0	0.0	9.1	
15. FREE WATER EB2	*	330734.3	*****	330761.2	*****	30.	64. AG	90.	2.0	0.0	9.1	
16. FREE WATER EB2	*	330761.2	*****	330872.3	*****	126.	118. AG	90.	2.0	0.0	9.1	
17. FREE WATER EB2	*	330872.3	*****	330939.7	*****	130.	149. AG	90.	2.0	0.0	9.1	
18. FREE WATER EB2	*	330939.7	*****	330981.4	*****	44.	71. AG	90.	2.0	0.0	9.1	
19. FREE KILBY SB	*	330731.2	*****	330749.4	*****	71.	165. AG	48.	2.0	0.0	9.1	
20. FREE KILBY SB	*	330749.4	*****	330908.8	*****	215.	48. AG	48.	2.0	0.0	9.1	
21. FREE KILBY SB	*	330908.8	*****	330876.2	*****	44.	312. AG	48.	2.0	0.0	9.1	

PAGE 2

JOB: ONE POST OFFICE SQUARE - INTERS. #914

RUN: 2024 BUILD PM PEAK HOUR

DATE : 09/01/ 0  
TIME : 15:55:25

ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	*	CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM PAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE
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RECEPTOR LOCATIONS

RECEPTOR	*	X	Y	Z	*
1.	*	330726.8	*****	1.8	*
2.	*	330699.4	*****	1.8	*
3.	*	330670.3	*****	1.8	*
4.	*	330644.6	*****	1.8	*
5.	*	330644.0	*****	1.8	*
6.	*	330673.1	*****	1.8	*
7.	*	330702.2	*****	1.8	*
8.	*	330723.9	*****	1.8	*
9.	*	330753.0	*****	1.8	*
10.	*	330778.4	*****	1.8	*
11.	*	330803.8	*****	1.8	*
12.	*	330806.4	*****	1.8	*
13.	*	330781.0	*****	1.8	*
14.	*	330734.3	*****	1.8	*
15.	*	330755.7	*****	1.8	*
16.	*	330777.6	*****	1.8	*
17.	*	330757.7	*****	1.8	*
18.	*	330740.1	*****	1.8	*
19.	*	330717.0	*****	1.8	*
20.	*	330707.8	*****	1.8	*
21.	*	330698.5	*****	1.8	*
22.	*	330701.8	*****	1.8	*
23.	*	330711.0	*****	1.8	*
24.	*	330720.3	*****	1.8	*
25.	*	330729.6	*****	1.8	*
26.	*	330765.6	*****	1.8	*
27.	*	330789.8	*****	1.8	*
28.	*	330809.8	*****	1.8	*
29.	*	330816.1	*****	1.8	*
30.	*	330789.6	*****	1.8	*
31.	*	330763.1	*****	1.8	*
32.	*	330742.2	*****	1.8	*
33.	*	330743.3	*****	1.8	*
34.	*	330751.0	*****	1.8	*
35.	*	330751.9	*****	1.8	*
36.	*	330774.3	*****	1.8	*
37.	*	330796.4	*****	1.8	*
38.	*	330818.6	*****	1.8	*
39.	*	330823.0	*****	1.8	*
40.	*	330800.8	*****	1.8	*
41.	*	330782.1	*****	1.8	*
42.	*	330756.3	*****	1.8	*
43.	*	330744.9	*****	1.8	*
44.	*	330737.3	*****	1.8	*
45.	*	330729.6	*****	1.8	*

PAGE 3

JOB: ONE POST OFFICE SQUARE - INTERS. #914

RUN: 2024 BUILD PM PEAK HOUR

MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

WIND \* CONCENTRATION  
ANGLE \* (PPM)





Table with 5 columns of values, rows 80-350, and summary rows MAX and DEGR.

JOB: ONE POST OFFICE SQUARE - INTERS. #914 RUN: 2024 BUILD PM PEAK HOUR

DATE : 09/01/ 0 TIME : 15:55:25

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

Table with columns CO/LINK (PPM), ANGLE (DEGREES), and receptors REC1-REC20. Rows 1-21.

JOB: ONE POST OFFICE SQUARE - INTERS. #914 RUN: 2024 BUILD PM PEAK HOUR

DATE : 09/01/ 0 TIME : 15:55:25

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

Table with columns CO/LINK (PPM), ANGLE (DEGREES), and receptors REC21-REC40. Rows 1-21.

JOB: ONE POST OFFICE SQUARE - INTERS. #914 RUN: 2024 BUILD PM PEAK HOUR

DATE : 09/01/ 0 TIME : 15:55:25

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

Table with columns CO/LINK (PPM), ANGLE (DEGREES), and receptors REC41-REC45. Rows 1-3.

4	*	0.0	0.0	0.0	0.0	0.0
5	*	0.0	0.0	0.0	0.0	0.0
6	*	0.0	0.0	0.0	0.0	0.0
7	*	0.0	0.0	0.0	0.0	0.0
8	*	0.0	0.0	0.0	0.0	0.0
9	*	0.0	0.0	0.0	0.0	0.0
10	*	0.0	0.0	0.0	0.0	0.0
11	*	0.0	0.0	0.0	0.0	0.0
12	*	0.0	0.0	0.0	0.0	0.0
13	*	0.0	0.0	0.0	0.0	0.0
14	*	0.0	0.0	0.0	0.0	0.0
15	*	0.0	0.0	0.0	0.0	0.0
16	*	0.0	0.0	0.0	0.0	0.0
17	*	0.0	0.0	0.0	0.0	0.0
18	*	0.0	0.0	0.0	0.0	0.0
19	*	0.0	0.0	0.0	0.0	0.0
20	*	0.0	0.0	0.0	0.0	0.0
21	*	0.0	0.0	0.0	0.0	0.0

Run Began on 9/01/2017 at 16:00:24

JOB: ONE POST OFFICE SQUARE - INTERS. #914

RUN: 2024 BUILD-MITIGATED AM PEAK HOUR

DATE : 09/01/ 0  
TIME : 16:00:24

The MODE flag has been set to C for calculating CO averages.

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 321. CM  
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 0.0 PPM

LINK VARIABLES

LINK DESCRIPTION	*	X1	Y1	X2	Y2	*	LENGTH (M)	BRG TYPE (DEG)	VPH	EF (G/MI)	H (M)	W (M)	V/C QUEUE (VEH)
1. UNSIG QUEUE WATER EB*	*	330724.6	*****	330717.2	*****	*	8.	255. AG	92.	3.9	0.0	3.0	
2. UNSIG QUEUE WATER WB*	*	330733.2	*****	330738.5	*****	*	6.	57. AG	21.	3.9	0.0	3.0	
3. FREE WATER EB	*	330727.3	*****	330644.6	*****	*	85.	256. AG	92.	2.0	0.0	9.1	
4. FREE WATER EB	*	330644.6	*****	330565.7	*****	*	79.	270. AG	92.	2.0	0.0	9.1	
5. FREE WATER EB	*	330565.7	*****	330504.6	*****	*	62.	280. AG	92.	2.0	0.0	9.1	
6. FREE WATER EB	*	330504.6	*****	330465.1	*****	*	74.	212. AG	92.	2.0	0.0	9.1	
7. FREE WATER WB	*	330730.1	*****	330829.3	*****	*	117.	58. AG	21.	2.0	0.0	9.1	
8. FREE WATER WB	*	330829.3	*****	330797.2	*****	*	102.	342. AG	21.	2.0	0.0	9.1	
9. FREE WATER WB	*	330797.2	*****	330885.8	*****	*	90.	80. AG	21.	2.0	0.0	9.1	
10. FREE KILBY NB	*	330732.4	*****	330940.0	*****	*	314.	139. AG	198.	2.0	0.0	9.1	
11. FREE KILBY NB2	*	330730.7	*****	330688.1	*****	*	138.	342. AG	187.	2.0	0.0	9.1	
12. FREE KILBY NB2	*	330688.1	*****	330614.5	*****	*	74.	262. AG	187.	2.0	0.0	9.1	
13. FREE KILBY NB2	*	330614.5	*****	330534.9	*****	*	80.	267. AG	187.	2.0	0.0	9.1	
14. FREE KILBY NB2	*	330534.9	*****	330502.4	*****	*	34.	285. AG	187.	2.0	0.0	9.1	
15. FREE WATER EB2	*	330734.3	*****	330761.2	*****	*	30.	64. AG	72.	2.0	0.0	9.1	
16. FREE WATER EB2	*	330761.2	*****	330872.3	*****	*	126.	118. AG	72.	2.0	0.0	9.1	
17. FREE WATER EB2	*	330872.3	*****	330939.7	*****	*	130.	149. AG	72.	2.0	0.0	9.1	
18. FREE WATER EB2	*	330939.7	*****	330981.4	*****	*	44.	71. AG	72.	2.0	0.0	9.1	
19. FREE KILBY SB	*	330731.2	*****	330749.4	*****	*	71.	165. AG	52.	2.0	0.0	9.1	
20. FREE KILBY SB	*	330749.4	*****	330908.8	*****	*	215.	48. AG	52.	2.0	0.0	9.1	
21. FREE KILBY SB	*	330908.8	*****	330876.2	*****	*	44.	312. AG	52.	2.0	0.0	9.1	

PAGE 2

JOB: ONE POST OFFICE SQUARE - INTERS. #914

RUN: 2024 BUILD-MITIGATED AM PEAK HOUR

DATE : 09/01/ 0  
TIME : 16:00:24

ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	*	CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM PAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE
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RECEPTOR LOCATIONS

RECEPTOR	*	X	Y	Z	*
1.	*	330726.8	*****	1.8	*
2.	*	330699.4	*****	1.8	*
3.	*	330670.3	*****	1.8	*
4.	*	330644.6	*****	1.8	*
5.	*	330644.0	*****	1.8	*
6.	*	330673.1	*****	1.8	*
7.	*	330702.2	*****	1.8	*
8.	*	330723.9	*****	1.8	*
9.	*	330753.0	*****	1.8	*
10.	*	330778.4	*****	1.8	*
11.	*	330803.8	*****	1.8	*
12.	*	330806.4	*****	1.8	*
13.	*	330781.0	*****	1.8	*
14.	*	330734.3	*****	1.8	*
15.	*	330755.7	*****	1.8	*
16.	*	330777.6	*****	1.8	*
17.	*	330757.7	*****	1.8	*
18.	*	330740.1	*****	1.8	*
19.	*	330717.0	*****	1.8	*
20.	*	330707.8	*****	1.8	*
21.	*	330698.5	*****	1.8	*
22.	*	330701.8	*****	1.8	*
23.	*	330711.0	*****	1.8	*
24.	*	330720.3	*****	1.8	*
25.	*	330729.6	*****	1.8	*
26.	*	330765.6	*****	1.8	*
27.	*	330789.8	*****	1.8	*
28.	*	330809.8	*****	1.8	*
29.	*	330816.1	*****	1.8	*
30.	*	330789.6	*****	1.8	*
31.	*	330763.1	*****	1.8	*
32.	*	330742.2	*****	1.8	*
33.	*	330743.3	*****	1.8	*
34.	*	330751.0	*****	1.8	*
35.	*	330751.9	*****	1.8	*
36.	*	330774.3	*****	1.8	*
37.	*	330796.4	*****	1.8	*
38.	*	330818.6	*****	1.8	*
39.	*	330823.0	*****	1.8	*
40.	*	330800.8	*****	1.8	*
41.	*	330782.1	*****	1.8	*
42.	*	330756.3	*****	1.8	*
43.	*	330744.9	*****	1.8	*
44.	*	330737.3	*****	1.8	*
45.	*	330729.6	*****	1.8	*

PAGE 3

JOB: ONE POST OFFICE SQUARE - INTERS. #914

RUN: 2024 BUILD-MITIGATED AM PEAK HOUR

MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

WIND \* CONCENTRATION  
ANGLE \* (PPM)

Table with columns (DEGR)\* REC1 through REC20. Rows 0-350 and MAX/DEGR. All values are 0.0.

JOB: ONE POST OFFICE SQUARE - INTERS. #914

RUN: 2024 BUILD-MITIGATED AM PEAK HOUR

MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

Table with columns WIND \* CONCENTRATION ANGLE \* (PPM) (DEGR)\* REC21 through REC40. Rows 0-350 and MAX/DEGR. All values are 0.0.

JOB: ONE POST OFFICE SQUARE - INTERS. #914

RUN: 2024 BUILD-MITIGATED AM PEAK HOUR

MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

Table with columns WIND \* CONCENTRATION ANGLE \* (PPM) (DEGR)\* REC41 through REC45. Rows 0-60. All values are 0.0.





4	*	0.0	0.0	0.0	0.0	0.0
5	*	0.0	0.0	0.0	0.0	0.0
6	*	0.0	0.0	0.0	0.0	0.0
7	*	0.0	0.0	0.0	0.0	0.0
8	*	0.0	0.0	0.0	0.0	0.0
9	*	0.0	0.0	0.0	0.0	0.0
10	*	0.0	0.0	0.0	0.0	0.0
11	*	0.0	0.0	0.0	0.0	0.0
12	*	0.0	0.0	0.0	0.0	0.0
13	*	0.0	0.0	0.0	0.0	0.0
14	*	0.0	0.0	0.0	0.0	0.0
15	*	0.0	0.0	0.0	0.0	0.0
16	*	0.0	0.0	0.0	0.0	0.0
17	*	0.0	0.0	0.0	0.0	0.0
18	*	0.0	0.0	0.0	0.0	0.0
19	*	0.0	0.0	0.0	0.0	0.0
20	*	0.0	0.0	0.0	0.0	0.0
21	*	0.0	0.0	0.0	0.0	0.0

Run Began on 9/01/2017 at 16:01:31

JOB: ONE POST OFFICE SQUARE - INTERS. #914

RUN: 2024 BUILD-MITIGATED PM PEAK HOUR

DATE : 09/01/ 0  
TIME : 16:01:31

The MODE flag has been set to C for calculating CO averages.

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 321. CM  
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 0.0 PPM

LINK VARIABLES

LINK DESCRIPTION	*	X1	Y1	X2	Y2	*	LENGTH (M)	BRG TYPE (DEG)	VPH	EF (G/MI)	H (M)	W (M)	V/C QUEUE (VEH)
1. UNSIG QUEUE WATER EB*	*	330724.6	*****	330711.9	*****	*	13.	255. AG	160.	3.9	0.0	3.0	
2. UNSIG QUEUE WATER WB*	*	330733.2	*****	330736.0	*****	*	3.	55. AG	9.	3.9	0.0	3.0	
3. FREE WATER EB	*	330727.3	*****	330644.6	*****	*	85.	256. AG	151.	2.0	0.0	9.1	
4. FREE WATER EB	*	330644.6	*****	330565.7	*****	*	79.	270. AG	151.	2.0	0.0	9.1	
5. FREE WATER EB	*	330565.7	*****	330504.6	*****	*	62.	280. AG	151.	2.0	0.0	9.1	
6. FREE WATER EB	*	330504.6	*****	330465.1	*****	*	74.	212. AG	151.	2.0	0.0	9.1	
7. FREE WATER WB	*	330730.1	*****	330829.3	*****	*	117.	58. AG	9.	2.0	0.0	9.1	
8. FREE WATER WB	*	330829.3	*****	330797.2	*****	*	102.	342. AG	9.	2.0	0.0	9.1	
9. FREE WATER WB	*	330797.2	*****	330885.8	*****	*	90.	80. AG	9.	2.0	0.0	9.1	
10. FREE KILBY NB	*	330732.4	*****	330940.0	*****	*	314.	139. AG	275.	2.0	0.0	9.1	
11. FREE KILBY NB2	*	330730.7	*****	330688.1	*****	*	138.	342. AG	297.	2.0	0.0	9.1	
12. FREE KILBY NB2	*	330688.1	*****	330614.5	*****	*	74.	262. AG	297.	2.0	0.0	9.1	
13. FREE KILBY NB2	*	330614.5	*****	330534.9	*****	*	80.	267. AG	297.	2.0	0.0	9.1	
14. FREE KILBY NB2	*	330534.9	*****	330502.4	*****	*	34.	285. AG	297.	2.0	0.0	9.1	
15. FREE WATER EB2	*	330734.3	*****	330761.2	*****	*	30.	64. AG	90.	2.0	0.0	9.1	
16. FREE WATER EB2	*	330761.2	*****	330872.3	*****	*	126.	118. AG	90.	2.0	0.0	9.1	
17. FREE WATER EB2	*	330872.3	*****	330939.7	*****	*	130.	149. AG	90.	2.0	0.0	9.1	
18. FREE WATER EB2	*	330939.7	*****	330981.4	*****	*	44.	71. AG	90.	2.0	0.0	9.1	
19. FREE KILBY SB	*	330731.2	*****	330749.4	*****	*	71.	165. AG	48.	2.0	0.0	9.1	
20. FREE KILBY SB	*	330749.4	*****	330908.8	*****	*	215.	48. AG	48.	2.0	0.0	9.1	
21. FREE KILBY SB	*	330908.8	*****	330876.2	*****	*	44.	312. AG	48.	2.0	0.0	9.1	

PAGE 2

JOB: ONE POST OFFICE SQUARE - INTERS. #914

RUN: 2024 BUILD-MITIGATED PM PEAK HOUR

DATE : 09/01/ 0  
TIME : 16:01:31

ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	*	CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM PAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE
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RECEPTOR LOCATIONS

RECEPTOR	*	X	Y	Z	*
1.	*	330726.8	*****	1.8	*
2.	*	330699.4	*****	1.8	*
3.	*	330670.3	*****	1.8	*
4.	*	330644.6	*****	1.8	*
5.	*	330644.0	*****	1.8	*
6.	*	330673.1	*****	1.8	*
7.	*	330702.2	*****	1.8	*
8.	*	330723.9	*****	1.8	*
9.	*	330753.0	*****	1.8	*
10.	*	330778.4	*****	1.8	*
11.	*	330803.8	*****	1.8	*
12.	*	330806.4	*****	1.8	*
13.	*	330781.0	*****	1.8	*
14.	*	330734.3	*****	1.8	*
15.	*	330755.7	*****	1.8	*
16.	*	330777.6	*****	1.8	*
17.	*	330757.7	*****	1.8	*
18.	*	330740.1	*****	1.8	*
19.	*	330717.0	*****	1.8	*
20.	*	330707.8	*****	1.8	*
21.	*	330698.5	*****	1.8	*
22.	*	330701.8	*****	1.8	*
23.	*	330711.0	*****	1.8	*
24.	*	330720.3	*****	1.8	*
25.	*	330729.6	*****	1.8	*
26.	*	330765.6	*****	1.8	*
27.	*	330789.8	*****	1.8	*
28.	*	330809.8	*****	1.8	*
29.	*	330816.1	*****	1.8	*
30.	*	330789.6	*****	1.8	*
31.	*	330763.1	*****	1.8	*
32.	*	330742.2	*****	1.8	*
33.	*	330743.3	*****	1.8	*
34.	*	330751.0	*****	1.8	*
35.	*	330751.9	*****	1.8	*
36.	*	330774.3	*****	1.8	*
37.	*	330796.4	*****	1.8	*
38.	*	330818.6	*****	1.8	*
39.	*	330823.0	*****	1.8	*
40.	*	330800.8	*****	1.8	*
41.	*	330782.1	*****	1.8	*
42.	*	330756.3	*****	1.8	*
43.	*	330744.9	*****	1.8	*
44.	*	330737.3	*****	1.8	*
45.	*	330729.6	*****	1.8	*

PAGE 3

JOB: ONE POST OFFICE SQUARE - INTERS. #914

RUN: 2024 BUILD-MITIGATED PM PEAK HOUR

MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

WIND \* CONCENTRATION  
ANGLE \* (PPM)



Table with columns 80-350 and rows 0.0-0.0, MAX, DEGR.

JOB: ONE POST OFFICE SQUARE - INTERS. #914 RUN: 2024 BUILD-MITIGATED PM PEAK HOUR

DATE : 09/01/ 0 TIME : 16:01:31

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

Table with columns LINK #, CO/LINK (PPM), ANGLE (DEGREES), REC1-REC20.

JOB: ONE POST OFFICE SQUARE - INTERS. #914 RUN: 2024 BUILD-MITIGATED PM PEAK HOUR

DATE : 09/01/ 0 TIME : 16:01:31

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

Table with columns LINK #, CO/LINK (PPM), ANGLE (DEGREES), REC21-REC40.

JOB: ONE POST OFFICE SQUARE - INTERS. #914 RUN: 2024 BUILD-MITIGATED PM PEAK HOUR

DATE : 09/01/ 0 TIME : 16:01:31

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

Table with columns LINK #, CO/LINK (PPM), ANGLE (DEGREES), REC41-REC45.

4	*	0.0	0.0	0.0	0.0	0.0
5	*	0.0	0.0	0.0	0.0	0.0
6	*	0.0	0.0	0.0	0.0	0.0
7	*	0.0	0.0	0.0	0.0	0.0
8	*	0.0	0.0	0.0	0.0	0.0
9	*	0.0	0.0	0.0	0.0	0.0
10	*	0.0	0.0	0.0	0.0	0.0
11	*	0.0	0.0	0.0	0.0	0.0
12	*	0.0	0.0	0.0	0.0	0.0
13	*	0.0	0.0	0.0	0.0	0.0
14	*	0.0	0.0	0.0	0.0	0.0
15	*	0.0	0.0	0.0	0.0	0.0
16	*	0.0	0.0	0.0	0.0	0.0
17	*	0.0	0.0	0.0	0.0	0.0
18	*	0.0	0.0	0.0	0.0	0.0
19	*	0.0	0.0	0.0	0.0	0.0
20	*	0.0	0.0	0.0	0.0	0.0
21	*	0.0	0.0	0.0	0.0	0.0

Run Began on 9/01/2017 at 15:20:53

JOB: ONE POST OFFICE SQUARE - INTERS. #914

RUN: 2017 EXISTING AM PEAK HOUR

DATE : 09/01/ 0  
TIME : 15:20:53

The MODE flag has been set to C for calculating CO averages.

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 321. CM  
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 0.0 PPM

LINK VARIABLES

LINK DESCRIPTION	*	X1	Y1	X2	Y2	LENGTH (M)	BRG TYPE (DEG)	VPH	EF (G/MI)	H (M)	W (M)	V/C QUEUE (VEH)
1. UNSIG QUEUE WATER EB*	*	330724.6	*****	330717.8	*****	7.	254. AG	84.	5.7	0.0	3.0	
2. UNSIG QUEUE WATER WB*	*	330733.2	*****	330737.2	*****	5.	53. AG	18.	5.7	0.0	3.0	
3. FREE WATER EB	*	330727.3	*****	330644.6	*****	85.	256. AG	84.	2.8	0.0	9.1	
4. FREE WATER EB	*	330644.6	*****	330565.7	*****	79.	270. AG	84.	2.8	0.0	9.1	
5. FREE WATER EB	*	330565.7	*****	330504.6	*****	62.	280. AG	84.	2.8	0.0	9.1	
6. FREE WATER EB	*	330504.6	*****	330465.1	*****	74.	212. AG	84.	2.8	0.0	9.1	
7. FREE WATER WB	*	330730.1	*****	330829.3	*****	117.	58. AG	18.	2.8	0.0	9.1	
8. FREE WATER WB	*	330829.3	*****	330797.2	*****	102.	342. AG	18.	2.8	0.0	9.1	
9. FREE WATER WB	*	330797.2	*****	330885.8	*****	90.	80. AG	18.	2.8	0.0	9.1	
10. FREE KILBY NB	*	330732.4	*****	330940.0	*****	314.	139. AG	195.	2.8	0.0	9.1	
11. FREE KILBY NB2	*	330730.7	*****	330688.1	*****	138.	342. AG	184.	2.8	0.0	9.1	
12. FREE KILBY NB2	*	330688.1	*****	330614.5	*****	74.	262. AG	184.	2.8	0.0	9.1	
13. FREE KILBY NB2	*	330614.5	*****	330534.9	*****	80.	267. AG	184.	2.8	0.0	9.1	
14. FREE KILBY NB2	*	330534.9	*****	330502.4	*****	34.	285. AG	184.	2.8	0.0	9.1	
15. FREE WATER EB2	*	330734.3	*****	330761.2	*****	30.	64. AG	71.	2.8	0.0	9.1	
16. FREE WATER EB2	*	330761.2	*****	330872.3	*****	126.	118. AG	71.	2.8	0.0	9.1	
17. FREE WATER EB2	*	330872.3	*****	330939.7	*****	130.	149. AG	71.	2.8	0.0	9.1	
18. FREE WATER EB2	*	330939.7	*****	330981.4	*****	44.	71. AG	71.	2.8	0.0	9.1	
19. FREE KILBY SB	*	330731.2	*****	330749.4	*****	71.	165. AG	42.	2.8	0.0	9.1	
20. FREE KILBY SB	*	330749.4	*****	330908.8	*****	215.	48. AG	42.	2.8	0.0	9.1	
21. FREE KILBY SB	*	330908.8	*****	330876.2	*****	44.	312. AG	42.	2.8	0.0	9.1	

PAGE 2

JOB: ONE POST OFFICE SQUARE - INTERS. #914

RUN: 2017 EXISTING AM PEAK HOUR

DATE : 09/01/ 0  
TIME : 15:20:53

ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	*	CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM PAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE
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RECEPTOR LOCATIONS

RECEPTOR	*	X	Y	Z	*
1.	*	330726.8	*****	1.8	*
2.	*	330699.4	*****	1.8	*
3.	*	330670.3	*****	1.8	*
4.	*	330644.6	*****	1.8	*
5.	*	330644.0	*****	1.8	*
6.	*	330673.1	*****	1.8	*
7.	*	330702.2	*****	1.8	*
8.	*	330723.9	*****	1.8	*
9.	*	330753.0	*****	1.8	*
10.	*	330778.4	*****	1.8	*
11.	*	330803.8	*****	1.8	*
12.	*	330806.4	*****	1.8	*
13.	*	330781.0	*****	1.8	*
14.	*	330734.3	*****	1.8	*
15.	*	330755.7	*****	1.8	*
16.	*	330777.6	*****	1.8	*
17.	*	330757.7	*****	1.8	*
18.	*	330740.1	*****	1.8	*
19.	*	330717.0	*****	1.8	*
20.	*	330707.8	*****	1.8	*
21.	*	330698.5	*****	1.8	*
22.	*	330701.8	*****	1.8	*
23.	*	330711.0	*****	1.8	*
24.	*	330720.3	*****	1.8	*
25.	*	330729.6	*****	1.8	*
26.	*	330765.6	*****	1.8	*
27.	*	330789.8	*****	1.8	*
28.	*	330809.8	*****	1.8	*
29.	*	330816.1	*****	1.8	*
30.	*	330789.6	*****	1.8	*
31.	*	330763.1	*****	1.8	*
32.	*	330742.2	*****	1.8	*
33.	*	330743.3	*****	1.8	*
34.	*	330751.0	*****	1.8	*
35.	*	330751.9	*****	1.8	*
36.	*	330774.3	*****	1.8	*
37.	*	330796.4	*****	1.8	*
38.	*	330818.6	*****	1.8	*
39.	*	330823.0	*****	1.8	*
40.	*	330800.8	*****	1.8	*
41.	*	330782.1	*****	1.8	*
42.	*	330756.3	*****	1.8	*
43.	*	330744.9	*****	1.8	*
44.	*	330737.3	*****	1.8	*
45.	*	330729.6	*****	1.8	*

PAGE 3

JOB: ONE POST OFFICE SQUARE - INTERS. #914

RUN: 2017 EXISTING AM PEAK HOUR

MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

WIND \* CONCENTRATION  
ANGLE \* (PPM)







4	*	0.0	0.0	0.0	0.0	0.0
5	*	0.0	0.0	0.0	0.0	0.0
6	*	0.0	0.0	0.0	0.0	0.0
7	*	0.0	0.0	0.0	0.0	0.0
8	*	0.0	0.0	0.0	0.0	0.0
9	*	0.0	0.0	0.0	0.0	0.0
10	*	0.0	0.0	0.0	0.0	0.0
11	*	0.0	0.0	0.0	0.0	0.0
12	*	0.0	0.0	0.0	0.0	0.0
13	*	0.0	0.0	0.0	0.0	0.0
14	*	0.0	0.0	0.0	0.0	0.0
15	*	0.0	0.0	0.0	0.0	0.0
16	*	0.0	0.0	0.0	0.0	0.0
17	*	0.0	0.0	0.0	0.0	0.0
18	*	0.0	0.0	0.0	0.0	0.0
19	*	0.0	0.0	0.0	0.0	0.0
20	*	0.0	0.0	0.0	0.0	0.0
21	*	0.0	0.0	0.0	0.0	0.0

Run Began on 9/01/2017 at 15:28:46

JOB: ONE POST OFFICE SQUARE - INTERS. #914

RUN: 2017 EXISTING PM PEAK HOUR

DATE : 09/01/ 0  
TIME : 15:28:46

The MODE flag has been set to C for calculating CO averages.

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 321. CM  
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 0.0 PPM

LINK VARIABLES

LINK DESCRIPTION	*	X1	Y1	X2	Y2	*	LENGTH (M)	BRG TYPE (DEG)	VPH	EF (G/MI)	H (M)	W (M)	V/C QUEUE (VEH)
1. UNSIG QUEUE WATER EB*	*	330724.6	*****	330713.4	*****	*	12.	255. AG	145.	5.7	0.0	3.0	
2. UNSIG QUEUE WATER WB*	*	330733.2	*****	330735.9	*****	*	3.	54. AG	9.	5.7	0.0	3.0	
3. FREE WATER EB	*	330727.3	*****	330644.6	*****	*	85.	256. AG	145.	2.8	0.0	9.1	
4. FREE WATER EB	*	330644.6	*****	330565.7	*****	*	79.	270. AG	145.	2.8	0.0	9.1	
5. FREE WATER EB	*	330565.7	*****	330504.6	*****	*	62.	280. AG	145.	2.8	0.0	9.1	
6. FREE WATER EB	*	330504.6	*****	330465.1	*****	*	74.	212. AG	145.	2.8	0.0	9.1	
7. FREE WATER WB	*	330730.1	*****	330829.3	*****	*	117.	58. AG	9.	2.8	0.0	9.1	
8. FREE WATER WB	*	330829.3	*****	330797.2	*****	*	102.	342. AG	9.	2.8	0.0	9.1	
9. FREE WATER WB	*	330797.2	*****	330885.8	*****	*	90.	80. AG	9.	2.8	0.0	9.1	
10. FREE KILBY NB	*	330732.4	*****	330940.0	*****	*	314.	139. AG	250.	2.8	0.0	9.1	
11. FREE KILBY NB2	*	330730.7	*****	330688.1	*****	*	138.	342. AG	271.	2.8	0.0	9.1	
12. FREE KILBY NB2	*	330688.1	*****	330614.5	*****	*	74.	262. AG	271.	2.8	0.0	9.1	
13. FREE KILBY NB2	*	330614.5	*****	330534.9	*****	*	80.	267. AG	271.	2.8	0.0	9.1	
14. FREE KILBY NB2	*	330534.9	*****	330502.4	*****	*	34.	285. AG	271.	2.8	0.0	9.1	
15. FREE WATER EB2	*	330734.3	*****	330761.2	*****	*	30.	64. AG	89.	2.8	0.0	9.1	
16. FREE WATER EB2	*	330761.2	*****	330872.3	*****	*	126.	118. AG	89.	2.8	0.0	9.1	
17. FREE WATER EB2	*	330872.3	*****	330939.7	*****	*	130.	149. AG	89.	2.8	0.0	9.1	
18. FREE WATER EB2	*	330939.7	*****	330981.4	*****	*	44.	71. AG	89.	2.8	0.0	9.1	
19. FREE KILBY SB	*	330731.2	*****	330749.4	*****	*	71.	165. AG	44.	2.8	0.0	9.1	
20. FREE KILBY SB	*	330749.4	*****	330908.8	*****	*	215.	48. AG	44.	2.8	0.0	9.1	
21. FREE KILBY SB	*	330908.8	*****	330876.2	*****	*	44.	312. AG	44.	2.8	0.0	9.1	

PAGE 2

JOB: ONE POST OFFICE SQUARE - INTERS. #914

RUN: 2017 EXISTING PM PEAK HOUR

DATE : 09/01/ 0  
TIME : 15:28:46

ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	*	CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM PAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE
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RECEPTOR LOCATIONS

RECEPTOR	*	X	Y	Z	*
1.	*	330726.8	*****	1.8	*
2.	*	330699.4	*****	1.8	*
3.	*	330670.3	*****	1.8	*
4.	*	330644.6	*****	1.8	*
5.	*	330644.0	*****	1.8	*
6.	*	330673.1	*****	1.8	*
7.	*	330702.2	*****	1.8	*
8.	*	330723.9	*****	1.8	*
9.	*	330753.0	*****	1.8	*
10.	*	330778.4	*****	1.8	*
11.	*	330803.8	*****	1.8	*
12.	*	330806.4	*****	1.8	*
13.	*	330781.0	*****	1.8	*
14.	*	330734.3	*****	1.8	*
15.	*	330755.7	*****	1.8	*
16.	*	330777.6	*****	1.8	*
17.	*	330757.7	*****	1.8	*
18.	*	330740.1	*****	1.8	*
19.	*	330717.0	*****	1.8	*
20.	*	330707.8	*****	1.8	*
21.	*	330698.5	*****	1.8	*
22.	*	330701.8	*****	1.8	*
23.	*	330711.0	*****	1.8	*
24.	*	330720.3	*****	1.8	*
25.	*	330729.6	*****	1.8	*
26.	*	330765.6	*****	1.8	*
27.	*	330789.8	*****	1.8	*
28.	*	330809.8	*****	1.8	*
29.	*	330816.1	*****	1.8	*
30.	*	330789.6	*****	1.8	*
31.	*	330763.1	*****	1.8	*
32.	*	330742.2	*****	1.8	*
33.	*	330743.3	*****	1.8	*
34.	*	330751.0	*****	1.8	*
35.	*	330751.9	*****	1.8	*
36.	*	330774.3	*****	1.8	*
37.	*	330796.4	*****	1.8	*
38.	*	330818.6	*****	1.8	*
39.	*	330823.0	*****	1.8	*
40.	*	330800.8	*****	1.8	*
41.	*	330782.1	*****	1.8	*
42.	*	330756.3	*****	1.8	*
43.	*	330744.9	*****	1.8	*
44.	*	330737.3	*****	1.8	*
45.	*	330729.6	*****	1.8	*

PAGE 3

JOB: ONE POST OFFICE SQUARE - INTERS. #914

RUN: 2017 EXISTING PM PEAK HOUR

MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

WIND \* CONCENTRATION  
ANGLE \* (PPM)







4	*	0.0	0.0	0.0	0.0	0.0
5	*	0.0	0.0	0.0	0.0	0.0
6	*	0.0	0.0	0.0	0.0	0.0
7	*	0.0	0.0	0.0	0.0	0.0
8	*	0.0	0.0	0.0	0.0	0.0
9	*	0.0	0.0	0.0	0.0	0.0
10	*	0.0	0.0	0.0	0.0	0.0
11	*	0.0	0.0	0.0	0.0	0.0
12	*	0.0	0.0	0.0	0.0	0.0
13	*	0.0	0.0	0.0	0.0	0.0
14	*	0.0	0.0	0.0	0.0	0.0
15	*	0.0	0.0	0.0	0.0	0.0
16	*	0.0	0.0	0.0	0.0	0.0
17	*	0.0	0.0	0.0	0.0	0.0
18	*	0.0	0.0	0.0	0.0	0.0
19	*	0.0	0.0	0.0	0.0	0.0
20	*	0.0	0.0	0.0	0.0	0.0
21	*	0.0	0.0	0.0	0.0	0.0

Run Began on 9/01/2017 at 15:37:19

JOB: ONE POST OFFICE SQUARE - INTERS. #914

RUN: 2024 NO-BUILD AM PEAK HOUR

DATE : 09/01/ 0  
TIME : 15:37:19

The MODE flag has been set to C for calculating CO averages.

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 321. CM  
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 0.0 PPM

LINK VARIABLES

LINK DESCRIPTION	*	X1	Y1	X2	Y2	*	LENGTH (M)	BRG TYPE (DEG)	VPH	EF (G/MI)	H (M)	W (M)	V/C QUEUE (VEH)
1. UNSIG QUEUE WATER EB*	*	330724.6	*****	330717.5	*****	*	7.	254. AG	88.	3.9	0.0	3.0	
2. UNSIG QUEUE WATER WB*	*	330733.2	*****	330737.7	*****	*	5.	56. AG	19.	3.9	0.0	3.0	
3. FREE WATER EB	*	330727.3	*****	330644.6	*****	*	85.	256. AG	88.	2.0	0.0	9.1	
4. FREE WATER EB	*	330644.6	*****	330565.7	*****	*	79.	270. AG	88.	2.0	0.0	9.1	
5. FREE WATER EB	*	330565.7	*****	330504.6	*****	*	62.	280. AG	88.	2.0	0.0	9.1	
6. FREE WATER EB	*	330504.6	*****	330465.1	*****	*	74.	212. AG	88.	2.0	0.0	9.1	
7. FREE WATER WB	*	330730.1	*****	330829.3	*****	*	117.	58. AG	19.	2.0	0.0	9.1	
8. FREE WATER WB	*	330829.3	*****	330797.2	*****	*	102.	342. AG	19.	2.0	0.0	9.1	
9. FREE WATER WB	*	330797.2	*****	330885.8	*****	*	90.	80. AG	19.	2.0	0.0	9.1	
10. FREE KILBY NB	*	330732.4	*****	330940.0	*****	*	314.	139. AG	198.	2.0	0.0	9.1	
11. FREE KILBY NB2	*	330730.7	*****	330688.1	*****	*	138.	342. AG	187.	2.0	0.0	9.1	
12. FREE KILBY NB2	*	330688.1	*****	330614.5	*****	*	74.	262. AG	187.	2.0	0.0	9.1	
13. FREE KILBY NB2	*	330614.5	*****	330534.9	*****	*	80.	267. AG	187.	2.0	0.0	9.1	
14. FREE KILBY NB2	*	330534.9	*****	330502.4	*****	*	34.	285. AG	187.	2.0	0.0	9.1	
15. FREE WATER EB2	*	330734.3	*****	330761.2	*****	*	30.	64. AG	72.	2.0	0.0	9.1	
16. FREE WATER EB2	*	330761.2	*****	330872.3	*****	*	126.	118. AG	72.	2.0	0.0	9.1	
17. FREE WATER EB2	*	330872.3	*****	330939.7	*****	*	130.	149. AG	72.	2.0	0.0	9.1	
18. FREE WATER EB2	*	330939.7	*****	330981.4	*****	*	44.	71. AG	72.	2.0	0.0	9.1	
19. FREE KILBY SB	*	330731.2	*****	330749.4	*****	*	71.	165. AG	46.	2.0	0.0	9.1	
20. FREE KILBY SB	*	330749.4	*****	330908.8	*****	*	215.	48. AG	46.	2.0	0.0	9.1	
21. FREE KILBY SB	*	330908.8	*****	330876.2	*****	*	44.	312. AG	46.	2.0	0.0	9.1	

PAGE 2

JOB: ONE POST OFFICE SQUARE - INTERS. #914

RUN: 2024 NO-BUILD AM PEAK HOUR

DATE : 09/01/ 0  
TIME : 15:37:19

ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	*	CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM PAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE
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RECEPTOR LOCATIONS

RECEPTOR	*	X	Y	Z	*
1.	*	330726.8	*****	1.8	*
2.	*	330699.4	*****	1.8	*
3.	*	330670.3	*****	1.8	*
4.	*	330644.6	*****	1.8	*
5.	*	330644.0	*****	1.8	*
6.	*	330673.1	*****	1.8	*
7.	*	330702.2	*****	1.8	*
8.	*	330723.9	*****	1.8	*
9.	*	330753.0	*****	1.8	*
10.	*	330778.4	*****	1.8	*
11.	*	330803.8	*****	1.8	*
12.	*	330806.4	*****	1.8	*
13.	*	330781.0	*****	1.8	*
14.	*	330734.3	*****	1.8	*
15.	*	330755.7	*****	1.8	*
16.	*	330777.6	*****	1.8	*
17.	*	330757.7	*****	1.8	*
18.	*	330740.1	*****	1.8	*
19.	*	330717.0	*****	1.8	*
20.	*	330707.8	*****	1.8	*
21.	*	330698.5	*****	1.8	*
22.	*	330701.8	*****	1.8	*
23.	*	330711.0	*****	1.8	*
24.	*	330720.3	*****	1.8	*
25.	*	330729.6	*****	1.8	*
26.	*	330765.6	*****	1.8	*
27.	*	330789.8	*****	1.8	*
28.	*	330809.8	*****	1.8	*
29.	*	330816.1	*****	1.8	*
30.	*	330789.6	*****	1.8	*
31.	*	330763.1	*****	1.8	*
32.	*	330742.2	*****	1.8	*
33.	*	330743.3	*****	1.8	*
34.	*	330751.0	*****	1.8	*
35.	*	330751.9	*****	1.8	*
36.	*	330774.3	*****	1.8	*
37.	*	330796.4	*****	1.8	*
38.	*	330818.6	*****	1.8	*
39.	*	330823.0	*****	1.8	*
40.	*	330800.8	*****	1.8	*
41.	*	330782.1	*****	1.8	*
42.	*	330756.3	*****	1.8	*
43.	*	330744.9	*****	1.8	*
44.	*	330737.3	*****	1.8	*
45.	*	330729.6	*****	1.8	*

PAGE 3

JOB: ONE POST OFFICE SQUARE - INTERS. #914

RUN: 2024 NO-BUILD AM PEAK HOUR

MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

WIND \* CONCENTRATION  
ANGLE \* (PPM)





4	*	0.0	0.0	0.0	0.0	0.0
5	*	0.0	0.0	0.0	0.0	0.0
6	*	0.0	0.0	0.0	0.0	0.0
7	*	0.0	0.0	0.0	0.0	0.0
8	*	0.0	0.0	0.0	0.0	0.0
9	*	0.0	0.0	0.0	0.0	0.0
10	*	0.0	0.0	0.0	0.0	0.0
11	*	0.0	0.0	0.0	0.0	0.0
12	*	0.0	0.0	0.0	0.0	0.0
13	*	0.0	0.0	0.0	0.0	0.0
14	*	0.0	0.0	0.0	0.0	0.0
15	*	0.0	0.0	0.0	0.0	0.0
16	*	0.0	0.0	0.0	0.0	0.0
17	*	0.0	0.0	0.0	0.0	0.0
18	*	0.0	0.0	0.0	0.0	0.0
19	*	0.0	0.0	0.0	0.0	0.0
20	*	0.0	0.0	0.0	0.0	0.0
21	*	0.0	0.0	0.0	0.0	0.0

Run Began on 9/01/2017 at 15:43:23

JOB: ONE POST OFFICE SQUARE - INTERS. #914

RUN: 2024 NO-BUILD PM PEAK HOUR

DATE : 09/01/ 0  
TIME : 15:43:23

The MODE flag has been set to C for calculating CO averages.

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 321. CM  
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 0.0 PPM

LINK VARIABLES

LINK DESCRIPTION	*	X1	Y1	X2	Y2	*	LENGTH (M)	BRG TYPE (DEG)	VPH	EF (G/MI)	H (M)	W (M)	V/C QUEUE (VEH)
1. UNSIG QUEUE WATER EB*	*	330724.6	*****	330712.2	*****	*	13.	254. AG	150.	3.9	0.0	3.0	
2. UNSIG QUEUE WATER WB*	*	330733.2	*****	330736.0	*****	*	3.	55. AG	9.	3.9	0.0	3.0	
3. FREE WATER EB	*	330727.3	*****	330644.6	*****	*	85.	256. AG	150.	2.0	0.0	9.1	
4. FREE WATER EB	*	330644.6	*****	330565.7	*****	*	79.	270. AG	150.	2.0	0.0	9.1	
5. FREE WATER EB	*	330565.7	*****	330504.6	*****	*	62.	280. AG	150.	2.0	0.0	9.1	
6. FREE WATER EB	*	330504.6	*****	330465.1	*****	*	74.	212. AG	150.	2.0	0.0	9.1	
7. FREE WATER WB	*	330730.1	*****	330829.3	*****	*	117.	58. AG	9.	2.0	0.0	9.1	
8. FREE WATER WB	*	330829.3	*****	330797.2	*****	*	102.	342. AG	9.	2.0	0.0	9.1	
9. FREE WATER WB	*	330797.2	*****	330885.8	*****	*	90.	80. AG	9.	2.0	0.0	9.1	
10. FREE KILBY NB	*	330732.4	*****	330940.0	*****	*	314.	139. AG	254.	2.0	0.0	9.1	
11. FREE KILBY NB2	*	330730.7	*****	330688.1	*****	*	138.	342. AG	276.	2.0	0.0	9.1	
12. FREE KILBY NB2	*	330688.1	*****	330614.5	*****	*	74.	262. AG	276.	2.0	0.0	9.1	
13. FREE KILBY NB2	*	330614.5	*****	330534.9	*****	*	80.	267. AG	276.	2.0	0.0	9.1	
14. FREE KILBY NB2	*	330534.9	*****	330502.4	*****	*	34.	285. AG	276.	2.0	0.0	9.1	
15. FREE WATER EB2	*	330734.3	*****	330761.2	*****	*	30.	64. AG	90.	2.0	0.0	9.1	
16. FREE WATER EB2	*	330761.2	*****	330872.3	*****	*	126.	118. AG	90.	2.0	0.0	9.1	
17. FREE WATER EB2	*	330872.3	*****	330939.7	*****	*	130.	149. AG	90.	2.0	0.0	9.1	
18. FREE WATER EB2	*	330939.7	*****	330981.4	*****	*	44.	71. AG	90.	2.0	0.0	9.1	
19. FREE KILBY SB	*	330731.2	*****	330749.4	*****	*	71.	165. AG	47.	2.0	0.0	9.1	
20. FREE KILBY SB	*	330749.4	*****	330908.8	*****	*	215.	48. AG	47.	2.0	0.0	9.1	
21. FREE KILBY SB	*	330908.8	*****	330876.2	*****	*	44.	312. AG	47.	2.0	0.0	9.1	

PAGE 2

JOB: ONE POST OFFICE SQUARE - INTERS. #914

RUN: 2024 NO-BUILD PM PEAK HOUR

DATE : 09/01/ 0  
TIME : 15:43:23

ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	*	CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM PAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE
1.	*	330726.8	*****	1.8	*				
2.	*	330699.4	*****	1.8	*				
3.	*	330670.3	*****	1.8	*				
4.	*	330644.6	*****	1.8	*				
5.	*	330644.0	*****	1.8	*				
6.	*	330673.1	*****	1.8	*				
7.	*	330702.2	*****	1.8	*				
8.	*	330723.9	*****	1.8	*				
9.	*	330753.0	*****	1.8	*				
10.	*	330778.4	*****	1.8	*				
11.	*	330803.8	*****	1.8	*				
12.	*	330806.4	*****	1.8	*				
13.	*	330781.0	*****	1.8	*				
14.	*	330734.3	*****	1.8	*				
15.	*	330755.7	*****	1.8	*				
16.	*	330777.6	*****	1.8	*				
17.	*	330757.7	*****	1.8	*				
18.	*	330740.1	*****	1.8	*				
19.	*	330717.0	*****	1.8	*				
20.	*	330707.8	*****	1.8	*				
21.	*	330698.5	*****	1.8	*				
22.	*	330701.8	*****	1.8	*				
23.	*	330711.0	*****	1.8	*				
24.	*	330720.3	*****	1.8	*				
25.	*	330729.6	*****	1.8	*				
26.	*	330765.6	*****	1.8	*				
27.	*	330789.8	*****	1.8	*				
28.	*	330809.8	*****	1.8	*				
29.	*	330816.1	*****	1.8	*				
30.	*	330789.6	*****	1.8	*				
31.	*	330763.1	*****	1.8	*				
32.	*	330742.2	*****	1.8	*				
33.	*	330743.3	*****	1.8	*				
34.	*	330751.0	*****	1.8	*				
35.	*	330751.9	*****	1.8	*				
36.	*	330774.3	*****	1.8	*				
37.	*	330796.4	*****	1.8	*				
38.	*	330818.6	*****	1.8	*				
39.	*	330823.0	*****	1.8	*				
40.	*	330800.8	*****	1.8	*				
41.	*	330782.1	*****	1.8	*				
42.	*	330756.3	*****	1.8	*				
43.	*	330744.9	*****	1.8	*				
44.	*	330737.3	*****	1.8	*				
45.	*	330729.6	*****	1.8	*				

PAGE 3

JOB: ONE POST OFFICE SQUARE - INTERS. #914

RUN: 2024 NO-BUILD PM PEAK HOUR

MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

WIND \* CONCENTRATION  
ANGLE \* (PPM)







4	*	0.0	0.0	0.0	0.0	0.0
5	*	0.0	0.0	0.0	0.0	0.0
6	*	0.0	0.0	0.0	0.0	0.0
7	*	0.0	0.0	0.0	0.0	0.0
8	*	0.0	0.0	0.0	0.0	0.0
9	*	0.0	0.0	0.0	0.0	0.0
10	*	0.0	0.0	0.0	0.0	0.0
11	*	0.0	0.0	0.0	0.0	0.0
12	*	0.0	0.0	0.0	0.0	0.0
13	*	0.0	0.0	0.0	0.0	0.0
14	*	0.0	0.0	0.0	0.0	0.0
15	*	0.0	0.0	0.0	0.0	0.0
16	*	0.0	0.0	0.0	0.0	0.0
17	*	0.0	0.0	0.0	0.0	0.0
18	*	0.0	0.0	0.0	0.0	0.0
19	*	0.0	0.0	0.0	0.0	0.0
20	*	0.0	0.0	0.0	0.0	0.0
21	*	0.0	0.0	0.0	0.0	0.0





180. \* 0.0 0.0 0.0  
 190. \* 0.0 0.0 0.0  
 200. \* 0.0 0.0 0.0  
 210. \* 0.0 0.0 0.0  
 220. \* 0.0 0.0 0.0  
 230. \* 0.0 0.0 0.0  
 240. \* 0.0 0.0 0.0  
 250. \* 0.0 0.0 0.0  
 260. \* 0.0 0.0 0.0  
 270. \* 0.0 0.0 0.0  
 280. \* 0.0 0.0 0.0  
 290. \* 0.0 0.0 0.0  
 300. \* 0.0 0.0 0.0  
 310. \* 0.0 0.0 0.0  
 320. \* 0.0 0.0 0.0  
 330. \* 0.0 0.0 0.0  
 340. \* 0.0 0.0 0.0  
 350. \* 0.0 0.0 0.0  
 -----  
 MAX \* 0.0 0.0 0.0  
 DEGR. \* 0 0 0

JOB: ONE POST OFFICE SQUARE - INTERS. #916

RUN: 2024 BUILD AM PEAK HOUR

PAGE 6

DATE : 09/01/ 0  
 TIME : 16:45:50

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING  
 THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

LINK #	CO/LINK (PPM)			ANGLE (DEGREES)																	
	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20	
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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JOB: ONE POST OFFICE SQUARE - INTERS. #916

RUN: 2024 BUILD AM PEAK HOUR

DATE : 09/01/ 0  
 TIME : 16:45:50

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING  
 THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

LINK #	CO/LINK (PPM)			ANGLE (DEGREES)																	
	REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28	REC29	REC30	REC31	REC32	REC33	REC34	REC35	REC36	REC37	REC38	REC39	REC40	
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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JOB: ONE POST OFFICE SQUARE - INTERS. #916

RUN: 2024 BUILD AM PEAK HOUR

DATE : 09/01/ 0  
 TIME : 16:45:50

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING  
 THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

LINK #	CO/LINK (PPM)			ANGLE (DEGREES)		
	REC41	REC42	REC43			
1	0.0	0.0	0.0			
2	0.0	0.0	0.0			
3	0.0	0.0	0.0			
4	0.0	0.0	0.0			
5	0.0	0.0	0.0			
6	0.0	0.0	0.0			
7	0.0	0.0	0.0			
8	0.0	0.0	0.0			
9	0.0	0.0	0.0			
10	0.0	0.0	0.0			
11	0.0	0.0	0.0			
12	0.0	0.0	0.0			
13	0.0	0.0	0.0			







180. \* 0.0 0.0 0.0  
 190. \* 0.0 0.0 0.0  
 200. \* 0.0 0.0 0.0  
 210. \* 0.0 0.0 0.0  
 220. \* 0.0 0.0 0.0  
 230. \* 0.0 0.0 0.0  
 240. \* 0.0 0.0 0.0  
 250. \* 0.0 0.0 0.0  
 260. \* 0.0 0.0 0.0  
 270. \* 0.0 0.0 0.0  
 280. \* 0.0 0.0 0.0  
 290. \* 0.0 0.0 0.0  
 300. \* 0.0 0.0 0.0  
 310. \* 0.0 0.0 0.0  
 320. \* 0.0 0.0 0.0  
 330. \* 0.0 0.0 0.0  
 340. \* 0.0 0.0 0.0  
 350. \* 0.0 0.0 0.0  
 -----  
 MAX \* 0.0 0.0 0.0  
 DEGR. \* 0 0 0

JOB: ONE POST OFFICE SQUARE - INTERS. #916 RUN: 2024 BUILD PM PEAK HOUR

DATE : 09/01/ 0  
 TIME : 17:08:11

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING  
 THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

LINK #	CO/LINK (PPM)			ANGLE (DEGREES)																	
	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20	
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

JOB: ONE POST OFFICE SQUARE - INTERS. #916 RUN: 2024 BUILD PM PEAK HOUR

DATE : 09/01/ 0  
 TIME : 17:08:11

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING  
 THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

LINK #	CO/LINK (PPM)			ANGLE (DEGREES)																	
	REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28	REC29	REC30	REC31	REC32	REC33	REC34	REC35	REC36	REC37	REC38	REC39	REC40	
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

JOB: ONE POST OFFICE SQUARE - INTERS. #916 RUN: 2024 BUILD PM PEAK HOUR

DATE : 09/01/ 0  
 TIME : 17:08:11

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING  
 THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

LINK #	CO/LINK (PPM)			ANGLE (DEGREES)		
	REC41	REC42	REC43			
1	0.0	0.0	0.0			
2	0.0	0.0	0.0			
3	0.0	0.0	0.0			
4	0.0	0.0	0.0			
5	0.0	0.0	0.0			
6	0.0	0.0	0.0			
7	0.0	0.0	0.0			
8	0.0	0.0	0.0			
9	0.0	0.0	0.0			
10	0.0	0.0	0.0			
11	0.0	0.0	0.0			
12	0.0	0.0	0.0			
13	0.0	0.0	0.0			





170. \* 0.0 0.0 0.0  
 180. \* 0.0 0.0 0.0  
 190. \* 0.0 0.0 0.0  
 200. \* 0.0 0.0 0.0  
 210. \* 0.0 0.0 0.0  
 220. \* 0.0 0.0 0.0  
 230. \* 0.0 0.0 0.0  
 240. \* 0.0 0.0 0.0  
 250. \* 0.0 0.0 0.0  
 260. \* 0.0 0.0 0.0  
 270. \* 0.0 0.0 0.0  
 280. \* 0.0 0.0 0.0  
 290. \* 0.0 0.0 0.0  
 300. \* 0.0 0.0 0.0  
 310. \* 0.0 0.0 0.0  
 320. \* 0.0 0.0 0.0  
 330. \* 0.0 0.0 0.0  
 340. \* 0.0 0.0 0.0  
 350. \* 0.0 0.0 0.0  
 -----  
 MAX \* 0.0 0.0 0.0  
 DEGR. \* 0 0 0

JOB: ONE POST OFFICE SQUARE - INTERS. #916

RUN: 2024 BUILD-MITIGATED AM PEAK HOUR

PAGE 6

DATE : 09/07/ 0  
 TIME : 13:23:21

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING  
 THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

LINK #	CO/LINK (PPM)																			
	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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JOB: ONE POST OFFICE SQUARE - INTERS. #916

RUN: 2024 BUILD-MITIGATED AM PEAK HOUR

DATE : 09/07/ 0  
 TIME : 13:23:21

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING  
 THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

LINK #	CO/LINK (PPM)																			
	REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28	REC29	REC30	REC31	REC32	REC33	REC34	REC35	REC36	REC37	REC38	REC39	REC40
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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JOB: ONE POST OFFICE SQUARE - INTERS. #916

RUN: 2024 BUILD-MITIGATED AM PEAK HOUR

DATE : 09/07/ 0  
 TIME : 13:23:21

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING  
 THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

LINK #	CO/LINK (PPM)		
	REC41	REC42	REC43
1	0.0	0.0	0.0
2	0.0	0.0	0.0
3	0.0	0.0	0.0
4	0.0	0.0	0.0
5	0.0	0.0	0.0
6	0.0	0.0	0.0
7	0.0	0.0	0.0
8	0.0	0.0	0.0
9	0.0	0.0	0.0
10	0.0	0.0	0.0
11	0.0	0.0	0.0
12	0.0	0.0	0.0
13	0.0	0.0	0.0
14	0.0	0.0	0.0





170. \* 0.0 0.0 0.0  
 180. \* 0.0 0.0 0.0  
 190. \* 0.0 0.0 0.0  
 200. \* 0.0 0.0 0.0  
 210. \* 0.0 0.0 0.0  
 220. \* 0.0 0.0 0.0  
 230. \* 0.0 0.0 0.0  
 240. \* 0.0 0.0 0.0  
 250. \* 0.0 0.0 0.0  
 260. \* 0.0 0.0 0.0  
 270. \* 0.0 0.0 0.0  
 280. \* 0.0 0.0 0.0  
 290. \* 0.0 0.0 0.0  
 300. \* 0.0 0.0 0.0  
 310. \* 0.0 0.0 0.0  
 320. \* 0.0 0.0 0.0  
 330. \* 0.0 0.0 0.0  
 340. \* 0.0 0.0 0.0  
 350. \* 0.0 0.0 0.0

MAX \* 0.0 0.0 0.0  
 DEGR. \* 0 0 0

JOB: ONE POST OFFICE SQUARE - INTERS. #916

RUN: 2024 BUILD-MITIGATED PM PEAK HOUR

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DATE : 09/07/ 0  
 TIME : 13:35:55

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING  
 THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

LINK #	CO/LINK (PPM)																			
	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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JOB: ONE POST OFFICE SQUARE - INTERS. #916

RUN: 2024 BUILD-MITIGATED PM PEAK HOUR

DATE : 09/07/ 0  
 TIME : 13:35:55

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING  
 THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

LINK #	CO/LINK (PPM)																			
	REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28	REC29	REC30	REC31	REC32	REC33	REC34	REC35	REC36	REC37	REC38	REC39	REC40
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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JOB: ONE POST OFFICE SQUARE - INTERS. #916

RUN: 2024 BUILD-MITIGATED PM PEAK HOUR

DATE : 09/07/ 0  
 TIME : 13:35:55

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING  
 THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

LINK #	CO/LINK (PPM)		
	REC41	REC42	REC43
1	0.0	0.0	0.0
2	0.0	0.0	0.0
3	0.0	0.0	0.0
4	0.0	0.0	0.0
5	0.0	0.0	0.0
6	0.0	0.0	0.0
7	0.0	0.0	0.0
8	0.0	0.0	0.0
9	0.0	0.0	0.0
10	0.0	0.0	0.0
11	0.0	0.0	0.0
12	0.0	0.0	0.0
13	0.0	0.0	0.0
14	0.0	0.0	0.0





Table with 19 columns (REC1-REC19) and rows 90-350. Values are mostly 0.0, with some 0.1 values. Summary row (MAX) shows 0.1 at REC1, REC2, REC4, REC5, REC6, REC7, REC8, REC9, REC10, REC11, REC12, REC13, REC14, REC15, REC16, REC17, REC18, REC19.

JOB: ONE POST OFFICE SQUARE - INTERS. #916

RUN: 2017 EXISTING AM PEAK HOUR

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MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

Table with 19 columns (REC1-REC19) and rows 0-350. Values are mostly 0.0, with some 0.1 values. Summary row (MAX) shows 0.1 at REC1, REC2, REC4, REC5, REC6, REC7, REC8, REC9, REC10, REC11, REC12, REC13, REC14, REC15, REC16, REC17, REC18, REC19.

JOB: ONE POST OFFICE SQUARE - INTERS. #916

RUN: 2017 EXISTING AM PEAK HOUR

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MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

Table with 3 columns (REC41-REC43) and rows 0-160. Values are mostly 0.0, with some 0.1 values.

180. \* 0.0 0.0 0.0  
 190. \* 0.0 0.0 0.0  
 200. \* 0.0 0.0 0.0  
 210. \* 0.0 0.0 0.0  
 220. \* 0.0 0.0 0.0  
 230. \* 0.0 0.0 0.0  
 240. \* 0.0 0.0 0.0  
 250. \* 0.0 0.0 0.0  
 260. \* 0.0 0.0 0.0  
 270. \* 0.0 0.0 0.0  
 280. \* 0.0 0.0 0.0  
 290. \* 0.0 0.0 0.0  
 300. \* 0.0 0.0 0.0  
 310. \* 0.0 0.0 0.0  
 320. \* 0.0 0.0 0.0  
 330. \* 0.0 0.0 0.0  
 340. \* 0.0 0.0 0.0  
 350. \* 0.0 0.0 0.0  
 -----  
 MAX \* 0.0 0.0 0.0  
 DEGR. \* 0 0 0

THE HIGHEST CONCENTRATION OF 0.10 PPM OCCURRED AT RECEPTOR REC8 .

JOB: ONE POST OFFICE SQUARE - INTERS. #916 RUN: 2017 EXISTING AM PEAK HOUR  
 DATE : 09/01/ 0  
 TIME : 16:25:16

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

LINK #	CO/LINK (PPM)																			
	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
1	0	0	0	0	270	250	0	60	70	220	0	0	0	0	0	0	0	0	0	0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

JOB: ONE POST OFFICE SQUARE - INTERS. #916 RUN: 2017 EXISTING AM PEAK HOUR  
 DATE : 09/01/ 0  
 TIME : 16:25:16

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

LINK #	CO/LINK (PPM)																			
	REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28	REC29	REC30	REC31	REC32	REC33	REC34	REC35	REC36	REC37	REC38	REC39	REC40
1	0	0	150	150	150	150	150	330	120	120	120	120	120	0	0	0	0	0	0	0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

JOB: ONE POST OFFICE SQUARE - INTERS. #916 RUN: 2017 EXISTING AM PEAK HOUR  
 DATE : 09/01/ 0  
 TIME : 16:25:16

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

LINK #	CO/LINK (PPM)		
	REC41	REC42	REC43
1	0	0	0
2	0.0	0.0	0.0
3	0.0	0.0	0.0
4	0.0	0.0	0.0
5	0.0	0.0	0.0
6	0.0	0.0	0.0
7	0.0	0.0	0.0
8	0.0	0.0	0.0
9	0.0	0.0	0.0
10	0.0	0.0	0.0
11	0.0	0.0	0.0
12	0.0	0.0	0.0
13	0.0	0.0	0.0



90.	*	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100.	*	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110.	*	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230.	*	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240.	*	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250.	*	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
260.	*	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
270.	*	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
280.	*	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
290.	*	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
310.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
320.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
330.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
340.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
350.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DEGR.	*	250	30	40	50	60	90	230	60	60	200	220	0	0	0	0	0	0	0	0

JOB: ONE POST OFFICE SQUARE - INTERS. #916

RUN: 2017 EXISTING PM PEAK HOUR

MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

WIND * CONCENTRATION	
ANGLE * (PFM)	
(DEGR) * REC21 REC22 REC23 REC24 REC25 REC26 REC27 REC28 REC29 REC30 REC31 REC32 REC33 REC34 REC35 REC36 REC37 REC38 REC39 REC40	
0.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
10.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
20.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
30.	* 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1
40.	* 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
50.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.0
60.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.0
70.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.0
80.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
90.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
100.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0
110.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0
120.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.2 0.2 0.2 0.2 0.0 0.0 0.0 0.0 0.0
130.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.2 0.2 0.2 0.0 0.0 0.0 0.0 0.0
140.	* 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
150.	* 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
160.	* 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
170.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
180.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
190.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
200.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
210.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.0
220.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.0
230.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1
240.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.1
250.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0
260.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0
270.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
280.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
290.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
300.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
310.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
320.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
330.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.2 0.2 0.2 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
340.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.2 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
350.	* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
MAX	* 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.1 0.2 0.2 0.2 0.2 0.2 0.2 0.1 0.1 0.1 0.1 0.1 0.1
DEGR.	* 0 0 30 140 140 140 140 140 330 330 120 120 120 120 60 50 50 50 210 30

JOB: ONE POST OFFICE SQUARE - INTERS. #916

RUN: 2017 EXISTING PM PEAK HOUR

MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

WIND * CONCENTRATION	
ANGLE * (PFM)	
(DEGR) * REC41 REC42 REC43	
0.	* 0.0 0.0 0.0
10.	* 0.0 0.0 0.0
20.	* 0.0 0.1 0.1
30.	* 0.1 0.1 0.1
40.	* 0.1 0.1 0.1
50.	* 0.0 0.0 0.0
60.	* 0.0 0.0 0.0
70.	* 0.0 0.0 0.0
80.	* 0.0 0.0 0.0
90.	* 0.0 0.0 0.0
100.	* 0.0 0.0 0.0
110.	* 0.0 0.0 0.0
120.	* 0.0 0.0 0.0
130.	* 0.0 0.0 0.0
140.	* 0.0 0.0 0.0
150.	* 0.0 0.0 0.0
160.	* 0.0 0.0 0.0

180. \* 0.0 0.0 0.0  
 190. \* 0.0 0.0 0.0  
 200. \* 0.0 0.0 0.0  
 210. \* 0.0 0.0 0.0  
 220. \* 0.0 0.0 0.0  
 230. \* 0.1 0.0 0.0  
 240. \* 0.1 0.1 0.0  
 250. \* 0.1 0.1 0.0  
 260. \* 0.0 0.0 0.0  
 270. \* 0.0 0.0 0.0  
 280. \* 0.0 0.0 0.0  
 290. \* 0.0 0.0 0.0  
 300. \* 0.0 0.0 0.0  
 310. \* 0.0 0.0 0.0  
 320. \* 0.0 0.0 0.0  
 330. \* 0.0 0.0 0.0  
 340. \* 0.0 0.0 0.0  
 350. \* 0.0 0.0 0.0

-----  
 MAX \* 0.1 0.1 0.1  
 DEGR. \* 30 20 20

THE HIGHEST CONCENTRATION OF 0.20 PPM OCCURRED AT RECEPTOR REC31.

JOB: ONE POST OFFICE SQUARE - INTERS. #916 RUN: 2017 EXISTING PM PEAK HOUR

DATE : 09/01/ 0  
 TIME : 16:31:07

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

* CO/LINK (PPM)		* ANGLE (DEGREES)																			
LINK #	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20	
*	250	30	40	50	60	90	230	60	60	200	220	0	0	0	0	0	0	0	0	0	
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
3	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

JOB: ONE POST OFFICE SQUARE - INTERS. #916 RUN: 2017 EXISTING PM PEAK HOUR

DATE : 09/01/ 0  
 TIME : 16:31:07

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

* CO/LINK (PPM)		* ANGLE (DEGREES)																			
LINK #	REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28	REC29	REC30	REC31	REC32	REC33	REC34	REC35	REC36	REC37	REC38	REC39	REC40	
*	0	0	30	140	140	140	140	140	330	330	120	120	120	120	60	50	50	50	210	30	
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
10	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	
11	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

JOB: ONE POST OFFICE SQUARE - INTERS. #916 RUN: 2017 EXISTING PM PEAK HOUR

DATE : 09/01/ 0  
 TIME : 16:31:07

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

* CO/LINK (PPM)		* ANGLE (DEGREES)		
LINK #	REC41	REC42	REC43	
*	30	20	20	
1	0.0	0.0	0.0	
2	0.0	0.0	0.0	
3	0.0	0.0	0.0	
4	0.0	0.0	0.0	
5	0.0	0.0	0.0	
6	0.0	0.0	0.0	
7	0.0	0.0	0.0	
8	0.0	0.0	0.0	
9	0.0	0.0	0.0	
10	0.0	0.0	0.0	
11	0.1	0.1	0.1	
12	0.0	0.0	0.0	
13	0.0	0.0	0.0	





Table with 20 columns and 350 rows of numerical data. Includes a 'MAX DEGR.' row at the bottom.

MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

Table with columns: WIND \* CONCENTRATION, ANGLE \* (PFM), (DEGR)\* REC21 REC22 REC23 REC24 REC25 REC26 REC27 REC28 REC29 REC30 REC31 REC32 REC33 REC34 REC35 REC36 REC37 REC38 REC39 REC40. Includes a 'MAX DEGR.' row at the bottom.

MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

Table with columns: WIND \* CONCENTRATION, ANGLE \* (PFM), (DEGR)\* REC41 REC42 REC43. Includes a 'MAX DEGR.' row at the bottom.

180. \* 0.0 0.0 0.0  
 190. \* 0.0 0.0 0.0  
 200. \* 0.0 0.0 0.0  
 210. \* 0.0 0.0 0.0  
 220. \* 0.0 0.0 0.0  
 230. \* 0.0 0.0 0.0  
 240. \* 0.0 0.0 0.0  
 250. \* 0.0 0.0 0.0  
 260. \* 0.0 0.0 0.0  
 270. \* 0.0 0.0 0.0  
 280. \* 0.0 0.0 0.0  
 290. \* 0.0 0.0 0.0  
 300. \* 0.0 0.0 0.0  
 310. \* 0.0 0.0 0.0  
 320. \* 0.0 0.0 0.0  
 330. \* 0.0 0.0 0.0  
 340. \* 0.0 0.0 0.0  
 350. \* 0.0 0.0 0.0  
 -----  
 MAX \* 0.0 0.0 0.0  
 DEGR. \* 0 0 0

JOB: ONE POST OFFICE SQUARE - INTERS. #916 RUN: 2024 NO-BUILD AM PEAK HOUR

DATE : 09/01/ 0  
 TIME : 16:36:03

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING  
 THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

LINK #	CO/LINK (PPM)																			
	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

JOB: ONE POST OFFICE SQUARE - INTERS. #916 RUN: 2024 NO-BUILD AM PEAK HOUR

DATE : 09/01/ 0  
 TIME : 16:36:03

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING  
 THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

LINK #	CO/LINK (PPM)																			
	REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28	REC29	REC30	REC31	REC32	REC33	REC34	REC35	REC36	REC37	REC38	REC39	REC40
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

JOB: ONE POST OFFICE SQUARE - INTERS. #916 RUN: 2024 NO-BUILD AM PEAK HOUR

DATE : 09/01/ 0  
 TIME : 16:36:03

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING  
 THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

LINK #	CO/LINK (PPM)		
	REC41	REC42	REC43
1	0.0	0.0	0.0
2	0.0	0.0	0.0
3	0.0	0.0	0.0
4	0.0	0.0	0.0
5	0.0	0.0	0.0
6	0.0	0.0	0.0
7	0.0	0.0	0.0
8	0.0	0.0	0.0
9	0.0	0.0	0.0
10	0.0	0.0	0.0
11	0.0	0.0	0.0
12	0.0	0.0	0.0
13	0.0	0.0	0.0



Table with columns 0-350 and rows 90-350. All values are 0.0. Includes MAX and DEGR. rows at the bottom.

JOB: ONE POST OFFICE SQUARE - INTERS. #916

RUN: 2024 NO-BUILD PM PEAK HOUR

PAGE 4

MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

Table with columns WIND \* CONCENTRATION (DEGR) \* REC21 REC22 REC23 REC24 REC25 REC26 REC27 REC28 REC29 REC30 REC31 REC32 REC33 REC34 REC35 REC36 REC37 REC38 REC39 REC40. Rows 0-350. Includes MAX and DEGR. rows at the bottom.

JOB: ONE POST OFFICE SQUARE - INTERS. #916

RUN: 2024 NO-BUILD PM PEAK HOUR

PAGE 5

MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

Table with columns WIND \* CONCENTRATION (DEGR) \* REC41 REC42 REC43. Rows 0-160. Includes MAX and DEGR. rows at the bottom.

180. \* 0.0 0.0 0.0  
 190. \* 0.0 0.0 0.0  
 200. \* 0.0 0.0 0.0  
 210. \* 0.0 0.0 0.0  
 220. \* 0.0 0.0 0.0  
 230. \* 0.0 0.0 0.0  
 240. \* 0.0 0.0 0.0  
 250. \* 0.0 0.0 0.0  
 260. \* 0.0 0.0 0.0  
 270. \* 0.0 0.0 0.0  
 280. \* 0.0 0.0 0.0  
 290. \* 0.0 0.0 0.0  
 300. \* 0.0 0.0 0.0  
 310. \* 0.0 0.0 0.0  
 320. \* 0.0 0.0 0.0  
 330. \* 0.0 0.0 0.0  
 340. \* 0.0 0.0 0.0  
 350. \* 0.0 0.0 0.0  
 -----  
 MAX \* 0.0 0.0 0.0  
 DEGR. \* 0 0 0

JOB: ONE POST OFFICE SQUARE - INTERS. #916 RUN: 2024 NO-BUILD PM PEAK HOUR

DATE : 09/01/ 0  
 TIME : 16:41:40

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING  
 THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

LINK #	CO/LINK (PPM)																			
	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

JOB: ONE POST OFFICE SQUARE - INTERS. #916 RUN: 2024 NO-BUILD PM PEAK HOUR

DATE : 09/01/ 0  
 TIME : 16:41:40

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING  
 THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

LINK #	CO/LINK (PPM)																			
	REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28	REC29	REC30	REC31	REC32	REC33	REC34	REC35	REC36	REC37	REC38	REC39	REC40
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

JOB: ONE POST OFFICE SQUARE - INTERS. #916 RUN: 2024 NO-BUILD PM PEAK HOUR

DATE : 09/01/ 0  
 TIME : 16:41:40

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING  
 THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

LINK #	CO/LINK (PPM)		
	REC41	REC42	REC43
1	0.0	0.0	0.0
2	0.0	0.0	0.0
3	0.0	0.0	0.0
4	0.0	0.0	0.0
5	0.0	0.0	0.0
6	0.0	0.0	0.0
7	0.0	0.0	0.0
8	0.0	0.0	0.0
9	0.0	0.0	0.0
10	0.0	0.0	0.0
11	0.0	0.0	0.0
12	0.0	0.0	0.0
13	0.0	0.0	0.0

Run Began on 9/01/2017 at 14:33:54

JOB: ONE POST OFFICE SQUARE - INTERS. #3055

RUN: 2024 BUILD AM PEAK HOUR

DATE : 09/01/ 0  
TIME : 14:33:54

The MODE flag has been set to C for calculating CO averages.

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 321. CM  
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 0.0 PPM

LINK VARIABLES

LINK DESCRIPTION	*	X1	Y1	X2	Y2	LENGTH (M)	BRG TYPE (DEG)	VPH	EF (G/MI)	H (M)	W (M)	V/C	QUEUE (VEH)
1. QUEUE CONGRESS EBT	*	330821.8	*****	330803.9	*****	30.	324. AG	18.	100.0	0.0	6.3	0.61	5.1
2. QUEUE CONGRESS EBR	*	330817.4	*****	330795.7	*****	37.	324. AG	9.	100.0	0.0	3.2	0.77	6.2
3. QUEUE CONGRESS EBR2	*	330814.6	*****	330801.7	*****	22.	324. AG	9.	100.0	0.0	3.2	0.49	3.6
4. QUEUE PURCHASE SBLT	*	330840.8	*****	330874.5	*****	41.	56. AG	17.	100.0	0.0	7.0	0.80	6.8
5. QUEUE PURCHASE SBL2	*	330843.5	*****	330884.1	*****	49.	56. AG	9.	100.0	0.0	3.2	0.85	8.1
6. FREE PURCHASE SB	*	330827.4	*****	330894.3	*****	79.	58. AG	1131.	2.0	0.0	15.0		
7. FREE PURCHASE SB	*	330894.3	*****	330962.2	*****	80.	58. AG	1131.	2.0	0.0	15.0		
8. FREE PURCHASE SB	*	330962.2	*****	331003.7	*****	57.	47. AG	1131.	2.0	0.0	15.0		
9. FREE PURCHASE SB	*	331003.7	*****	331036.3	*****	67.	29. AG	1131.	2.0	0.0	15.0		
10. FREE PURCHASE SB	*	331036.3	*****	331045.6	*****	33.	16. AG	1131.	2.0	0.0	15.0		
11. FREE CONGRESS EB	*	330825.7	*****	330675.4	*****	253.	323. AG	999.	2.0	0.0	18.9		
12. FREE CONGRESS EB	*	330675.4	*****	330658.9	*****	66.	346. AG	999.	2.0	0.0	18.9		
13. FREE CONGRESS EB2	*	330826.0	*****	330869.2	*****	68.	141. AG	920.	2.0	0.0	20.0		
14. FREE CONGRESS EB2	*	330869.2	*****	330986.2	*****	191.	142. AG	920.	2.0	0.0	20.0		
15. FREE CONGRESS EB2	*	330986.2	*****	331036.0	*****	58.	121. AG	920.	2.0	0.0	20.0		
16. FREE PURCHASE SB2	*	330824.6	*****	330692.5	*****	160.	235. AG	533.	2.0	0.0	12.3		
17. FREE PURCHASE SB2	*	330692.5	*****	330636.2	*****	74.	229. AG	533.	2.0	0.0	12.3		
18. FREE PURCHASE SB2	*	330636.2	*****	330574.1	*****	66.	250. AG	533.	2.0	0.0	12.3		
19. FREE I-90 RAMP	*	330826.0	*****	330774.5	*****	67.	230. AG	677.	2.0	0.0	13.2		
20. FREE I-90 RAMP	*	330774.5	*****	330702.5	*****	88.	235. AG	677.	2.0	0.0	13.2		
21. FREE I-90 RAMP	*	330702.5	*****	330642.8	*****	80.	228. AG	677.	2.0	0.0	13.2		
22. FREE I-90 RAMP	*	330642.8	*****	330578.6	*****	67.	254. AG	677.	2.0	0.0	13.2		

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JOB: ONE POST OFFICE SQUARE - INTERS. #3055

RUN: 2024 BUILD AM PEAK HOUR

DATE : 09/01/ 0  
TIME : 14:33:54

ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	*	CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM PAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE
1. QUEUE CONGRESS EBT	*	110	72	5.0	508	1482	5.13	2	3
2. QUEUE CONGRESS EBR	*	110	72	5.0	310	1425	5.13	2	3
3. QUEUE CONGRESS EBR2	*	110	72	5.0	181	1313	5.13	2	3
4. QUEUE PURCHASE SBLT	*	110	68	5.0	719	1402	5.13	2	3
5. QUEUE PURCHASE SBL2	*	110	68	5.0	412	1516	5.13	2	3

RECEPTOR LOCATIONS

RECEPTOR	*	X	Y	Z	*
1.	*	330848.7	*****	1.8	*
2.	*	330874.1	*****	1.8	*
3.	*	330890.3	*****	1.8	*
4.	*	330915.8	*****	1.8	*
5.	*	330941.2	*****	1.8	*
6.	*	330957.6	*****	1.8	*
7.	*	330966.2	*****	1.8	*
8.	*	330940.7	*****	1.8	*
9.	*	330915.2	*****	1.8	*
10.	*	330898.3	*****	1.8	*
11.	*	330873.0	*****	1.8	*
12.	*	330847.6	*****	1.8	*
13.	*	330800.2	*****	1.8	*
14.	*	330782.3	*****	1.8	*
15.	*	330764.5	*****	1.8	*
16.	*	330746.6	*****	1.8	*
17.	*	330755.6	*****	1.8	*
18.	*	330773.4	*****	1.8	*
19.	*	330791.2	*****	1.8	*
20.	*	330809.1	*****	1.8	*
21.	*	330826.9	*****	1.8	*
22.	*	330852.9	*****	1.8	*
23.	*	330872.0	*****	1.8	*
24.	*	330877.2	*****	1.8	*
25.	*	330868.2	*****	1.8	*
26.	*	330861.3	*****	1.8	*
27.	*	330842.2	*****	1.8	*
28.	*	330823.1	*****	1.8	*
29.	*	330763.1	*****	1.8	*
30.	*	330787.8	*****	1.8	*
31.	*	330812.5	*****	1.8	*
32.	*	330807.4	*****	1.8	*
33.	*	330784.5	*****	1.8	*
34.	*	330778.4	*****	1.8	*

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JOB: ONE POST OFFICE SQUARE - INTERS. #3055

RUN: 2024 BUILD AM PEAK HOUR

MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

WIND * CONCENTRATION ANGLE * (DEGR)	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
10.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
20.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0

Table with 20 columns and 355 rows of numerical data, including a summary row for MAX DEGR.

JOB: ONE POST OFFICE SQUARE - INTERS. #3055 RUN: 2024 BUILD AM PEAK HOUR

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MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

Table with columns for WIND ANGLE (DEGR) and CONCENTRATION (PPM) for receptors REC21 through REC34, including a summary row for MAX DEGR.

THE HIGHEST CONCENTRATION OF 0.20 PPM OCCURRED AT RECEPTOR REC12.

JOB: ONE POST OFFICE SQUARE - INTERS. #3055 RUN: 2024 BUILD AM PEAK HOUR

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DATE : 09/01/ 0 TIME : 14:33:54

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

Table with columns for LINK #, CO/LINK (PPM), ANGLE (DEGREES), and receptors REC1 through REC20.





Run Began on 9/01/2017 at 14:50:28

JOB: ONE POST OFFICE SQUARE - INTERS. #3055

RUN: 2024 BUILD PM PEAK HOUR

DATE : 09/01/ 0  
TIME : 14:50:28

The MODE flag has been set to C for calculating CO averages.

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 321. CM  
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 0.0 PPM

LINK VARIABLES

LINK DESCRIPTION	* X1	LINK COORDINATES (M)	* Y1	* Y2	LENGTH (M)	BRG TYPE (DEG)	VPH	EF (G/MI)	H (M)	W (M)	V/C QUEUE (VEH)
1. QUEUE CONGRESS EBT	* 330821.8	*****	330800.3	*****	37.	324. AG	17.	100.0	0.0	6.3	0.65 6.1
2. QUEUE CONGRESS EBR	* 330817.4	*****	330495.4	*****	551.	324. AG	8.	100.0	0.0	3.2	1.32 91.8
3. QUEUE CONGRESS EBR2	* 330814.6	*****	330800.0	*****	25.	324. AG	8.	100.0	0.0	3.2	0.49 4.1
4. QUEUE PURCHASE SBLT	* 330840.8	*****	330900.7	*****	72.	56. AG	18.	100.0	0.0	7.0	1.00 12.1
5. QUEUE PURCHASE SBL2	* 330843.5	*****	330872.7	*****	35.	56. AG	9.	100.0	0.0	3.2	0.68 5.8
6. FREE PURCHASE SB	* 330827.4	*****	330894.3	*****	79.	58. AG	1076.	2.0	0.0	15.0	
7. FREE PURCHASE SB	* 330894.3	*****	330962.2	*****	80.	58. AG	1076.	2.0	0.0	15.0	
8. FREE PURCHASE SB	* 330962.2	*****	331003.7	*****	57.	47. AG	1076.	2.0	0.0	15.0	
9. FREE PURCHASE SB	* 331003.7	*****	331036.3	*****	67.	29. AG	1076.	2.0	0.0	15.0	
10. FREE PURCHASE SB	* 331036.3	*****	331045.6	*****	33.	16. AG	1076.	2.0	0.0	15.0	
11. FREE CONGRESS EB	* 330825.7	*****	330675.4	*****	253.	323. AG	1503.	2.0	0.0	18.9	
12. FREE CONGRESS EB	* 330675.4	*****	330658.9	*****	66.	346. AG	1503.	2.0	0.0	18.9	
13. FREE CONGRESS EB2	* 330826.0	*****	330869.2	*****	68.	141. AG	945.	2.0	0.0	20.0	
14. FREE CONGRESS EB2	* 330869.2	*****	330986.2	*****	191.	142. AG	945.	2.0	0.0	20.0	
15. FREE CONGRESS EB2	* 330986.2	*****	331036.0	*****	58.	121. AG	945.	2.0	0.0	20.0	
16. FREE PURCHASE SB2	* 330824.6	*****	330692.5	*****	160.	235. AG	539.	2.0	0.0	12.3	
17. FREE PURCHASE SB2	* 330692.5	*****	330636.2	*****	74.	229. AG	539.	2.0	0.0	12.3	
18. FREE PURCHASE SB2	* 330636.2	*****	330574.1	*****	66.	250. AG	539.	2.0	0.0	12.3	
19. FREE I-90 RAMP	* 330826.0	*****	330774.5	*****	67.	230. AG	1095.	2.0	0.0	13.2	
20. FREE I-90 RAMP	* 330774.5	*****	330702.5	*****	88.	235. AG	1095.	2.0	0.0	13.2	
21. FREE I-90 RAMP	* 330702.5	*****	330642.8	*****	80.	228. AG	1095.	2.0	0.0	13.2	
22. FREE I-90 RAMP	* 330642.8	*****	330578.6	*****	67.	254. AG	1095.	2.0	0.0	13.2	

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JOB: ONE POST OFFICE SQUARE - INTERS. #3055

RUN: 2024 BUILD PM PEAK HOUR

DATE : 09/01/ 0  
TIME : 14:50:28

ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	* CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM PAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE
1. QUEUE CONGRESS EBT	* 110	67	5.0	657	1555	5.13	2	3
2. QUEUE CONGRESS EBR	* 110	67	5.0	625	1454	5.13	2	3
3. QUEUE CONGRESS EBR2	* 110	67	5.0	221	1378	5.13	2	3
4. QUEUE PURCHASE SBLT	* 110	73	5.0	788	1441	5.13	2	3
5. QUEUE PURCHASE SBL2	* 110	73	5.0	288	1546	5.13	2	3

RECEPTOR LOCATIONS

RECEPTOR	* X	COORDINATES (M)	* Y	* Z
1.	* 330848.7	*****	1.8	*
2.	* 330874.1	*****	1.8	*
3.	* 330890.3	*****	1.8	*
4.	* 330915.8	*****	1.8	*
5.	* 330941.2	*****	1.8	*
6.	* 330957.6	*****	1.8	*
7.	* 330966.2	*****	1.8	*
8.	* 330940.7	*****	1.8	*
9.	* 330915.2	*****	1.8	*
10.	* 330898.3	*****	1.8	*
11.	* 330873.0	*****	1.8	*
12.	* 330847.6	*****	1.8	*
13.	* 330800.2	*****	1.8	*
14.	* 330782.3	*****	1.8	*
15.	* 330764.5	*****	1.8	*
16.	* 330746.6	*****	1.8	*
17.	* 330755.6	*****	1.8	*
18.	* 330773.4	*****	1.8	*
19.	* 330791.2	*****	1.8	*
20.	* 330809.1	*****	1.8	*
21.	* 330826.9	*****	1.8	*
22.	* 330852.9	*****	1.8	*
23.	* 330872.0	*****	1.8	*
24.	* 330877.2	*****	1.8	*
25.	* 330868.2	*****	1.8	*
26.	* 330861.3	*****	1.8	*
27.	* 330842.2	*****	1.8	*
28.	* 330823.1	*****	1.8	*
29.	* 330763.1	*****	1.8	*
30.	* 330787.8	*****	1.8	*
31.	* 330812.5	*****	1.8	*
32.	* 330807.4	*****	1.8	*
33.	* 330784.5	*****	1.8	*
34.	* 330778.4	*****	1.8	*

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JOB: ONE POST OFFICE SQUARE - INTERS. #3055

RUN: 2024 BUILD PM PEAK HOUR

MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

WIND ANGLE (DEGR)	* CONCENTRATION (PPM)	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0.	* 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
10.	* 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
20.	* 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0





Run Began on 9/01/2017 at 14:55:13

JOB: ONE POST OFFICE SQUARE - INTERS. #3055

RUN: 2024 BUILD-MITIGATED AM PEAK HOUR

DATE : 09/01/ 0  
TIME : 14:55:13

The MODE flag has been set to C for calculating CO averages.

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 321. CM  
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 0.0 PPM

LINK VARIABLES

Table with columns: LINK DESCRIPTION, X1, Y1, X2, Y2, LENGTH (M), BRG TYPE (DEG), VPH, EF (G/MI), H (M), W (M), V/C QUEUE (VEH). Contains 22 rows of link data.

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JOB: ONE POST OFFICE SQUARE - INTERS. #3055

RUN: 2024 BUILD-MITIGATED AM PEAK HOUR

DATE : 09/01/ 0  
TIME : 14:55:13

ADDITIONAL QUEUE LINK PARAMETERS

Table with columns: LINK DESCRIPTION, CYCLE LENGTH (SEC), RED TIME (SEC), CLEARANCE LOST TIME (SEC), APPROACH VOL (VPH), SATURATION FLOW RATE (VPH), IDLE EM PAC (gm/hr), SIGNAL TYPE, ARRIVAL RATE. Contains 5 rows of queue parameters.

RECEPTOR LOCATIONS

Table with columns: RECEPTOR, X, Y, Z. Contains 34 rows of receptor location data.

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JOB: ONE POST OFFICE SQUARE - INTERS. #3055

RUN: 2024 BUILD-MITIGATED AM PEAK HOUR

MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

Table with columns: WIND \* CONCENTRATION ANGLE \* (DEGR) REC1 REC2 REC3 REC4 REC5 REC6 REC7 REC8 REC9 REC10 REC11 REC12 REC13 REC14 REC15 REC16 REC17 REC18 REC19 REC20. Contains 3 rows of concentration data.

40.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
50.	*	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
60.	*	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
70.	*	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
80.	*	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
90.	*	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
100.	*	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
110.	*	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
120.	*	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
130.	*	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
140.	*	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0
150.	*	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
160.	*	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2
170.	*	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2
180.	*	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2
190.	*	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2
200.	*	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2
210.	*	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2
220.	*	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2
230.	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2
240.	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2
250.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
260.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
270.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
280.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
290.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
300.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
310.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
320.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
330.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
340.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
350.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0

MAX DEGR.	*	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
	*	100	70	50	60	70	40	0	0	250	0	0	20	0	0	0	0	140	140	140	160	

JOB: ONE POST OFFICE SQUARE - INTERS. #3055 RUN: 2024 BUILD-MITIGATED AM PEAK HOUR

MODEL RESULTS  
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REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

WIND ANGLE (DEGR)	CONCENTRATION	REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28	REC29	REC30	REC31	REC32	REC33	REC34	MAX DEGR.
0.	*	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1
10.	*	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0
20.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1
30.	*	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1
40.	*	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.2	0.0	0.0	0.1	0.0	0.1	0.1	0.1
50.	*	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0
60.	*	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0
70.	*	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0
80.	*	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0
90.	*	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100.	*	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110.	*	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120.	*	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0
130.	*	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0
140.	*	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150.	*	0.2	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160.	*	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170.	*	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180.	*	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190.	*	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	*	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
210.	*	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.0	0.0	0.0	0.0
220.	*	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0
230.	*	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
240.	*	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0
250.	*	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0
260.	*	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0
270.	*	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0
280.	*	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
290.	*	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	*	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
310.	*	0.2	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
320.	*	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0
330.	*	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0
340.	*	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0
350.	*	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0

THE HIGHEST CONCENTRATION OF 0.20 PPM OCCURRED AT RECEPTOR REC12.

JOB: ONE POST OFFICE SQUARE - INTERS. #3055 RUN: 2024 BUILD-MITIGATED AM PEAK HOUR

DATE : 09/01/ 0  
TIME : 14:55:13

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

LINK #	*	CO/LINK (PPM)																			
		REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11									

14 \* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0  
15 \* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0  
16 \* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0  
17 \* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0  
18 \* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0  
19 \* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0  
20 \* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0  
21 \* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0  
22 \* 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

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JOB: ONE POST OFFICE SQUARE - INTERS. #3055

RUN: 2024 BUILD-MITIGATED AM PEAK HOUR

DATE : 09/01/ 0  
TIME : 14:55:13

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING  
THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

	CO/LINK (PPM)																			
	ANGLE (DEGREES)																			
LINK #	REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28	REC29	REC30	REC31	REC32	REC33	REC34						
	150	150	140	140	30	0	0	40	70	210	60	10	10	20						
1 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
2 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
3 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
4 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
5 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
6 *	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0						
7 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
8 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
9 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
10 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
11 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0						
12 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
13 *	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0						
14 *	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
15 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
16 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0						
17 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
18 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
19 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1						
20 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
21 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
22 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						



Run Began on 9/01/2017 at 14:57:44

JOB: ONE POST OFFICE SQUARE - INTERS. #3055

RUN: 2024 BUILD-MITIGATED PM PEAK HOUR

DATE : 09/01/ 0  
TIME : 14:57:44

The MODE flag has been set to C for calculating CO averages.

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 321. CM  
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 0.0 PPM

LINK VARIABLES

LINK DESCRIPTION	*	X1	Y1	X2	Y2	LENGTH (M)	BRG TYPE (DEG)	VPH	EF (G/MI)	H (M)	W (M)	V/C	QUEUE (VEH)
1. QUEUE CONGRESS EBT	*	330821.8	*****	330800.7	*****	36.	324. AG	17.	100.0	0.0	6.3	0.63	6.0
2. QUEUE CONGRESS EBR	*	330817.4	*****	330520.9	*****	507.	324. AG	8.	100.0	0.0	3.2	1.28	84.5
3. QUEUE CONGRESS EBR2	*	330814.6	*****	330800.2	*****	24.	324. AG	8.	100.0	0.0	3.2	0.48	4.1
4. QUEUE PURCHASE SBLT	*	330840.8	*****	330936.3	*****	115.	56. AG	19.	100.0	0.0	7.0	1.04	19.2
5. QUEUE PURCHASE SBL2	*	330843.5	*****	330873.1	*****	36.	56. AG	9.	100.0	0.0	3.2	0.71	5.9
6. FREE PURCHASE SB	*	330827.4	*****	330894.3	*****	79.	58. AG	1076.	2.0	0.0	15.0		
7. FREE PURCHASE SB	*	330894.3	*****	330962.2	*****	80.	58. AG	1076.	2.0	0.0	15.0		
8. FREE PURCHASE SB	*	330962.2	*****	331003.7	*****	57.	47. AG	1076.	2.0	0.0	15.0		
9. FREE PURCHASE SB	*	331003.7	*****	331036.3	*****	67.	29. AG	1076.	2.0	0.0	15.0		
10. FREE PURCHASE SB	*	331036.3	*****	331045.6	*****	33.	16. AG	1076.	2.0	0.0	15.0		
11. FREE CONGRESS EB	*	330825.7	*****	330675.4	*****	253.	323. AG	1503.	2.0	0.0	18.9		
12. FREE CONGRESS EB	*	330675.4	*****	330658.9	*****	66.	346. AG	1503.	2.0	0.0	18.9		
13. FREE CONGRESS EB2	*	330826.0	*****	330869.2	*****	68.	141. AG	945.	2.0	0.0	20.0		
14. FREE CONGRESS EB2	*	330869.2	*****	330986.2	*****	191.	142. AG	945.	2.0	0.0	20.0		
15. FREE CONGRESS EB2	*	330986.2	*****	331036.0	*****	58.	121. AG	945.	2.0	0.0	20.0		
16. FREE PURCHASE SB2	*	330824.6	*****	330692.5	*****	160.	235. AG	539.	2.0	0.0	12.3		
17. FREE PURCHASE SB2	*	330692.5	*****	330636.2	*****	74.	229. AG	539.	2.0	0.0	12.3		
18. FREE PURCHASE SB2	*	330636.2	*****	330574.1	*****	66.	250. AG	539.	2.0	0.0	12.3		
19. FREE I-90 RAMP	*	330826.0	*****	330774.5	*****	67.	230. AG	1095.	2.0	0.0	13.2		
20. FREE I-90 RAMP	*	330774.5	*****	330702.5	*****	88.	235. AG	1095.	2.0	0.0	13.2		
21. FREE I-90 RAMP	*	330702.5	*****	330642.8	*****	80.	228. AG	1095.	2.0	0.0	13.2		
22. FREE I-90 RAMP	*	330642.8	*****	330578.6	*****	67.	254. AG	1095.	2.0	0.0	13.2		

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JOB: ONE POST OFFICE SQUARE - INTERS. #3055

RUN: 2024 BUILD-MITIGATED PM PEAK HOUR

DATE : 09/01/ 0  
TIME : 14:57:44

ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	*	CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM PAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE
1. QUEUE CONGRESS EBT	*	110	66	5.0	657	1555	5.13	2	3
2. QUEUE CONGRESS EBR	*	110	66	5.0	625	1454	5.13	2	3
3. QUEUE CONGRESS EBR2	*	110	66	5.0	221	1378	5.13	2	3
4. QUEUE PURCHASE SBLT	*	110	74	5.0	788	1441	5.13	2	3
5. QUEUE PURCHASE SBL2	*	110	74	5.0	288	1546	5.13	2	3

RECEPTOR LOCATIONS

RECEPTOR	*	X	Y	Z	*
1.	*	330848.7	*****	1.8	*
2.	*	330874.1	*****	1.8	*
3.	*	330890.3	*****	1.8	*
4.	*	330915.8	*****	1.8	*
5.	*	330941.2	*****	1.8	*
6.	*	330957.6	*****	1.8	*
7.	*	330966.2	*****	1.8	*
8.	*	330940.7	*****	1.8	*
9.	*	330915.2	*****	1.8	*
10.	*	330898.3	*****	1.8	*
11.	*	330873.0	*****	1.8	*
12.	*	330847.6	*****	1.8	*
13.	*	330800.2	*****	1.8	*
14.	*	330782.3	*****	1.8	*
15.	*	330764.5	*****	1.8	*
16.	*	330746.6	*****	1.8	*
17.	*	330755.6	*****	1.8	*
18.	*	330773.4	*****	1.8	*
19.	*	330791.2	*****	1.8	*
20.	*	330809.1	*****	1.8	*
21.	*	330826.9	*****	1.8	*
22.	*	330852.9	*****	1.8	*
23.	*	330872.0	*****	1.8	*
24.	*	330877.2	*****	1.8	*
25.	*	330868.2	*****	1.8	*
26.	*	330861.3	*****	1.8	*
27.	*	330842.2	*****	1.8	*
28.	*	330823.1	*****	1.8	*
29.	*	330763.1	*****	1.8	*
30.	*	330787.8	*****	1.8	*
31.	*	330812.5	*****	1.8	*
32.	*	330807.4	*****	1.8	*
33.	*	330784.5	*****	1.8	*
34.	*	330778.4	*****	1.8	*

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JOB: ONE POST OFFICE SQUARE - INTERS. #3055

RUN: 2024 BUILD-MITIGATED PM PEAK HOUR

MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

WIND ANGLE (DEGR)	* CONCENTRATION (PPM)	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
10.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
20.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0





Run Began on 9/01/2017 at 12:26:59

JOB: ONE POST OFFICE SQUARE - INTERS. #3055

RUN: 2017 EXISTING AM PEAK HOUR

DATE : 09/01/ 0  
TIME : 12:26:59

The MODE flag has been set to C for calculating CO averages.

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 321. CM  
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 0.0 PPM

LINK VARIABLES

Table with columns: LINK DESCRIPTION, X1, Y1, X2, Y2, LENGTH (M), BRG TYPE (DEG), VPH, EF (G/MI), H (M), W (M), V/C QUEUE (VEH). Lists 22 link entries with their respective coordinates and parameters.

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JOB: ONE POST OFFICE SQUARE - INTERS. #3055

RUN: 2017 EXISTING AM PEAK HOUR

DATE : 09/01/ 0  
TIME : 12:26:59

ADDITIONAL QUEUE LINK PARAMETERS

Table with columns: LINK DESCRIPTION, CYCLE LENGTH (SEC), RED TIME (SEC), CLEARANCE LOST TIME (SEC), APPROACH VOL (VPH), SATURATION FLOW RATE (VPH), IDLE EM PAC (gm/hr), SIGNAL TYPE, ARRIVAL RATE. Lists 5 queue link entries.

RECEPTOR LOCATIONS

Table with columns: RECEPTOR, X, Y, Z. Lists 34 receptor locations with their coordinates.

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JOB: ONE POST OFFICE SQUARE - INTERS. #3055

RUN: 2017 EXISTING AM PEAK HOUR

MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

Table with columns: WIND \* CONCENTRATION (PPM) (DEGR), REC1, REC2, REC3, REC4, REC5, REC6, REC7, REC8, REC9, REC10, REC11, REC12, REC13, REC14, REC15, REC16, REC17, REC18, REC19, REC20. Shows concentration values for wind angles 0, 10, and 20 degrees across 20 receptors.





Run Began on 9/01/2017 at 12:44:22

JOB: ONE POST OFFICE SQUARE - INTERS. #3055

RUN: 2017 EXISTING PM PEAK HOUR

DATE : 09/01/ 0  
TIME : 12:44:22

The MODE flag has been set to C for calculating CO averages.

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 321. CM  
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 0.0 PPM

LINK VARIABLES

Table with columns: LINK DESCRIPTION, X1, Y1, X2, Y2, LENGTH (M), BRG TYPE (DEG), VPH, EF (G/MI), H (M), W (M), V/C QUEUE (VEH). Contains 22 rows of link data.

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JOB: ONE POST OFFICE SQUARE - INTERS. #3055

RUN: 2017 EXISTING PM PEAK HOUR

DATE : 09/01/ 0  
TIME : 12:44:22

ADDITIONAL QUEUE LINK PARAMETERS

Table with columns: LINK DESCRIPTION, CYCLE LENGTH (SEC), RED TIME (SEC), CLEARANCE LOST TIME (SEC), APPROACH VOL (VPH), SATURATION FLOW RATE (VPH), IDLE EM PAC (gm/hr), SIGNAL TYPE, ARRIVAL RATE. Contains 5 rows of queue parameters.

RECEPTOR LOCATIONS

Table with columns: RECEPTOR, X, Y, Z. Contains 34 rows of receptor location data.

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JOB: ONE POST OFFICE SQUARE - INTERS. #3055

RUN: 2017 EXISTING PM PEAK HOUR

MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

Table with columns: WIND \* CONCENTRATION (PFM) (DEGR), REC1, REC2, REC3, REC4, REC5, REC6, REC7, REC8, REC9, REC10, REC11, REC12, REC13, REC14, REC15, REC16, REC17, REC18, REC19, REC20. Contains 3 rows of concentration data.







Run Began on 9/01/2017 at 12:50:27

JOB: ONE POST OFFICE SQUARE - INTERS. #3055

RUN: 2024 NO-BUILD AM PEAK HOUR

DATE : 09/01/ 0  
TIME : 12:50:27

The MODE flag has been set to C for calculating CO averages.

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 321. CM  
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 0.0 PPM

LINK VARIABLES

LINK DESCRIPTION	* X1	LINK COORDINATES (M) Y1 X2 Y2	* Y2	LENGTH (M)	BRG TYPE (DEG)	VPH	EF (G/MI)	H (M)	W (M)	V/C	QUEUE (VEH)
1. QUEUE CONGRESS EBT	* 330821.8	***** 330804.0	***** *	30.	324. AG	18.	100.0	0.0	6.3	0.61	5.1
2. QUEUE CONGRESS EBR	* 330817.4	***** 330793.5	***** *	41.	324. AG	9.	100.0	0.0	3.2	0.87	6.8
3. QUEUE CONGRESS EBR2	* 330814.6	***** 330801.8	***** *	22.	324. AG	9.	100.0	0.0	3.2	0.54	3.6
4. QUEUE PURCHASE SBLT	* 330840.8	***** 330874.5	***** *	41.	56. AG	17.	100.0	0.0	7.0	0.80	6.8
5. QUEUE PURCHASE SBL2	* 330843.5	***** 330884.1	***** *	49.	56. AG	9.	100.0	0.0	3.2	0.85	8.1
6. FREE PURCHASE SB	* 330827.4	***** 330894.3	***** *	79.	58. AG	1131.	2.0	0.0	15.0		
7. FREE PURCHASE SB	* 330894.3	***** 330962.2	***** *	80.	58. AG	1131.	2.0	0.0	15.0		
8. FREE PURCHASE SB	* 330962.2	***** 331003.7	***** *	57.	47. AG	1131.	2.0	0.0	15.0		
9. FREE PURCHASE SB	* 331003.7	***** 331036.3	***** *	67.	29. AG	1131.	2.0	0.0	15.0		
10. FREE PURCHASE SB	* 331036.3	***** 331045.6	***** *	33.	16. AG	1131.	2.0	0.0	15.0		
11. FREE CONGRESS EB	* 330825.7	***** 330675.4	***** *	253.	323. AG	994.	2.0	0.0	18.9		
12. FREE CONGRESS EB	* 330675.4	***** 330658.9	***** *	66.	346. AG	994.	2.0	0.0	18.9		
13. FREE CONGRESS EB2	* 330826.0	***** 330869.2	***** *	68.	141. AG	919.	2.0	0.0	20.0		
14. FREE CONGRESS EB2	* 330869.2	***** 330986.2	***** *	191.	142. AG	919.	2.0	0.0	20.0		
15. FREE CONGRESS EB2	* 330986.2	***** 331036.0	***** *	58.	121. AG	919.	2.0	0.0	20.0		
16. FREE PURCHASE SB2	* 330824.6	***** 330692.5	***** *	160.	235. AG	532.	2.0	0.0	12.3		
17. FREE PURCHASE SB2	* 330692.5	***** 330636.2	***** *	74.	229. AG	532.	2.0	0.0	12.3		
18. FREE PURCHASE SB2	* 330636.2	***** 330574.1	***** *	66.	250. AG	532.	2.0	0.0	12.3		
19. FREE I-90 RAMP	* 330826.0	***** 330774.5	***** *	67.	230. AG	674.	2.0	0.0	13.2		
20. FREE I-90 RAMP	* 330774.5	***** 330702.5	***** *	88.	235. AG	674.	2.0	0.0	13.2		
21. FREE I-90 RAMP	* 330702.5	***** 330642.8	***** *	80.	228. AG	674.	2.0	0.0	13.2		
22. FREE I-90 RAMP	* 330642.8	***** 330578.6	***** *	67.	254. AG	674.	2.0	0.0	13.2		

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JOB: ONE POST OFFICE SQUARE - INTERS. #3055

RUN: 2024 NO-BUILD AM PEAK HOUR

DATE : 09/01/ 0  
TIME : 12:50:27

ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	* CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM PAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE
1. QUEUE CONGRESS EBT	* 110	72	5.0	507	1482	5.13	2	3
2. QUEUE CONGRESS EBR	* 110	72	5.0	307	1254	5.13	2	3
3. QUEUE CONGRESS EBR2	* 110	72	5.0	180	1195	5.13	2	3
4. QUEUE PURCHASE SBLT	* 110	68	5.0	719	1402	5.13	2	3
5. QUEUE PURCHASE SBL2	* 110	68	5.0	412	1516	5.13	2	3

RECEPTOR LOCATIONS

RECEPTOR	* X	COORDINATES (M) Y Z	* Z
1.	* 330848.7	***** 1.8	*
2.	* 330874.1	***** 1.8	*
3.	* 330890.3	***** 1.8	*
4.	* 330915.8	***** 1.8	*
5.	* 330941.2	***** 1.8	*
6.	* 330957.6	***** 1.8	*
7.	* 330966.2	***** 1.8	*
8.	* 330940.7	***** 1.8	*
9.	* 330915.2	***** 1.8	*
10.	* 330898.3	***** 1.8	*
11.	* 330873.0	***** 1.8	*
12.	* 330847.6	***** 1.8	*
13.	* 330800.2	***** 1.8	*
14.	* 330782.3	***** 1.8	*
15.	* 330764.5	***** 1.8	*
16.	* 330746.6	***** 1.8	*
17.	* 330755.6	***** 1.8	*
18.	* 330773.4	***** 1.8	*
19.	* 330791.2	***** 1.8	*
20.	* 330809.1	***** 1.8	*
21.	* 330826.9	***** 1.8	*
22.	* 330852.9	***** 1.8	*
23.	* 330872.0	***** 1.8	*
24.	* 330877.2	***** 1.8	*
25.	* 330868.2	***** 1.8	*
26.	* 330861.3	***** 1.8	*
27.	* 330842.2	***** 1.8	*
28.	* 330823.1	***** 1.8	*
29.	* 330763.1	***** 1.8	*
30.	* 330787.8	***** 1.8	*
31.	* 330812.5	***** 1.8	*
32.	* 330807.4	***** 1.8	*
33.	* 330784.5	***** 1.8	*
34.	* 330778.4	***** 1.8	*

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JOB: ONE POST OFFICE SQUARE - INTERS. #3055

RUN: 2024 NO-BUILD AM PEAK HOUR

MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

WIND * CONCENTRATION ANGLE * (DEGR)	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0.	* 0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
10.	* 0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
20.	* 0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0

Table of model results with columns for receptor IDs (REC21-REC34) and values ranging from 0.0 to 0.2. Includes a summary row 'MAX DEGR.' at the bottom.

JOB: ONE POST OFFICE SQUARE - INTERS. #3055 RUN: 2024 NO-BUILD AM PEAK HOUR

MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

Table with columns for WIND ANGLE (DEGR) and CONCENTRATION (PPM) for various receptors (REC21-REC34). Includes a summary row 'MAX DEGR.' at the bottom.

JOB: ONE POST OFFICE SQUARE - INTERS. #3055 RUN: 2024 NO-BUILD AM PEAK HOUR

DATE : 09/01/ 0 TIME : 12:50:27

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

Table showing the relationship between LINK # and RECEPTOR (REC1-REC20). Includes a summary row 'MAX DEGR.' at the bottom.



Run Began on 9/01/2017 at 14:28:23

JOB: ONE POST OFFICE SQUARE - INTERS. #3055

RUN: 2024 NO-BUILD PM PEAK HOUR

DATE : 09/01/ 0  
TIME : 14:28:23

The MODE flag has been set to C for calculating CO averages.

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 321. CM  
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 0.0 PPM

LINK VARIABLES

LINK DESCRIPTION	* X1	LINK COORDINATES (M) Y1 X2 Y2	* Y2	LENGTH (M)	BRG TYPE (DEG)	VPH	EF (G/MI)	H (M)	W (M)	V/C	QUEUE (VEH)
1. QUEUE CONGRESS EBT	* 330821.8	***** 330800.6	***** *	36.	324. AG	17.	100.0	0.0	6.3	0.64	6.0
2. QUEUE CONGRESS EBR	* 330817.4	***** 330545.3	***** *	465.	324. AG	8.	100.0	0.0	3.2	1.26	77.6
3. QUEUE CONGRESS EBR2	* 330814.6	***** 330800.3	***** *	24.	324. AG	8.	100.0	0.0	3.2	0.48	4.0
4. QUEUE PURCHASE SBLT	* 330840.8	***** 330900.7	***** *	72.	56. AG	18.	100.0	0.0	7.0	1.00	12.1
5. QUEUE PURCHASE SBL2	* 330843.5	***** 330872.7	***** *	35.	56. AG	9.	100.0	0.0	3.2	0.68	5.8
6. FREE PURCHASE SB	* 330827.4	***** 330894.3	***** *	79.	58. AG	1076.	2.0	0.0	15.0		
7. FREE PURCHASE SB	* 330894.3	***** 330962.2	***** *	80.	58. AG	1076.	2.0	0.0	15.0		
8. FREE PURCHASE SB	* 330962.2	***** 331003.7	***** *	57.	47. AG	1076.	2.0	0.0	15.0		
9. FREE PURCHASE SB	* 331003.7	***** 331036.3	***** *	67.	29. AG	1076.	2.0	0.0	15.0		
10. FREE PURCHASE SB	* 331036.3	***** 331045.6	***** *	33.	16. AG	1076.	2.0	0.0	15.0		
11. FREE CONGRESS EB	* 330825.7	***** 330675.4	***** *	253.	323. AG	1461.	2.0	0.0	18.9		
12. FREE CONGRESS EB	* 330675.4	***** 330658.9	***** *	66.	346. AG	1461.	2.0	0.0	18.9		
13. FREE CONGRESS EB2	* 330826.0	***** 330869.2	***** *	68.	141. AG	936.	2.0	0.0	20.0		
14. FREE CONGRESS EB2	* 330869.2	***** 330986.2	***** *	191.	142. AG	936.	2.0	0.0	20.0		
15. FREE CONGRESS EB2	* 330986.2	***** 331036.0	***** *	58.	121. AG	936.	2.0	0.0	20.0		
16. FREE PURCHASE SB2	* 330824.6	***** 330692.5	***** *	160.	235. AG	533.	2.0	0.0	12.3		
17. FREE PURCHASE SB2	* 330692.5	***** 330636.2	***** *	74.	229. AG	533.	2.0	0.0	12.3		
18. FREE PURCHASE SB2	* 330636.2	***** 330574.1	***** *	66.	250. AG	533.	2.0	0.0	12.3		
19. FREE I-90 RAMP	* 330826.0	***** 330774.5	***** *	67.	230. AG	1068.	2.0	0.0	13.2		
20. FREE I-90 RAMP	* 330774.5	***** 330702.5	***** *	88.	235. AG	1068.	2.0	0.0	13.2		
21. FREE I-90 RAMP	* 330702.5	***** 330642.8	***** *	80.	228. AG	1068.	2.0	0.0	13.2		
22. FREE I-90 RAMP	* 330642.8	***** 330578.6	***** *	67.	254. AG	1068.	2.0	0.0	13.2		

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JOB: ONE POST OFFICE SQUARE - INTERS. #3055

RUN: 2024 NO-BUILD PM PEAK HOUR

DATE : 09/01/ 0  
TIME : 14:28:23

ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	* CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM PAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE
1. QUEUE CONGRESS EBT	* 110	67	5.0	648	1555	5.13	2	3
2. QUEUE CONGRESS EBR	* 110	67	5.0	598	1454	5.13	2	3
3. QUEUE CONGRESS EBR2	* 110	67	5.0	215	1378	5.13	2	3
4. QUEUE PURCHASE SBLT	* 110	73	5.0	788	1441	5.13	2	3
5. QUEUE PURCHASE SBL2	* 110	73	5.0	288	1546	5.13	2	3

RECEPTOR LOCATIONS

RECEPTOR	* X	COORDINATES (M) Y Z	* Z
1.	* 330848.7	***** 1.8	*
2.	* 330874.1	***** 1.8	*
3.	* 330890.3	***** 1.8	*
4.	* 330915.8	***** 1.8	*
5.	* 330941.2	***** 1.8	*
6.	* 330957.6	***** 1.8	*
7.	* 330966.2	***** 1.8	*
8.	* 330940.7	***** 1.8	*
9.	* 330915.2	***** 1.8	*
10.	* 330898.3	***** 1.8	*
11.	* 330873.0	***** 1.8	*
12.	* 330847.6	***** 1.8	*
13.	* 330800.2	***** 1.8	*
14.	* 330782.3	***** 1.8	*
15.	* 330764.5	***** 1.8	*
16.	* 330746.6	***** 1.8	*
17.	* 330755.6	***** 1.8	*
18.	* 330773.4	***** 1.8	*
19.	* 330791.2	***** 1.8	*
20.	* 330809.1	***** 1.8	*
21.	* 330826.9	***** 1.8	*
22.	* 330852.9	***** 1.8	*
23.	* 330872.0	***** 1.8	*
24.	* 330877.2	***** 1.8	*
25.	* 330868.2	***** 1.8	*
26.	* 330861.3	***** 1.8	*
27.	* 330842.2	***** 1.8	*
28.	* 330823.1	***** 1.8	*
29.	* 330763.1	***** 1.8	*
30.	* 330787.8	***** 1.8	*
31.	* 330812.5	***** 1.8	*
32.	* 330807.4	***** 1.8	*
33.	* 330784.5	***** 1.8	*
34.	* 330778.4	***** 1.8	*

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JOB: ONE POST OFFICE SQUARE - INTERS. #3055

RUN: 2024 NO-BUILD PM PEAK HOUR

MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

WIND ANGLE (DEGR)	* CONCENTRATION (PPM)	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0.	* 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
10.	* 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
20.	* 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0





