



# Downtown Carpark Site Development

## E

### Shading Analysis

Prepared for:  
Precinct Properties Holdings Ltd

Document Revision Status:  
Fast-Track Approval Application, Revision B

17 October 2025

# Document Suite

Prepared For:  
**Precinct Properties Holdings Ltd**

Document Revision Status:  
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Date:  
**17 October 2025**

Contact:  
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New Zealand  
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Application Documents:



**A** Proposed Architectural Drawings



**B** Proposed Landscape Drawings



**C** Existing & Demolition Drawings



**D** Architecture & Landscape Report



**E** Shading Analysis

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# Methodology

## 1.1 Methodology

The following methodology was reviewed and approved by the project surveyor Harrison Grierson in August 2023. It meets the requirements of 'Appendix 11 - Business City Centre Zone sunlight admission into public places' contained within Standard H8.6.3 Admission of sunlight to public places (1-6).

### Our analysis adopts the following parameters:

- For site boundary information at a city scale we utilise information from Auckland Council GIS (Geomaps). Boundaries are not surveyed.
- Topography is approximate and derived from LiDAR data and smoothed contours from Auckland Council GIS. We have verified the proposed site RL and the St Patrick's Square RL's using existing survey information for adjacent sites. This confirms the accuracy of the GIS topography.
- Existing building information is approximate and is obtained from our in-house digital city-model and derived from a variety of publicly available and internal sources. Where possible it has been verified through a more detailed photogrammetry model.
- The existing city context includes 'approved consented' but not implemented resource consent envelopes. This data is approximate and derived from public information sources. These projects include: 83 Customs Street East (Seascape) - under construction; 5-15 Albert Street - demolition commenced; 53 Saint Patricks Square (Hotel Indigo) - under construction at the time of analysis, now complete; & 32-42 Wellesley Street West (Symphony Centre) - under construction.
- North point for solar analysis is derived from Auckland Council GIS data. The default coordinate system used by Auckland Council's GIS is New Zealand Transverse Mercator (NZTM2000).
- St Patrick's Square extent is determined by GIS site boundary information and approximate topography contour. We have verified the GIS topography using existing survey information for an adjacent site. Co-ordinate points defining the square are not provided within 'Appendix 11 Business – City Centre Zone sunlight admission into public places'.
- With regard to Freyberg Place, the shading diagrams illustrate no shading impact related to the proposal under any time/date scenarios modelled. The modelling within this document uses GIS topography as the basis for modelling rather than a flat plane as defined within Appendix 11, however the north-west corner of this modelled topography is consistent with the 'RL 12.7 defined for Baselines A, B and C' contained within Appendix 11 (and no shading is observed).
- Defined time periods are inclusive of daylight saving adjustments.
- Winter Solstice, Summer Solstice, and Equinoxes are modelled at 1 hour intervals from sunrise to sunset for each date to provide an overview of shading impacts.
- Further detailed analysis is included for specific days outside of these reference dates/times to demonstrate shading impacts on St Patrick's Square.
- Solar sunlight cones have been developed using 'Rhino 8' and the plugin 'Ladybug' and are projected to the site footprint to define building envelope parameters.
- Shadow analysis is undertaken using Autodesk Revit 2024 with the model geolocated. Graphic outputs are exported using a Revit plugin called 'Shadow Colour' by AgileForm

### The analysis is provided at the following scales:

- A wider City Centre scale undertaken at hourly increments from sunrise to sunset across solstice & equinox dates;
- A closer study of St Patrick's Square undertaken at 15min increments between 10am-2pm on solstice & equinox dates, and July 29th - the day with the greatest shading infringement.
- A 3D study of the 'Urban Room' courtyard space proposed within the development to enable consideration of sunlight access into the proposed public space.

### The range of times for each day is chosen to relate to the timing of sunrise and sunset and to give a comprehensive picture of shading through the representative days chosen:

- Winter solstice 21 June (sun rise 7.33am, sunset 5.11pm) has studies from 8.00am to 5.00pm (NZ Standard Time)
- Spring equinox 23 September (sun rise 6.09am, sunset 6.17pm) has studies from 7.00am to 6.00pm (NZ Standard Time)
- Summer solstice 21 December (sun rise 5.58am, sunset 8.40pm) has studies from 7.00am to 8.00pm (NZ Daylight Time)

### Detailed analysis of St Patrick's Square infringement:

- Further detailed analysis at 1minute increments is provided to demonstrate the time periods when shadow is cast on St Patrick's Square between 12:00noon-2pm (49 days total)
- Dates around the 29th of July are included to demonstrate the time periods that shadow is cast on the north-east corner of St Patrick's Square by Tower 1
- Dates around the 22nd June are included to demonstrate the time periods that shadow is cast on the north-west corner of St Patrick's Square by Tower 2

# Shading Analysis



# SHADING ANALYSIS - SHEET LIST (FTA SERIES)

SHEET NUMBER SHEET NAME Current Revision

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FTA-81-000	SHADING ANALYSIS COVER SHEET	D
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FTA   81 SERIES   SUN STUDY   1   CITYSCAPE		
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FTA-81-002	CITY SCAPE SHADING ANALYSIS SPRING EQUINOX SEP 23 - 1300-1800	D
FTA-81-003	CITY SCAPE SHADING ANALYSIS SUMMER SOLSTICE DEC 21 - 0700-1200	D
FTA-81-004	CITY SCAPE SHADING ANALYSIS SUMMER SOLSTICE DEC 21 - 1300-1800	D
FTA-81-005	CITY SCAPE SHADING ANALYSIS SUMMER SOLSTICE DEC 21 - 1900-2000	D
FTA-81-006	CITY SCAPE SHADING ANALYSIS WINTER SOLSTICE JUN 21 - 0800-1300	D
FTA-81-007	CITY SCAPE SHADING ANALYSIS WINTER SOLSTICE JUN 21 - 1400-1700	D
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FTA   81 SERIES   SUN STUDY   2   ST PATRICKS		
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FTA-81-011	ST PATRICK'S SQ SHADING ANALYSIS SPRING EQUINOX SEP 23 - 1130-1245	D
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## Issue Status & No

A 05/09/25 Draft FTA Issue  
B 26/09/25 FTA Issue  
C 03/10/25 FTA Issue  
D 17/10/25 FTA Issue

## Notes

FTA ISSUE

COMMERCIAL IN CONFIDENCE

## Consultants

RCP  
Project Manager  
RLB  
Quantity Surveyor  
HOLMES  
Structural Engineer  
NDY  
Services Engineer  
JENSEN HUGHES  
Fire Engineer  
TONKIN + TAYLOR  
Civil Engineer  
FLOW  
Traffic Engineer  
MOTT MAC DONALD  
Facade Engineer

## Client

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Auckland 1010  
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Phone + 64 9 309 4894

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## Project Title

**DOWNTOWN  
CARPARK  
DEVELOPMENT**

2 LOWER HOBSON STREET,  
AUCKLAND CBD, AUCKLAND 1010

Drawing No Revision

FTA-81-000 (D)

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- SHADING GENERATED BY EXISTING OR APPROVED STRUCTURES
- IDENTIFIED PUBLIC PLACES: APPENDIX 11 BUSINESS - CITY CENTRE ZONE SUNLIGHT ADMISSION INTO PUBLIC PLACES; FIGURE 1

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- RLB Quantity Surveyor
- HOLMES Structural Engineer
- NDY Services Engineer
- JENSEN HUGHES Fire Engineer
- TONKIN + TAYLOR Civil Engineer
- FLOW Traffic Engineer
- MOTT MAC DONALD Facade Engineer

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**Project Title**

**DOWNTOWN  
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 DEVELOPMENT**

2 LOWER HOBSON STREET,  
 AUCKLAND CBD, AUCKLAND 1010

**Drawing Title**

**CITY SCAPE  
 SHADING ANALYSIS  
 SPRING EQUINOX  
 SEP 23 - 0700-1200**

**Drawing Status**

**FTA ISSUE**

**Drawing Details**

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Drawn	WAM
Checked	MM

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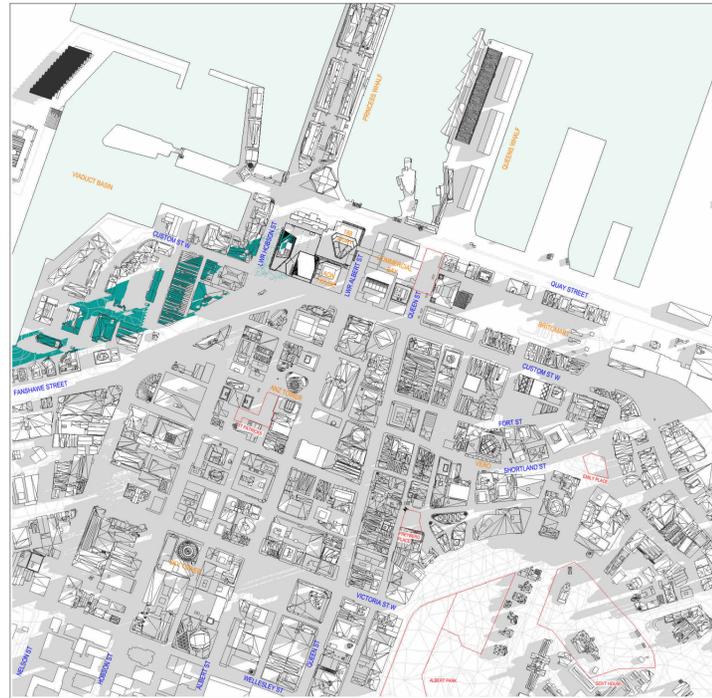
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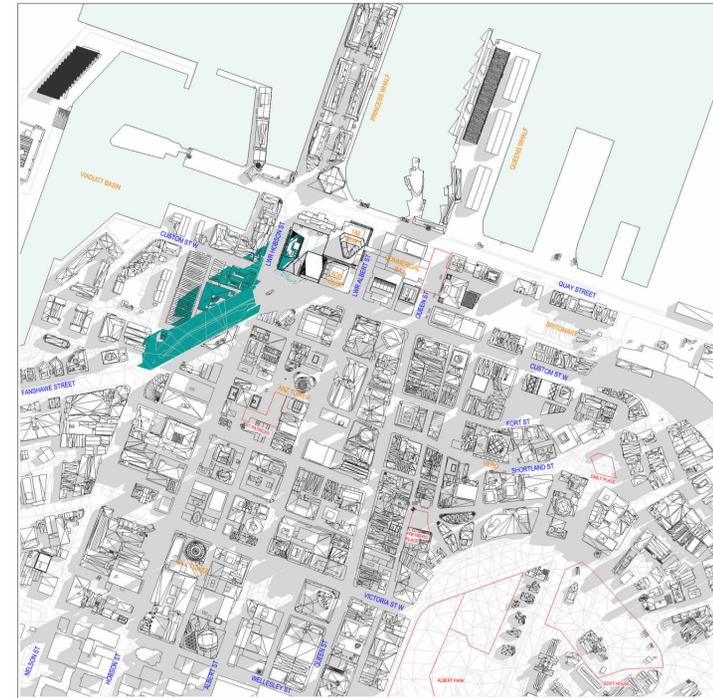
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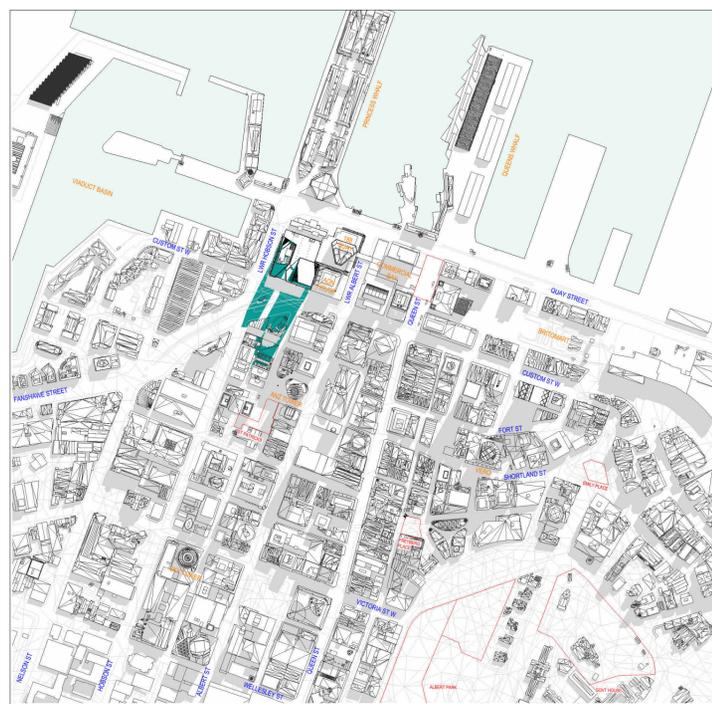
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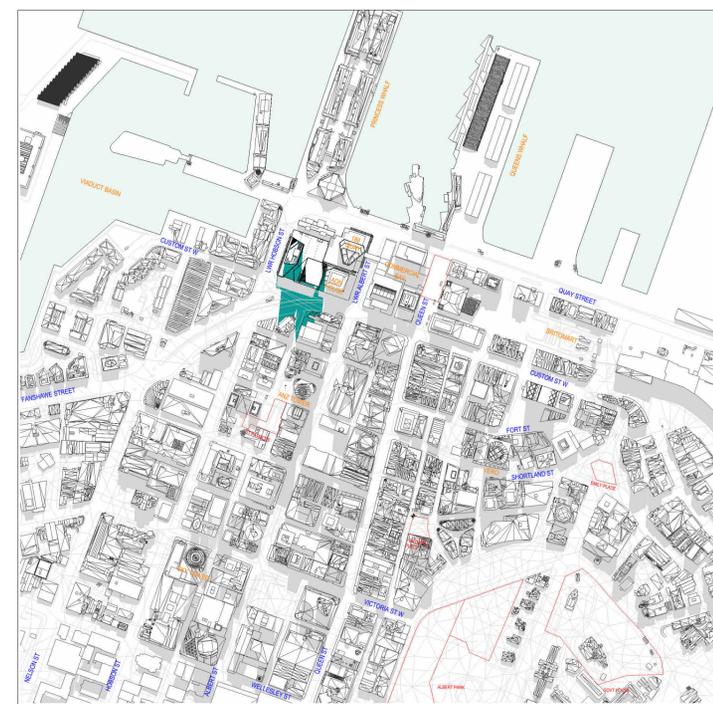
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Sep 23 - 11\_00 AM



Sep 23 - 12\_00 PM

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- D 17/10/25 FTA Issue

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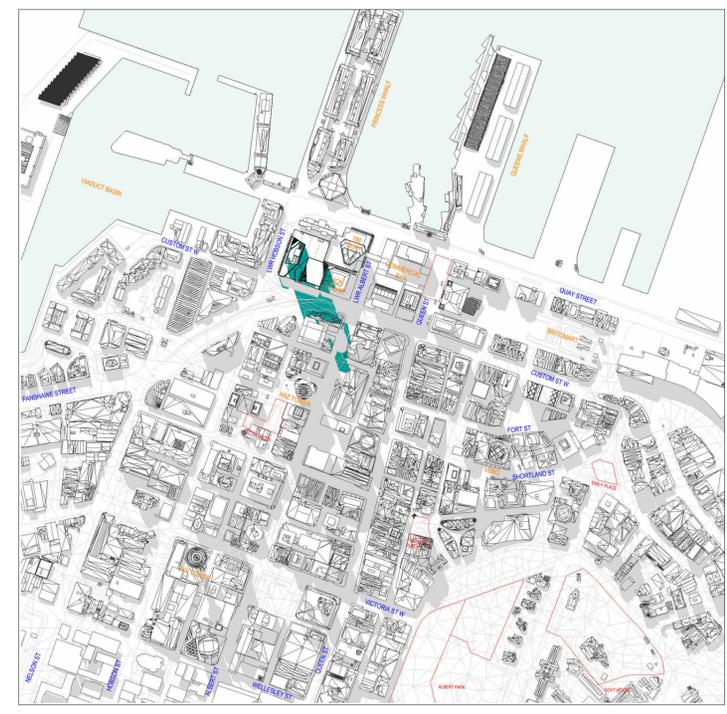
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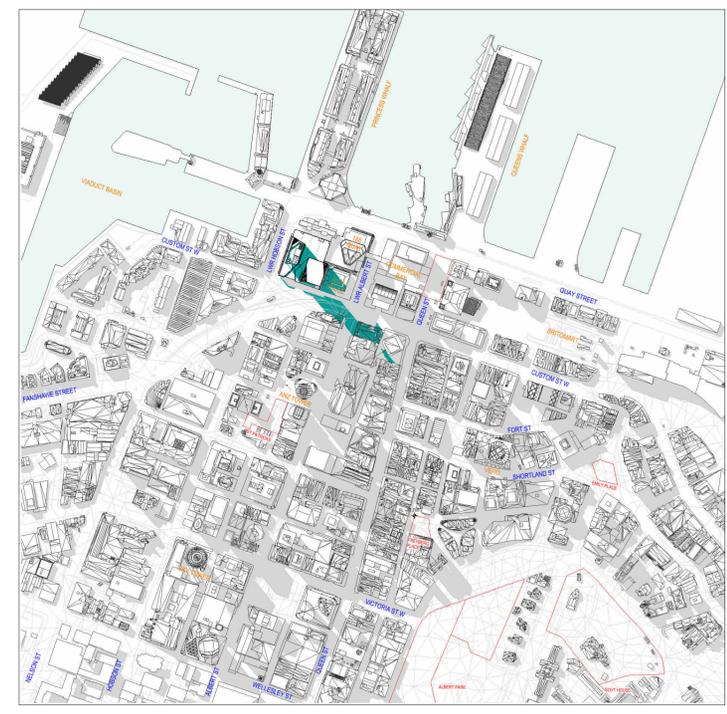
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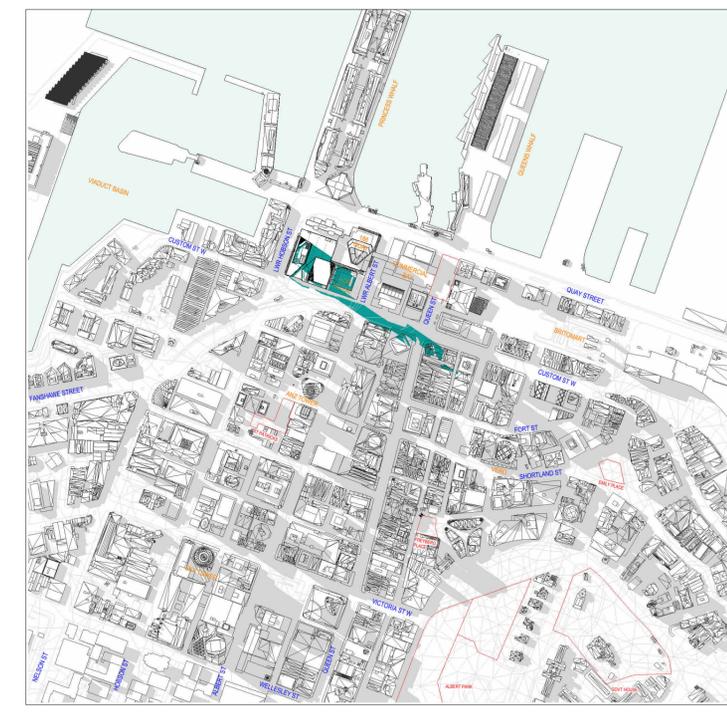
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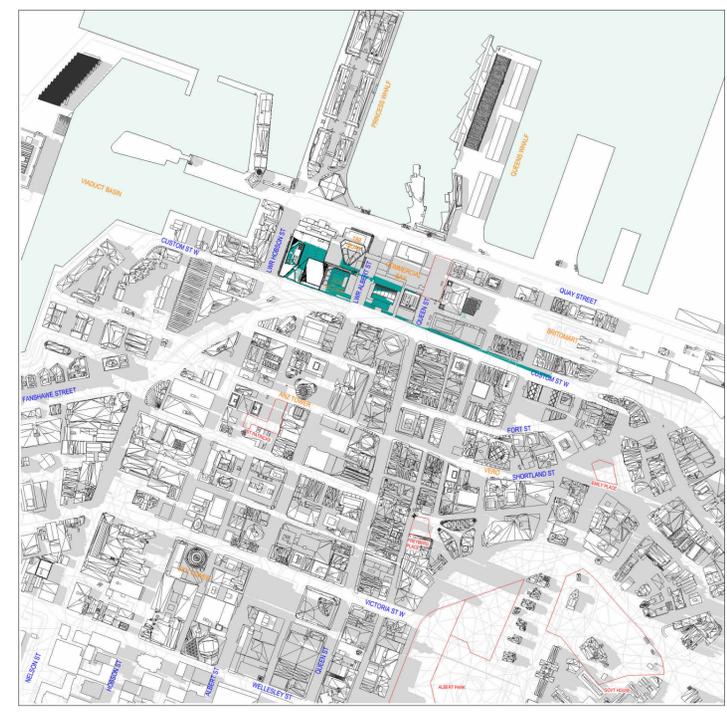
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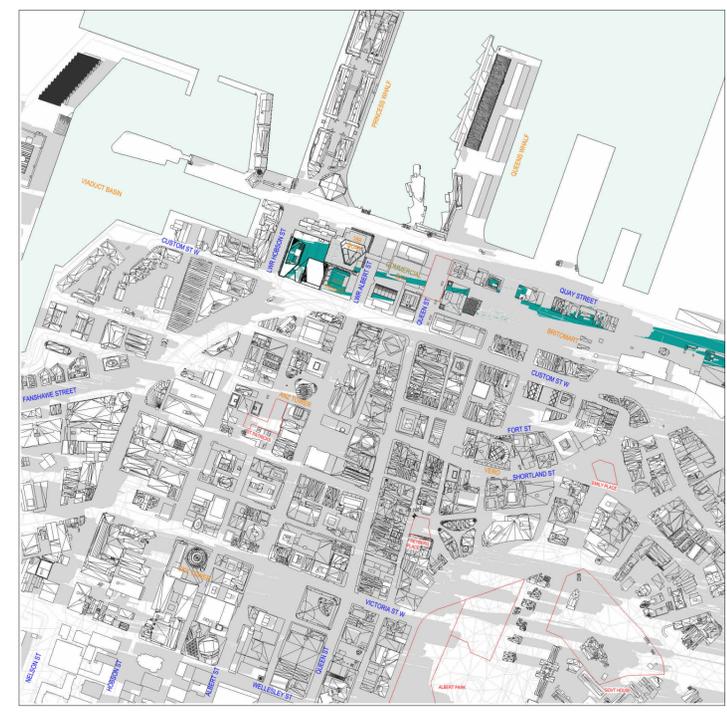
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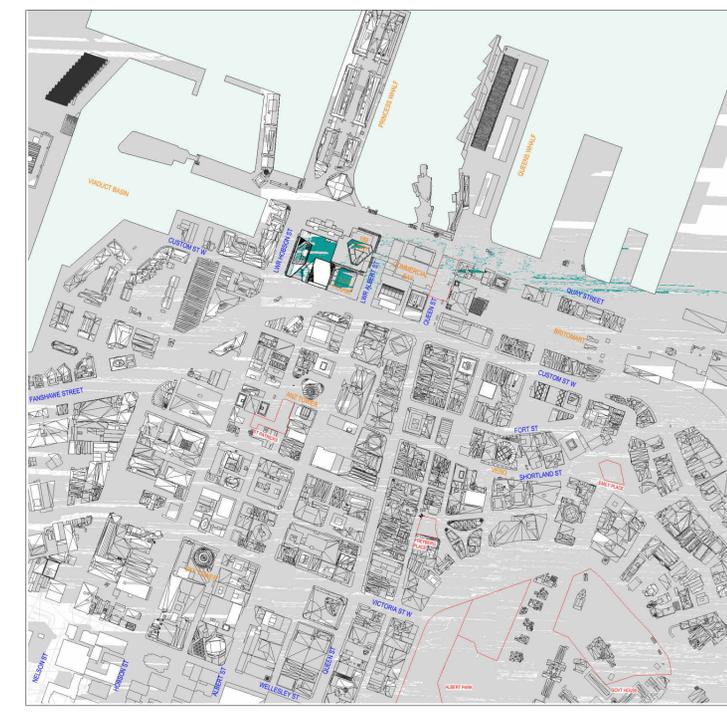
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Sep 23 - 05\_00 PM



Sep 23 - 06\_00 PM

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SUMMER SOLSTICE  
DEC 21 - 0700-1200**

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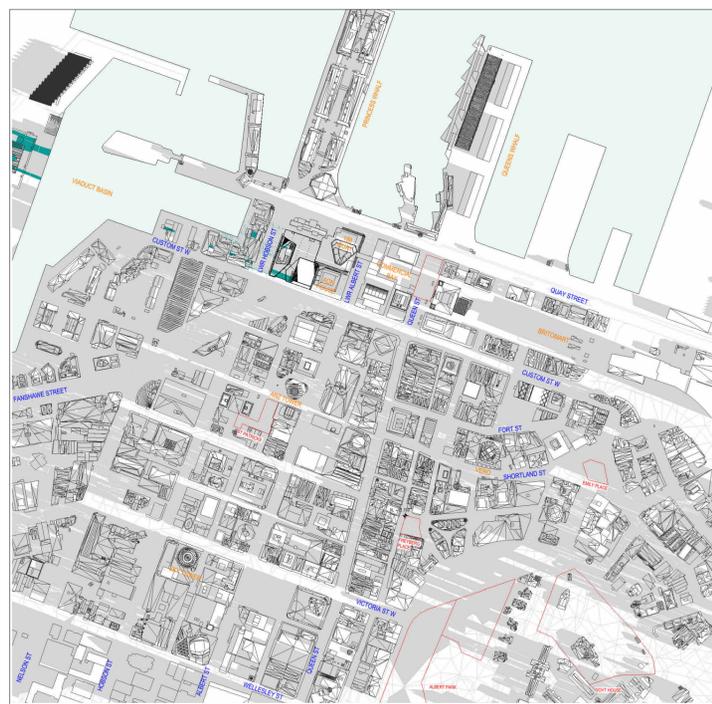
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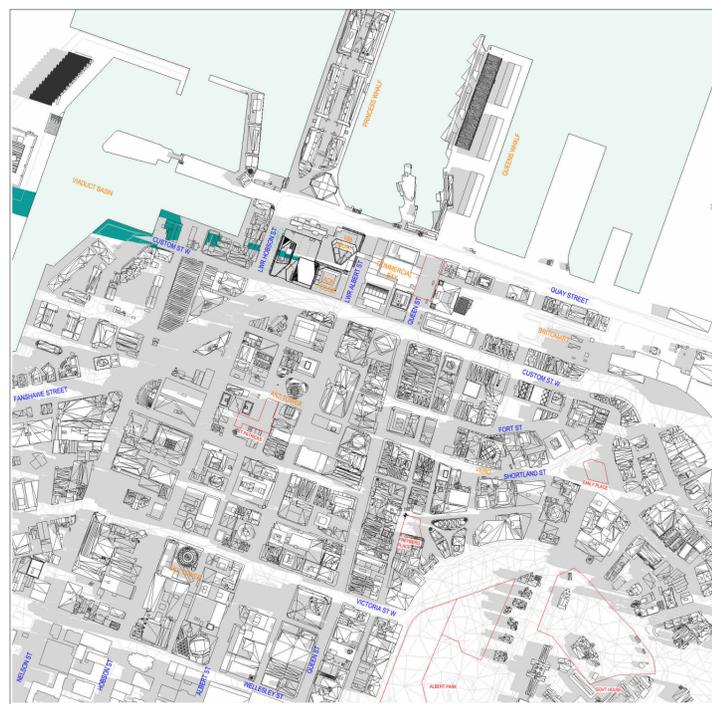
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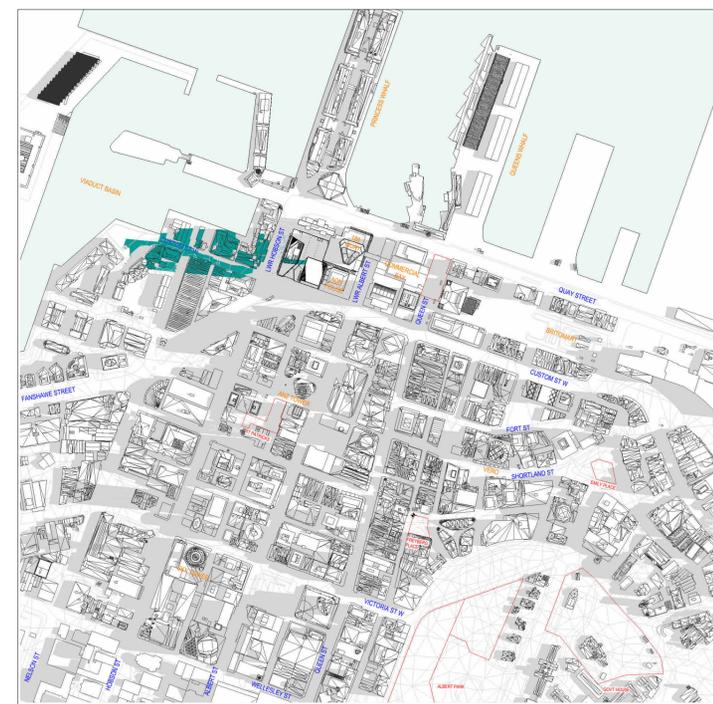
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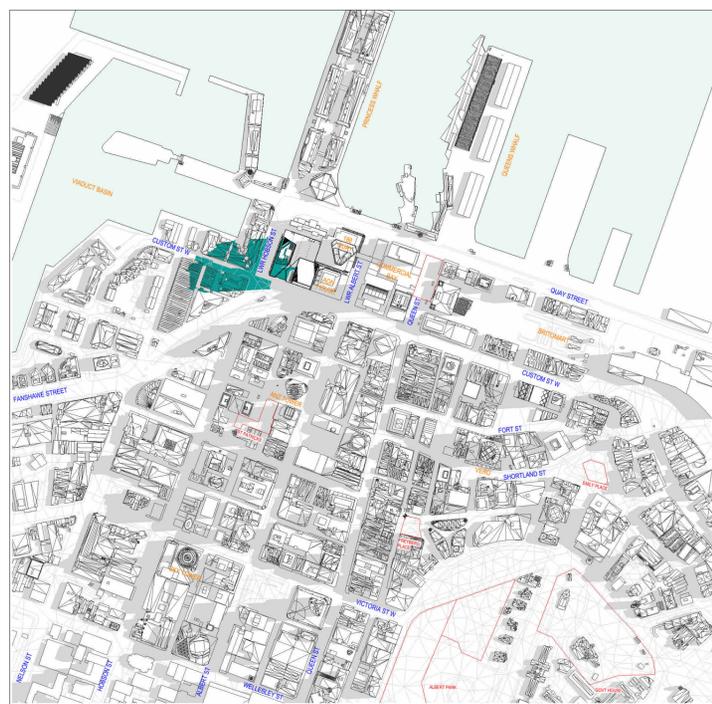
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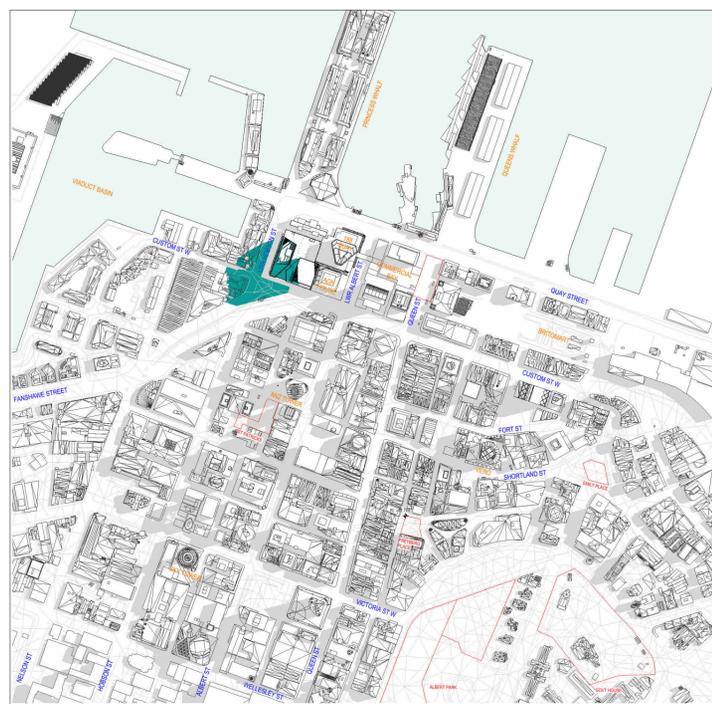
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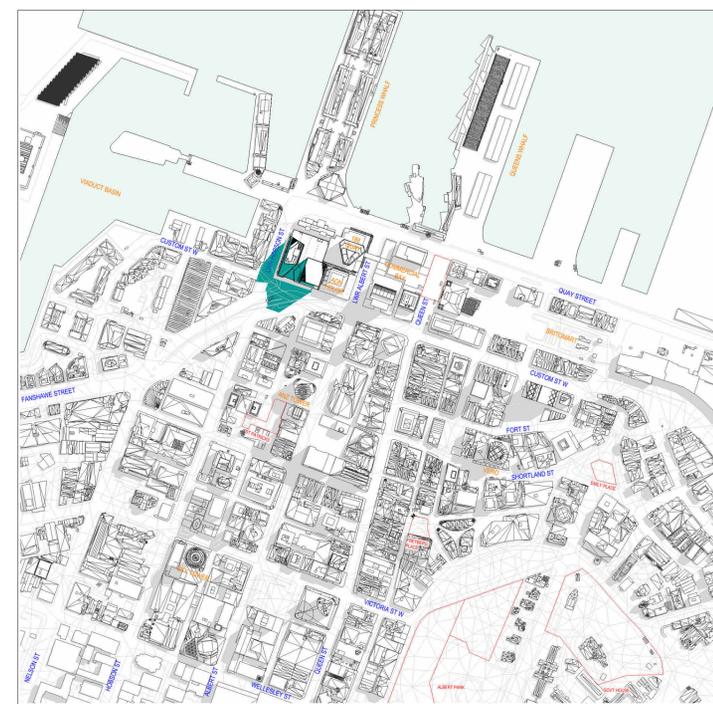
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Dec 21 - 12\_00 PM (NZDT)

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 DEVELOPMENT**

2 LOWER HOBSON STREET,  
 AUCKLAND CBD, AUCKLAND 1010

**Drawing Title**

**CITY SCAPE  
 SHADING ANALYSIS  
 SUMMER SOLSTICE  
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**Drawing Status**

**FTA ISSUE**

**Drawing Details**

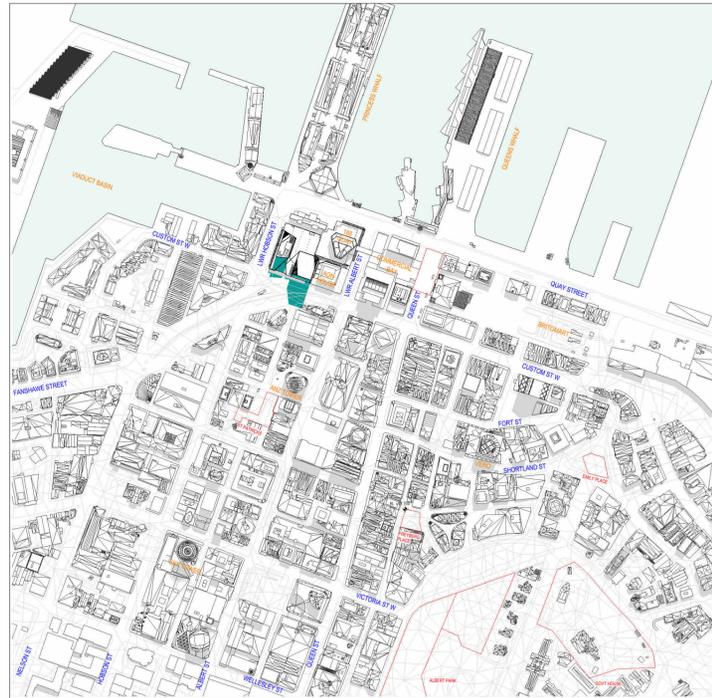
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**Revision**

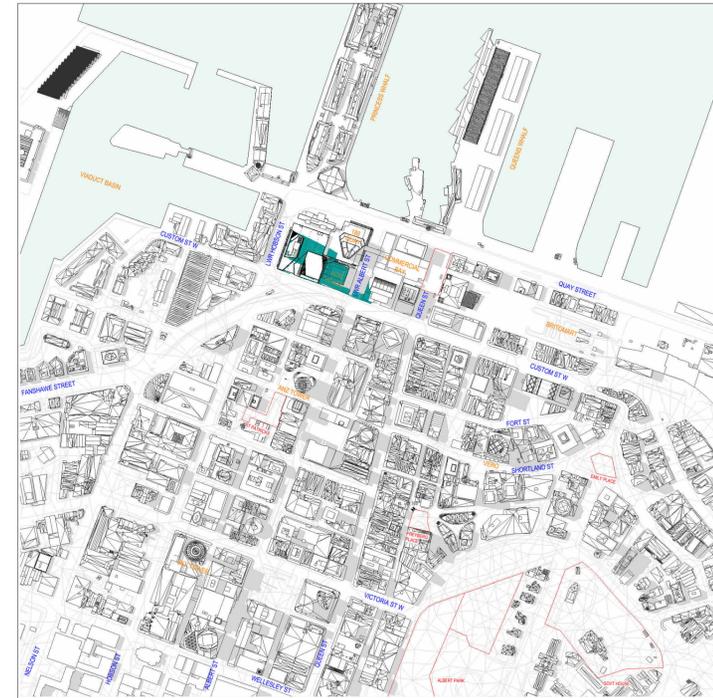
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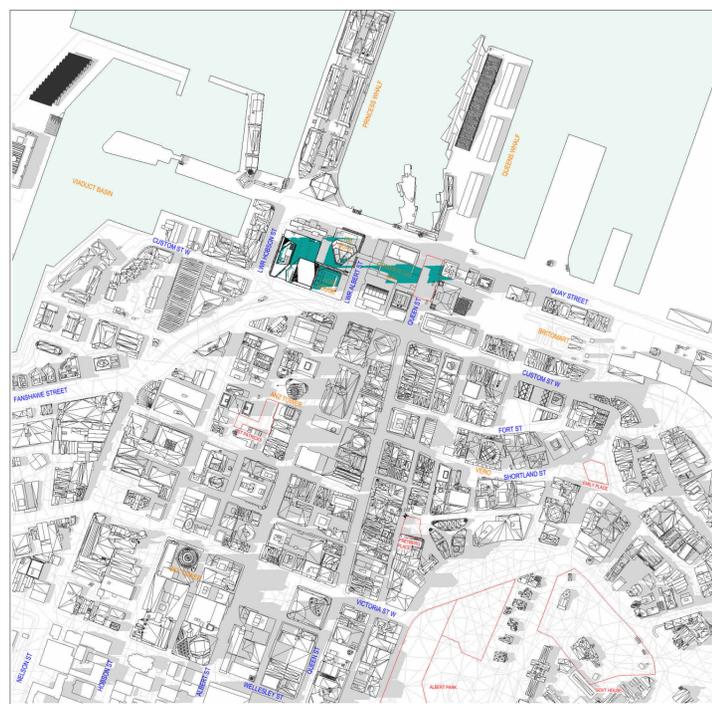
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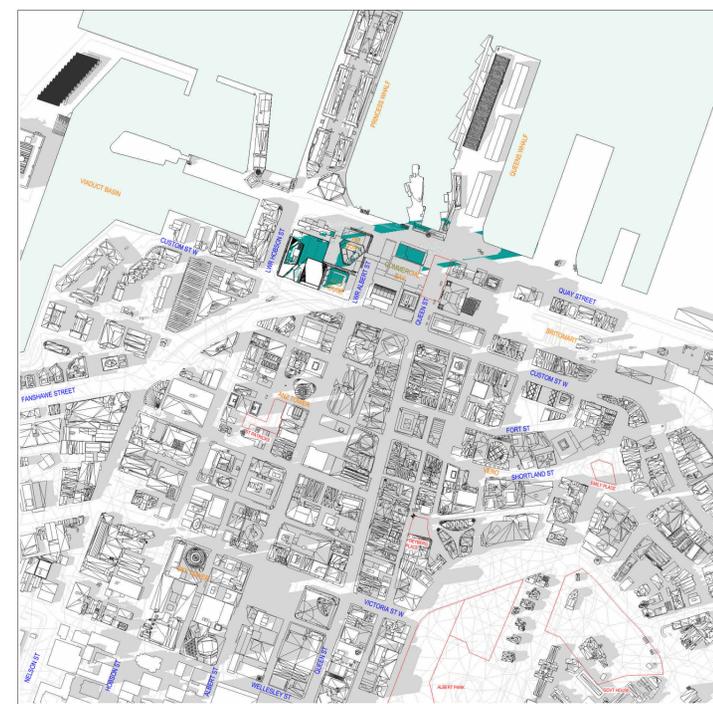
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Dec 21 - 05\_00 PM (NZDT)



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JUN 21 - 0800-1300**

**Drawing Status**

**FTA ISSUE**

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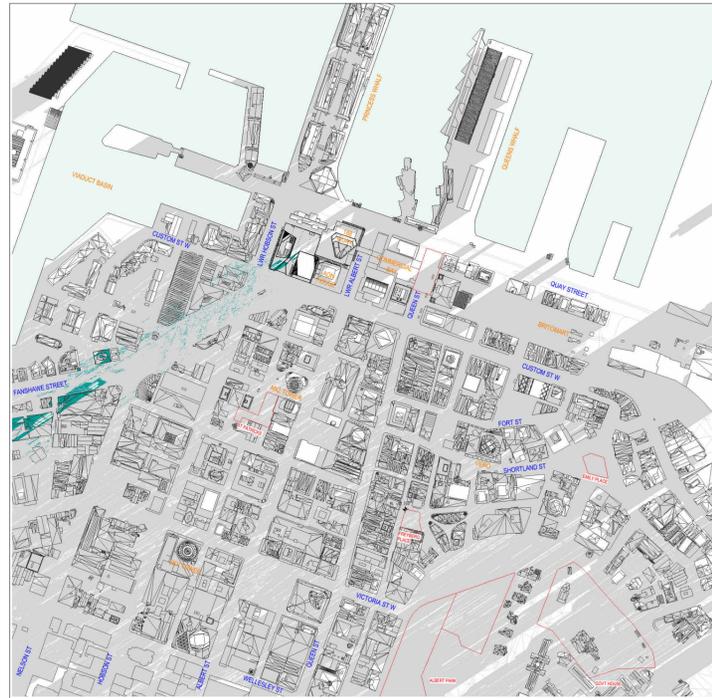
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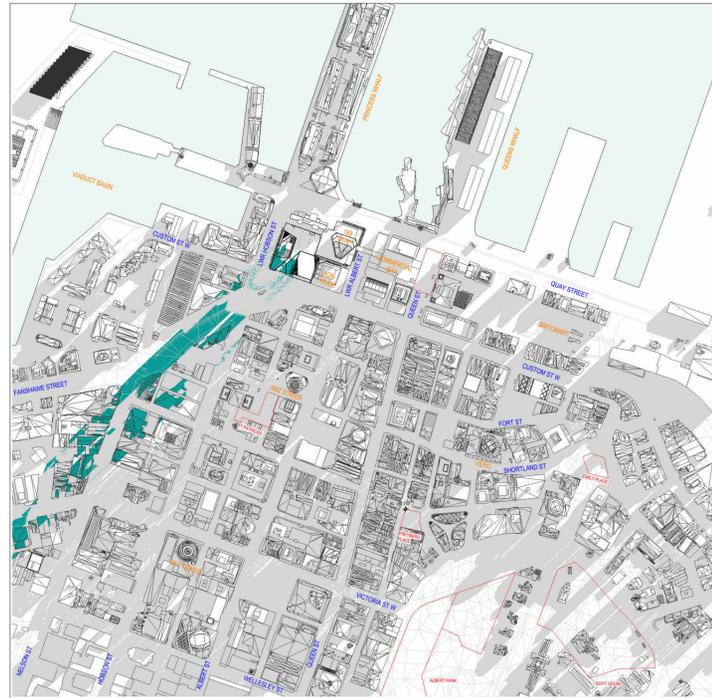
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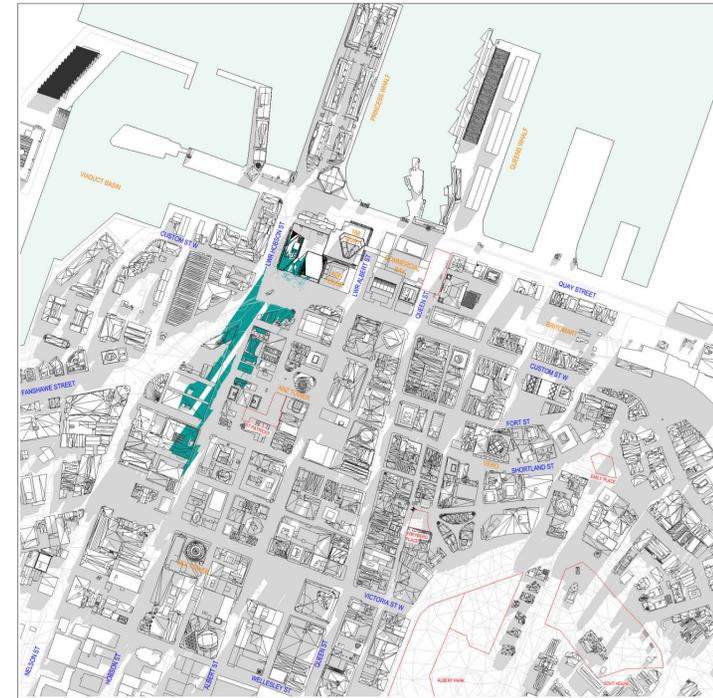
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Jun 21 - 08\_00 AM



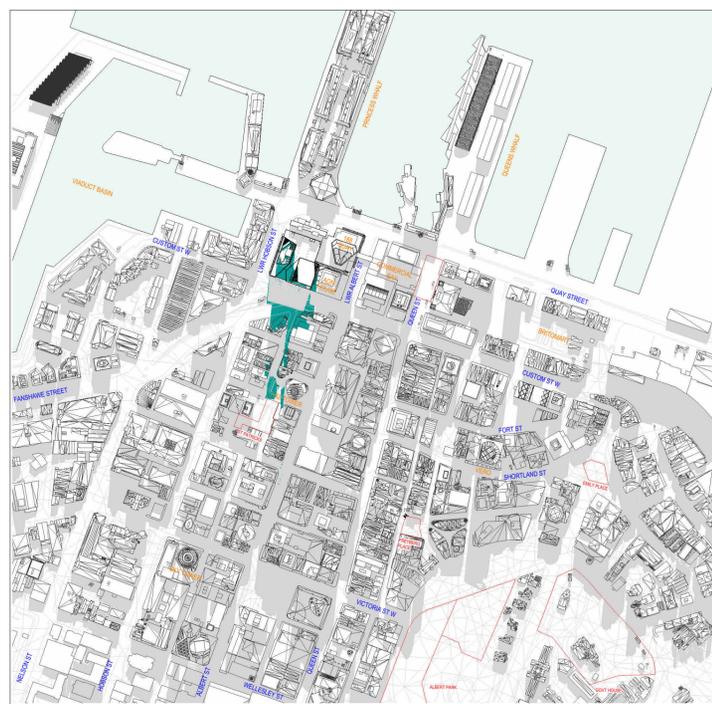
Jun 21 - 09\_00 AM



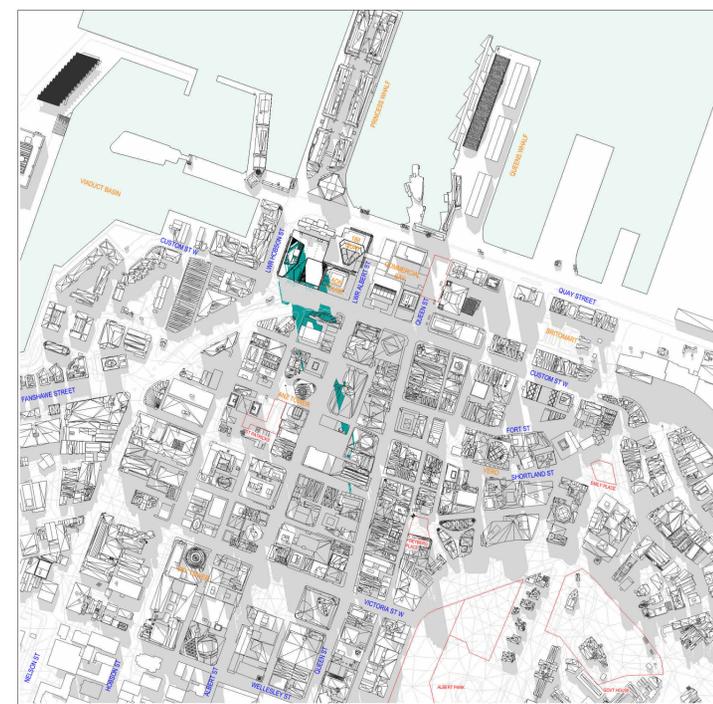
Jun 21 - 10\_00 AM



Jun 21 - 11\_00 AM



Jun 21 - 12\_00 PM



Jun 21 - 01\_00 PM