

CityOne Development Contribution to Wynyard Station Egress

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Wynyard Station Interface

- CityOne fire safety strategy proposed performance-based fire separation
 - Separate smoke compartments
 - dual sprinkler system with cut-off sprinklers
- CityOne development separate building
- Egress through CityOne is “HORIZONTAL EXIT” to Wynyard Station



Wynyard Station Egress Routes

- George Street ramps (Thakral House)
- Escalators & stairs to York St (Transport House)
- Existing link to west (Kent St)
- Escalators & stairs to Wynyard park
- Met Centre link
- Hunter Arcade
- Future Barangaroo Link
- Wynyard Lane (North & South) through City One development
- Fire-isolated exits

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Fire Safety Benchmark

- BCA compliance required but may be on performance basis
- NFPA 130
 - extensively used in many countries
 - defacto international standard
 - basis of egress provisions in RailCorp's SGFLS (standard Guidelines for Fire & Life Safety in Underground Stations)
 - basis of egress design for ECRL, Chatswood, Parramatta, Epping and many other stations

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NFPA 130 Egress Criteria

- Escalators permitted to be used for egress
- Escalators in direction of travel shall continue to operate
- One escalator (worst capacity) is to be considered out of service
- Escalators reverse to direction of egress shall be capable of being stopped (locally or remotely)
- Stopped escalators may be used (treated as stairs)
- Concourse with emergency ventilation system may be regarded as a "Point of Safety"
- Sufficient exit capacity to evacuate platforms to "point of safety" in 4 minutes
- Evacuation time of platform to "point of safety" in 6 minutes
- No limit on evacuation time beyond "point of safety"
- Horizontal exits limited to 50% into single building. **Note:** BCA limits horizontal exits to 50%.

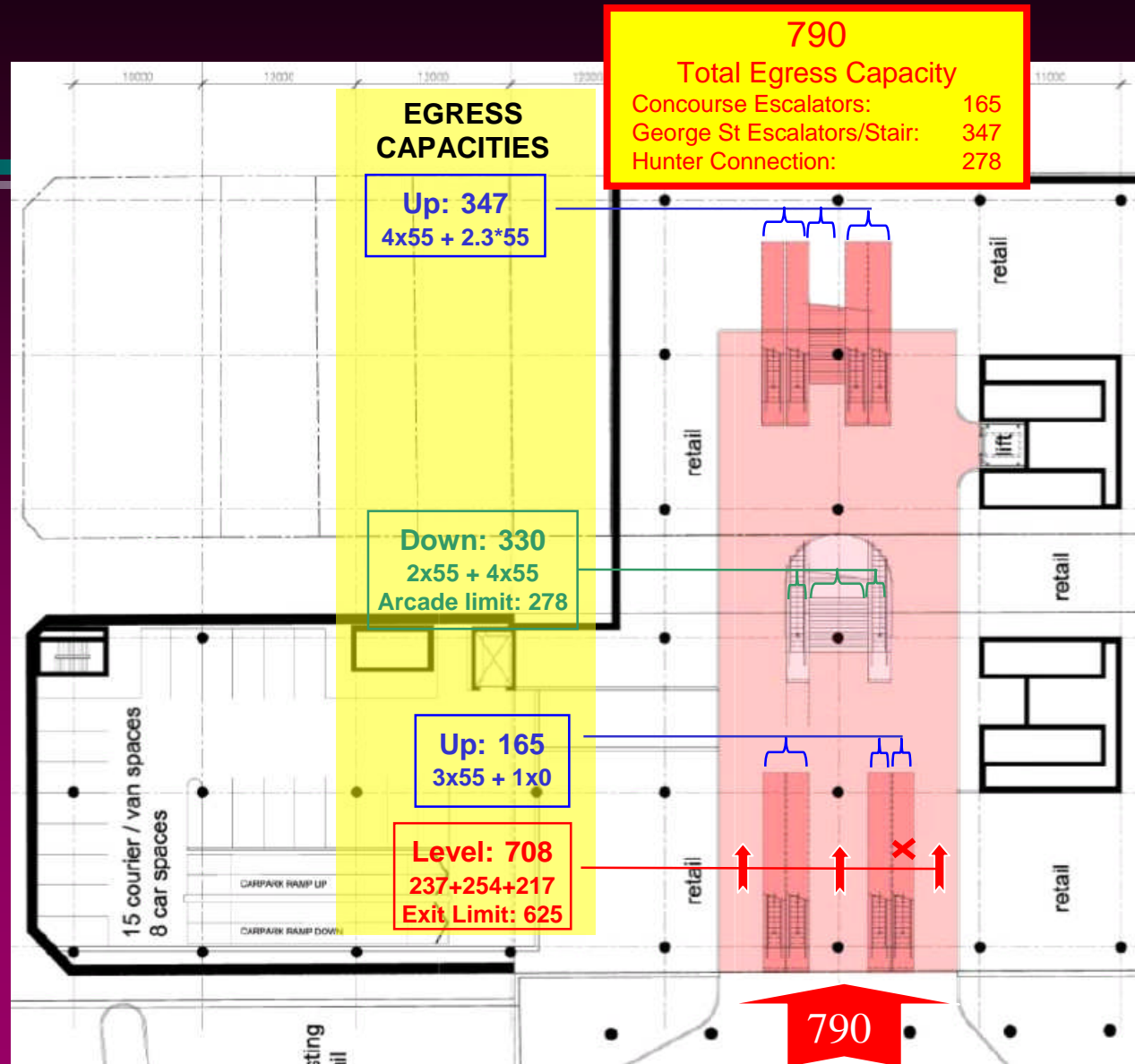


Egress via CityOne Development

- Can be regarded as “point of safety”
- Exit capacity calculations based on 8 min
- NFPA 130 flow capacity and travel speed
- Distance to “point of safety” reduced by 60 m
- Travel time reduced by 1.6 min
- Flow capacity provided is 790 people/min with all escalators stopped
- Capable of evacuating 6320 people in 8 min
- Estimated 2060 Wynyard egress population: 4000
- Capacity is 158% of demand - BCA limit is 50%

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Summary

- CityOne Development is only one of many egress routes from Wynyard Station
- BCA and NFPA130 limit horizontal exit capacity to 50% of demand
- 158% of likely demand is available
- Travel times to “point of safety” reduced by 1.6min
- Capacity adequate for simultaneous evacuation (not required by BCA)

