

Smart Cultural Precinct Supplemental Material

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Walkability Weighting System

| | | Categories | Possible Values | Conversion | | Weights |
|------------|-----------|-------------------------|-----------------------|--|---|---------|
| Categories | Sidewalk | Incline | 0° to 10° | 0° = 0 | 10° = 10 | 15% |
| | | Width (L) | 0m to 5m | 0m = 0 | 5m = 10 | 10% |
| | | Width (R) | 0m to 5m | 0m = 0 | 5m = 10 | 10% |
| | | State | 1 to 10 | Poor = 1 | Great = 10 | 16% |
| | | Safety Protocols | Exists/Does Not Exist | Does Not Exist = 0 | Exists (Poor) = 5 Exists (Great) = 10 | 11% |
| | | Vertical Transportation | 0 to 10 | Stairs, no alternative = 0 Escalator = 5 Elevator = 8 Not Needed = 10 | Less than 5 steps or steps on only one side of street = 7-9 | 16% |
| | Distance | MTR Stops | Ranked 1 to 20 | | | 8% |
| | Frequency | Bus Stops | Any positive integer | Number / Street Length | | 5% |
| | | Restaurants + Stores | Any positive integer | Number / Street Length | | 4.75% |
| | | Restrooms | Any positive integer | Number / Street Length | | 2% |
| | | Trash | Any positive integer | Number / Street Length | | 2% |

Table 1: Table of the rating system for determining a street's walkability

Table 1 consists of our rating system's weights for each street aspect studied. The weights for each category are determined to reflect their relative importance to the street's accessibility. Americans with Disabilities Act (ADA) guidelines were analysed to determine how to scale our raw incline data to a scale of 1-10 [1]. These standards, while prescriptive in nature, underscore

the importance of various accessibility features. In our weighting system, we allocate higher weights to elements that the ADA deems critical, such as clear path widths and accessible ramp gradients. For example, the ADA specifies that a ramp's slope must be gentle enough to accommodate wheelchairs—typically no steeper than a 1:12 ratio [1]. In our system, we give a higher weight to the 'Incline' category, recognizing that a street's compliance with this ADA ramp requirement is vital for walkability. Additionally, the PPS article on the 'Qualities of a Great Street' emphasises elements that contribute to a street's vibrancy, like attractions and amenities [2]. In our system, such elements might receive a lower weight compared to ADA-mandated features but are still essential for a holistic assessment of walkability. They contribute to a street's identity and the overall experience for a diverse range of users, which is also a critical component of our evaluation.

Vertical transportation, for example, elevators, stairs, and escalators, carries a large weight of 16% because if a street does not have sufficient vertical transportation it will be completely inaccessible to people in a wheelchair or with mobility issues. The sidewalk incline was chosen as the next largest weight because a high degree of incline will make the street unusable for a person in a wheelchair. Sidewalk width was split into two categories, right and left side, each category was given a weight of 10%. The state of the sidewalk was given a score of 16% because a sidewalk that is in a poor state and contains potholes and/or is uneven is an inconvenience and a potential hazard to injury but it does not make the street inaccessible to anyone. Safety protocols were given the lowest weight out of all of the sidewalk measurements because while safety protocols like patterned surfaces, barriers, and pedestrian signals improve the safety of pedestrians, not having these in place does not make the street inaccessible to anyone. For the distance to key places, distance to MTR stops were given the highest weight of 7%, because MTR stops are the preferred method of travel in cities, and having them close to a street makes the area easier to access. There are three MTR Stations near Central, that being Hong Kong Station, Sheung Wan Station, and Admiralty Station. Bus stops were given the next highest weight because having multiple types of public transportation nearby makes the area accessible to a greater variety of people. Restrooms, trash, and markets were given the lowest weights because while they would be present in an optimal street they are not a necessity. The various categories of the chart will have differing methods for data acquisition, the incline and sidewalk width will be the most similar with the respective data being collected on each street at

every 10 paces (roughly 1 yard per pace). The categories for state, safety features, and vertical transportation will be collected on walks throughout the specific streets noting the various forms of safety features and transportation and the condition that they exist in. The final categories from the chart will involve the usage of maps of the city to note the frequency of important street points, including stores, restaurants, public restrooms, and trash cans. The data for sidewalk width and incline will build upon the previous year's project data [3].

Survey Process

To ensure that the best social event locations and activities are chosen and the Hong Kong population is interested in attending, it is important to gather information directly from the population in our project process. Before completing the planned survey, there is an informational description for people to read and understand our project goals and the purpose of the survey. In both English and Chinese, it describes that the survey is made by college students studying walkability, transportation, and accessibility within Central Hong Kong, and would appreciate any information they could give. Once read, it is understood that people understand they are not obligated to answer every question, they can stop taking the survey at any time. To ensure that the results remain anonymous, we created general questions and did not gather any personally identifiable information from the surveyed people.

Once someone understands and agrees to the terms, they are directed toward the survey, which consists of 11 questions for those who work within Central and 14 questions for all others, varying from multiple-choice replies, ratings from a scale of one to five, and checkboxes for multiple answers. A device or QR code will be provided for people to answer the survey. If the interviewee chooses not to answer one of the questions, we will use the data gathered from other interviewees who answered the question. We are willing to answer any additional questions interviewees may have throughout their survey experience.

After attending our sponsor's event and walking around the Hong Kong University and the Chinese University of Hong Kong's campuses, we were able to gather around 55 responses. Through the sharing of the survey link with different Hong Kong resources, like our sponsor, we were able to gather around 6 additional responses, reaching a total of 61 responses. At our sponsor's event, we approached attendees and some passersby of the event with an iPad to ask for their participation in the survey, resulting in about 20 responses. We also included the survey QR codes into bags that each attendant of the event took with them, to allow them to complete the survey at a later time, earning about two additional responses. After walking around the Hong Kong University campus for over an hour, we gained about 25 responses by approaching students working alone and asking them to complete the survey via iPad or QR code. We then stayed with the students until they completed the survey, in case they had any questions. Due to

the Chinese University of Hong Kong's size and lively campus, we received the last 8 responses by walking around the campus. Overall, providing the device for people to complete the survey proved to be more helpful in gaining more responses.

Survey Questionnaire

We are a group of college WPI students from America on a school project. We are working with ISU on creating a Smart Cultural Precinct (SCP) within Hong Kong, and we are looking into the transportation, walkability, and accessibility of Central. If you are interested in helping us out and you have a few minutes to spare, please continue the survey. Thank you!

1. I allow my survey answers to be used for internal use. I understand that my data will remain anonymous and that I can stop taking the survey at any time. ***Required**

I understand

2. How do you usually get to Central?

Walking

Tram

Public Bus

MTR

Driving

Other

3. Where do you live?

The Islands

Kwai Tsing

North

Sai Kung

Sha Tin

Tai Po

Tsuen Wan

Tuen Mun

Yuen Long

Kwun Tong

Kowloon City

Sham Shui Po

Wong Tai Sin

Yau Tsim Mong

Central and Western

Eastern

- Southern
- Wan Chai

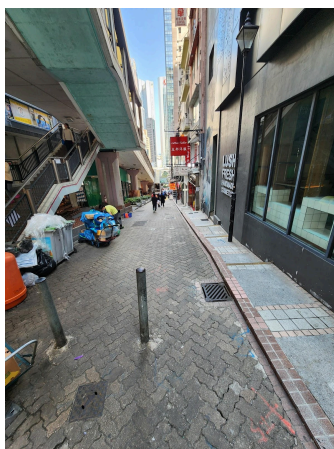
4. What is your main reason(s) for being in Central?

- School
- Work
- Shopping
- Food
- Entertainment
- Other

5. Which street(s) do you think are accessible and pleasant to walk down?



- Queens Road



- Cochrane Street



Hollywood Road



Staunton Street



Wellington Street

Other

6. If you would like to, please elaborate on your answer from above.

Ability to type a response

7. How often do you go to Central?

- 1-3 times/year
- 1-3 times/month
- 1-5 times/week
- 6+ times/week
- I live in Central

8. What is your age?

- 18-24
- 25-34
- 35-44
- 45-54
- 55-64
- 65+
- Prefer not to say

9. How strongly do you agree with the following statement: "I would like to see more streets in Central closed to vehicles to make it easier to walk."

- Scale of 1 to 5 of Strongly Disagree to Strongly Agree

10. How strongly do you agree with the following statement: "It is easy to walk around comfortably in Central."

- Scale of 1 to 5 of Strongly Disagree to Strongly Agree

11. How strongly do you agree with the following statement: "I would attend a cultural/arts event in Central."

- Scale of 1 to 5 of Strongly Disagree to Strongly Agree

12. If you agree to the statement above, what type of events would you attend in Central?

- Ability to type a response

13. Would you prefer a Smart Cultural Precinct mobile app or website?

- App
- Website
- I would not use either.

14. What features would you like to see on the app or website?

- Ability to type a response

Thank you for completing our survey. Your response will remain anonymous and used for internal use. If you have future questions or concerns, please contact us at gr-HongKong-udp@wpi.edu or message us on Instagram at [scp.hk](https://www.instagram.com/scp.hk).

Survey Results

Through our survey, we learned about the public's interactions with Central, including how often the surveyed population visits Central and their interest in future community events within Central, specifically the Cultural Triangle. Learning about the frequency of visits to Central and their interest in community events will help us determine the best types of events and days of the week for community events.

By learning how often people go to Central, along with the most common reasons for being in Central, we can learn which areas of that region are the busiest. The survey responses to visits to Central can be seen in Figure 1 below, which helps us understand the everyday traffic and pedestrian flow within Central, and how often community events could occur. The analysis of pedestrian and car traffic flow throughout the week also contributes to determining community event locations, as it helps us understand which streets are too busy to block traffic on specific days, and which streets have enough businesses that will attract customers during the community events.

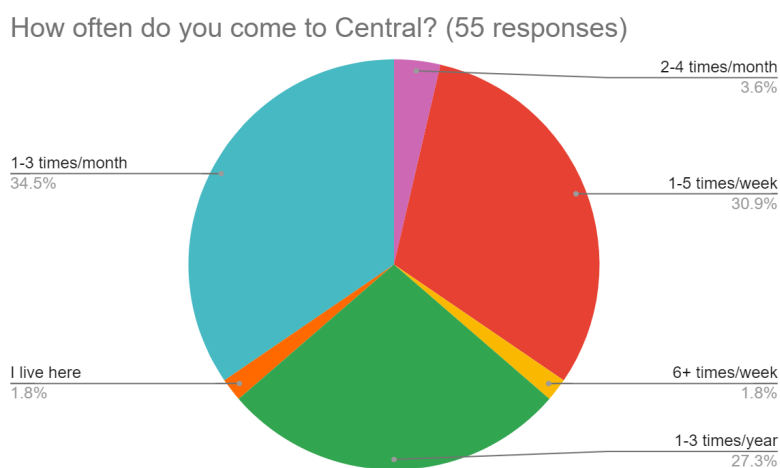
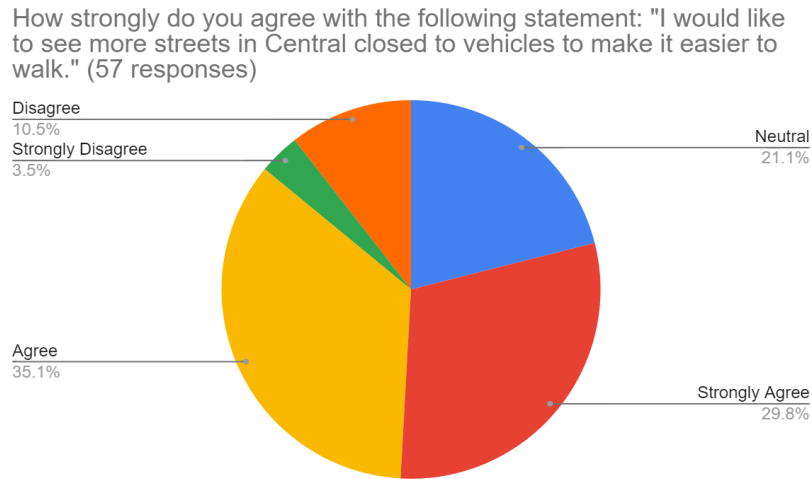


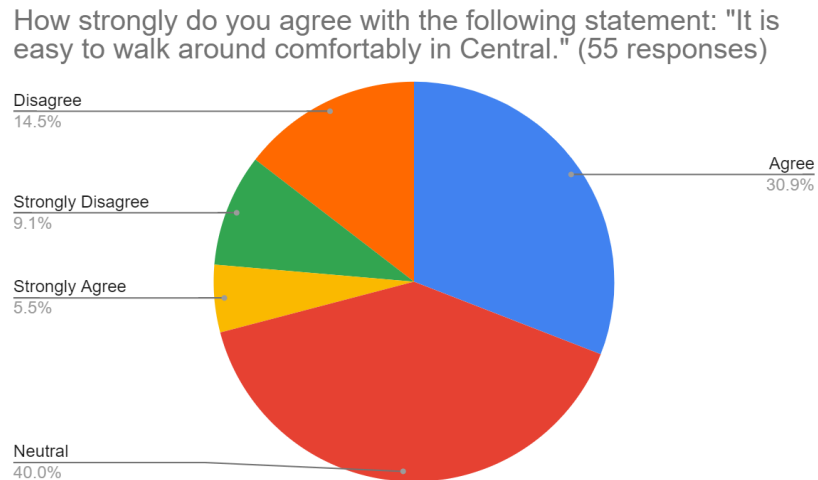
Figure 1: Survey Results regarding the frequency of visits to Central

Our survey also included agreeing or disagreeing with three statements, whether they would like to see more streets blocked off for pedestrians in Central, if they believe Central is easy to walk around, and if they would attend a cultural and arts event in Central. By understanding the current opinions about Central's walkability, we were able to gain a deeper understanding of the population's thoughts and support for improving the walkability within

Central. The results seen in Figures 2, 3, and 4 below helped us understand how willing the Hong Kong population would be to attend community events and further pedestrianise the central district.

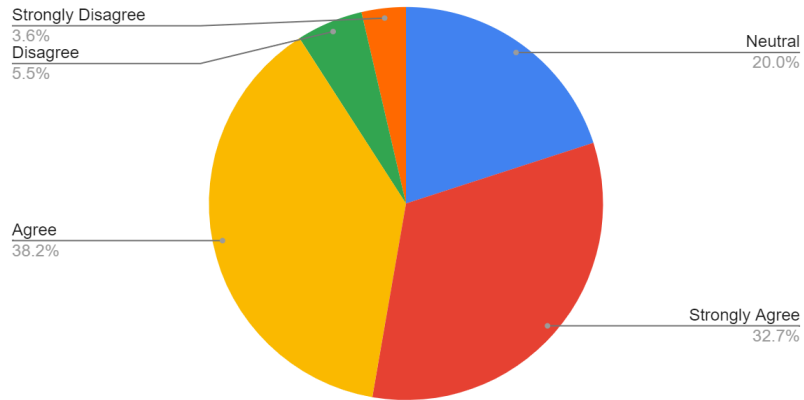


Figures 2: Survey Results Regarding People's Opinions on Closing More Streets to Vehicles



Figures 3: Survey Results Regarding People's Agreements and Disagreements on the Walkability Within Central

How strongly do you agree with the following statement: "I would attend a cultural/arts event in Central." (55 responses)



Figures 4: Survey Results Regarding People's Probability of Attending Cultural Community Events

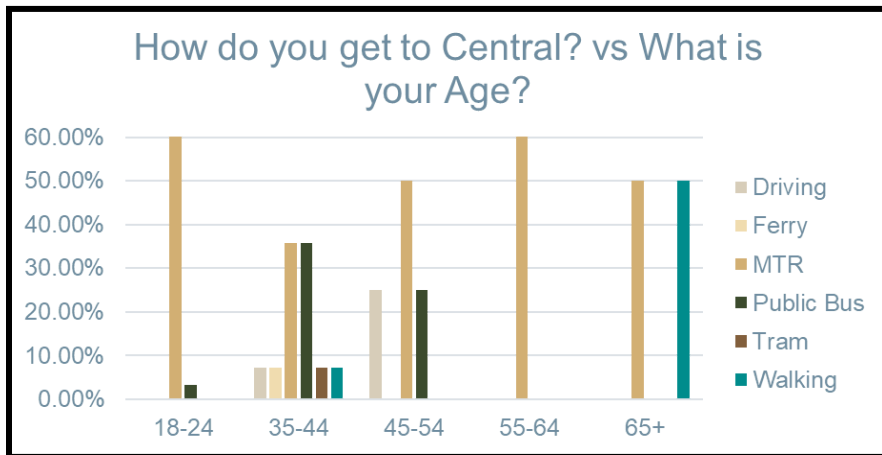


Figure 12: Correlation of Age and Transportation

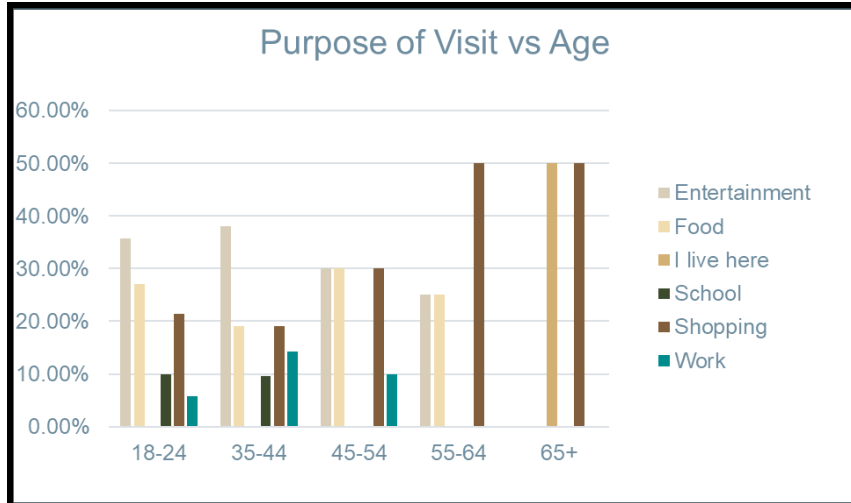


Figure 13: Correlation of Age and Purpose in Central

Analysis of Most Suitable Event Locations

The chosen streets that offer the best possible locations for events are Lyndhurst Terrace, Staunton Street, and Jubilee Street. These streets not only rank highly in the walkability study that was conducted but also match the various aspects that make a street pleasant and accessible to use as designated from the compiled survey responses.

The third-ranked street, Jubilee Street, was found to have wide sidewalks, accessibility options such as elevators and escalators, hosted various restaurants and shops, and proximity to the Central Market. This street faces lower daily vehicle traffic and has fewer public transportation stops situated in itself; this allows for an easier time in blocking off the road for possible events. However, while Jubilee Street has accessibility access, a portion of the street was built upon a relatively steep incline; this, in conjunction with being next to one of the three points of the Triangle, results in its third place, this location also has the capability of holding medium-sized events.

The second-placed street, Staunton Street, has many restaurants and shops along its length. This street also connects Tai Kwun and the PMQ, two of the points that make up the Triangle. This street's sidewalks are in decent condition and wide enough to allow multiple people to fit along it. The size of this street makes it a prime location for smaller events to occur. Staunton Street also has the least daily motor traffic of all the top locations and lacks any public transportation routes along its path; the road has connections to the mid-level escalators, increasing its availability to those with mobility handicaps. However, similar to Jubilee Street, Staunton Street was also found to be very close to only one side of the Triangle. All of these factors lead to Staunton Street ranking second place for locations.

The best-determined street to host events is Lyndhurst Terrace; this street has wide-level sidewalks in near-perfect condition. Lyndhurst Terrace is located at the heart of the Triangle, with connecting routes to all three of the points. The road has excellent accessibility with its primary road connections and access to an elevator directly connecting to the mid-level escalator. Much like the other chosen streets, Lyndhurst also has a variety of restaurants and shops available to the public along its road. The street is larger than the other streets within the Triangle and has very few public transportation stops and less motor traffic than other roads in the Triangle. This street has the size to allow for any range of events to be held on its road and it will enable Lyndhurst Terrace to claim the top spot.

All three streets have wide, flat streets and less vehicle traffic than most other streets within the Cultural Triangle, embodying them as optimal locations to host community events. Due to their proximity to the Mid-Level Escalators and the Central Market, Tai Kwun, and Police Married Quarters, the streets are not only accessible to all Hong Kong demographics but are prime locations to celebrate Hong Kong's historically important buildings. These streets are also large and wide enough to host many people to congregate, converse, eat, and enjoy the event. The ability for people to attend events in an enjoyable atmosphere is very important, but Hong Kong is very dense, which limits those opportunities. Therefore, we recommend Lyndhurst Terrace, Staunton Street, and Jubilee Street as locations to create more opportunities and host community events.

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