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| GIS Team 8 Meeting Minutes |  |

# Meeting 1

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| Date:Time:Type of meeting:Note taker: Agenda item: | Wednesday, 12 October 2022  5-6:30pm  Zoom  (Firm up Project Direction)  Jia Xuan   * Settle Project Topic + Scope of Work * Gather Literature Reviews * Finish up Gantt Chart |  |  |

#### Discussion:

* Choice of Project Topic: Which Sub-theme?

~~Theme 1: Urban Application of Satellite Remote Sensing and GIS~~

* ~~Sub-theme 2: Land cover change detection using high-resolution multispectral satellite data.~~

Theme 2: Geography of Accessibility with GIS-based Network Analysis

* Sub-theme 1: Impact of closures or mergers of education institutions on equity of access.

Education institutions: Junior Colleges > Secondary/High School + Primary School

* Possible reasons for closures/mergers
  + Main reason: Declining birth rate
  + Secondary reason(s):

1. Proximity
2. Population Density for Youth

* Teammates’ abilities (flair in language, art, data analysis, website management?)
  + Mahn Yin: Art, Website
  + Jia Xuan: QGIS, Cleaning
  + Tristan: QGIS, Proposal flow

#### Conclusions:

* After looking at the pros and cons of each of the themes and sub-theme available to choose from, how comfortable we are at each of the themes, and presenting a short 5-minute pitch each on why we felt that each of our different theme that we initially chose was more suitable, we stuck to Sub-Theme 1.
* Look for literature reviews on mergers affecting equity of access, using GIS to study equity of access
* Find out if there are other reasons for mergers/closures of education institutions

| Action items | Person responsible | Deadline | | |
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| * Clarify with Prof Kam on the following  1. Choice of website and server | Mahn Yin | | 12 Oct 2022 | |
| * Gather Literature Reviews (come up with novelty ideas) - Find out  1. Reasons for closures/mergers   2. Use of abandoned schools 3. Choice for merged locations 4. Past spatial analysis (we can tackle gaps!) | Everyone | 17 Oct 2022 | | |
| * Explore sample projects | Everyone | 17 Oct 2022 | | |
| * Explore Quarto | Everyone | 18 Oct 2022 | |
| * Explore Github | Tristan, Jia Xuan | 18 Oct 2022 | |
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# Meeting 2

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| Date:Time:Type of meeting:Note taker: | | 19th October 2022  5pm-6:30pm  Zoom  Tristan | |  | |  |  |
| Agenda item: | * Finalizing Topic of Choice * Conduct Literature Review on Methodology | |  |  |

#### Discussion:

* We were torn on which educational level to narrow down to, or to consider all educational levels to analyze. Tristan was for a singular educational level as he felt that it was much data to analyze whereas Jia Xuan was for all educational levels to be considered because of how little the dataset was and it would not lead to a substantial analysis. In the end after considering, we chose to stick to one educational level, and add on if there was little analysis that can be done from one educational level.
* Unsure if we should categorize the residentials based on subzone areas, based on region, or based on other factors
* Our analysis could find the impact in terms of proximity distance to a school based on before and after a closure/merger of a school(s)

#### Conclusions:

* Narrowed down on Primary Level Students (7-12yrs old)
* Use of centroids of schools and subzones to calculate proximity
* Research more to better understand how certain factors affect equity of access due to closures/mergers

| Action items | Person responsible | Deadline |
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| * Use of Income as a factor to target equity of access | Tristan | 23rd Oct 2022 |
| * Using Proximity Distance as a form of analysis | Jia Xuan | 23rd Oct 2022 |
| * Use of Sample Subzone Size as a factor to target equity of access | Mahn Yin | 23rd Oct 2022 |

# Meeting 3

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| Date:Time:Type of meeting:Note taker: | | 23rd Oct 2022  9am-9.30am  Zoom  Mahn Yin | |  | |  |  |
| Agenda item: | * Review Literature Reviews | |  |  |

#### Discussion:

* Firm up our project approach
* Explore the type of data we can use on QGIS to derive the necessary analysis

#### Conclusions:

* Start with subzone analysis, then proximity analysis and finally income analysis

| Action items | Person responsible | Deadline |
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| * Experiment with different data sources to use on QGIS | Everyone | 26th Oct 2022 |
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# Meeting 4

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| Date:Time:Type of meeting:Note taker: | | | |  | 26th Oct 20225:30pm-6:30pmZoomJia Xuan | |  | | | |  | | |  | |
| Agenda item: | | Finalise the data sources to use | | | | | | |  |  | | |  | | | |  |  |
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#### Discussion:

* Expand on proximity analysis; to include network distance analysis
* Start working on QGIS

#### Conclusions:

* Decided to use 3 main data sources:
  1. GeoFabrik’s roads layer
  2. Data.gov.sg’s general school information
  3. URA’s MP19 Subzone Boundary (No Sea)
* Tidied notes for literature review document
* Tidied Gantt Chart

| Action items | Person responsible | Deadline |
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| * Check with Professor if we should include tuition centres for income analysis | Jia Xuan | 28th Oct 2022 |
| * Create Map Print Layout for subzone analysis | Mahn Yin | 30th Oct 2022 |
| * Buffer (1km/2km) analysis * Shortest distance analysis * Show change in proximity between centroids of schools and subzones due to mergers (buffer) * Show change in proximity between centroids of schools and subzones due to mergers (shortest distance) | Tristan  Jia Xuan  Tristan  Jia Xuan | 30th Oct 2022  30th Oct 2022  30th Oct 2022  30th Oct 2022 |

# Meeting 5

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| Date:Time:Type of meeting:Note taker: | | | |  | 31st Oct 202211:30pm-1:30amZoomJia Xuan | |  | | | |  | | |  | |  |
| Agenda item: | | Review Meeting 4’s action itemsDiscuss project motivation and objectivesFinalise project methodology | | | | | | |  |  | | |  |  |  |  |
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#### Discussion:

#### Tuition centres are out of the project’s scope

#### Beautify Mahn Yin’s print layout so that it is easier to digest map

#### Able to refer to Hands-on 9 to 11 for methodology

#### Motivation: Primary school is compulsory. Education is valued by parents in Singapore (good grades, good life). Mergers and closures have been more frequent in recent years

#### Objective: To see the impact (percentage change) of mergers and closures on primary school students’ accessibility to education in various transport modes, based on 1km and 2km proximity distances

#### Possible to analyse whether the government could be indirectly encouraging certain forms of transport (walking, private and public. No school buses as they have no relation to one’s equity of access)

#### Centroids as hexagons > centroids as residential buildings > centroids of subzones

#### Create 3 vector layers of roads (one for each transport mode)

#### Conclusions:

#### Tristan and Jia Xuan will conduct network analysis before and after mergers respectively; abandon what was discussed during Meeting 4

* Start and standardize cleaning data sources on QGIS

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| Action items | Person responsible | Deadline |
| * Check with Professor on 350 word limit (Project Website’s description) * Research on how to conduct network analysis for public buses | Tristan  Tristan, Jia Xuan | 1st Nov 2022  2nd Nov 2022 |

# Meeting 6/7

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| Date:Time:Type of meeting:Note taker: | | | |  | 2nd/4th Oct 202210am-12pmZoomJia Xuan | |  | | | |  | | |  | |  |
| Agenda item: | | Standardize and finish data cleaning | | | | | | |  |  | | |  |  |  |  |
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#### Discussion:

#### Focus on main island of Singapore

#### Conclusions:

* Complete cleaning on QGIS by Monday 2359
* Time to start on project poster

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| Action items | Person responsible | Deadline |
| * Complete data cleaning on QGIS file * Create skeleton of poster and project logo | Tristan, Jia Xuan  Mahn Yin | 7th Nov 2022  7th Nov 2022 |

# Meeting 8

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| Date:Time:Type of meeting:Note taker: | | |  | 7th Nov 202210:00pm-11:00pmZoomJia Xuan | |  | | | | |  | | |  | |  |
| Agenda item:Update one another on the progress of our projectPlan for poster submissionReview Gantt Chart | | | | | | | |  |  |  | | |  |  |  |  |
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#### Discussion:

#### Poster skeleton is done, QGIS data preparation is almost done. To start data analysis as soon as possible, so that we have sufficient time for poster (to complete by Wednesday)

#### Should analyse East Singapore, instead of the main island due to the locations of the 7 pairs of affected schools

#### Criteria to look at to analyse spatial accessibility from a residential to a closed/merged school: fastest, shortest and proximity of residency to schools, which affects ballot results

#### Conclusions:

* Need to source for Singapore-specific references to back up our project’s direction
* Poster’s aesthetics can be done on Thursday, focus on generating content by Wednesday
* Updated Gantt Chart to week ?

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| Action items | Person responsible | Deadline |
| * Touch up on data preparation | Jia Xuan, Tristan | Meeting 9 |

# Meeting 9

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| Date:Time:Type of meeting:Note taker: | | |  | 8th Nov 20222pm-4:30pmPhysical/ZoomJia Xuan | |  | | | | |  | | |  | |  |
| Agenda item:Start on QGIS analysis on 3 different routes (walking, public driving, private driving) | | | | | | | |  |  |  | | |  |  |  |  |
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#### Discussion:

#### Try out various distance measures (Euclidean, Manhatten, Minkowski)

#### Using POI, instead of hexagon’s centroids?

#### maxspeed vs speed columns: take speed columns instead

#### Reference papers to look at

#### <https://journals-sagepub-com.libproxy.smu.edu.sg/doi/full/10.1177/0013124516630601> (help us solidify our project’s motivation and objective, look at RQ1)

#### To explore if closures/mergers would affect the accessibility for students with different demographic backgrounds (income, race and ethnicity) -> could be a ‘For Future’ idea if our sample size is too small

#### <https://www.researchgate.net/figure/Study-area-city-of-Torun-source-own-elaboration_fig1_330850358> (help us to justify our approaches)

#### [Understand balloting | MOE](https://www.moe.gov.sg/primary/p1-registration/understand-balloting) (helps in background)

#### Conclusions:

#### Finalised Data Preparation. Time to focus on analysis

#### Completed Background, Motivation and Objective portion of poster

#### Set limits for shortest (1km) and fastest distances (1km/12min) for each of the schools in the 7 pairs. Identify which hexagonal residential landuse areas are affected by change

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| Action items | Person responsible | Deadline |
| * Recreate publicdriving network | Jia Xuan |  |

# Meeting 10

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| Date:Time:Type of meeting:Note taker: | | |  | 9th Nov 20223:30-5:30pm, 9pm-1amZoomTristan | |  | | | | |  | | |  | |  |
| Agenda item:Finish up Project Poster | | | | | | | |  |  |  | | |  |  |  |  |
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#### Discussion:

#### Realized that the public transport network (bus routes) was extremely difficult to analyze as the bus stops points that we managed to find were unable to intersect all roads, despite giving them buffers, increasing size of points, etc. As a result we decided to focus on just walking and private driving

#### Had initial issues with poster design, layout, and application used to design the poster due to different opinions on the various pros and cons. Managed to iron out and delegate tasks accordingly to speed up the process

#### Conclusions:

#### Delegation of Tasks extremely important so as to cut down time spent

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| Action items | Person responsible | Deadline |
| * Subzone Analysis * Number of Affected Residentials * Extent of Accessibility Analysis | Mahn Yin  Tristan  Jia Xuan | 9th Nov  9th Nov  9th Nov |

# Meeting 11

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| Date:Time:Type of meeting:Note taker: | | |  | 16th Nov 202210am-12pm/9.30pm-2amZoomTristan | |  | | | | |  | | |  | |  |
| Agenda item:Update one another on progress of data collection / methodology write-upPiece everything together to come up with data collection portion of the reportDelete any overlaps and identify missing segmentsFinish up all segments of the project reportFinish up project overview and project proposal | | | | | | | |  |  |  | | |  |  |  |  |
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#### Discussion:

#### Spent time in the morning to discuss who should do which portion of the report (methodology)

#### Spent time in the afternoon to put all the pieces of the report (data preparation, data collection, data analysis) together and to touch up everything

#### Spent time in the night to format everything and to look through the entire report as a team to ensure that everything was correct. Furthermore, we spent the additional time afterwards trying to incorporate everything that was missed out on (lessons learnt, data analysis, future works) into the report, and started to finish up the other segments of the project (gantt chart, meeting minutes, etc.)

#### Conclusions:

#### Finish up report, proposal and overview by the end of the day

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| Action items | Person responsible | Deadline |
| * Touch Up Report * Data Analysis * Proposal * Overview | All  All  Mahn Yin  Tristan | 16th Nov  16th Nov  16th Nov  16th Nov |