Alternative Design for New Development Areas in Hong Kong

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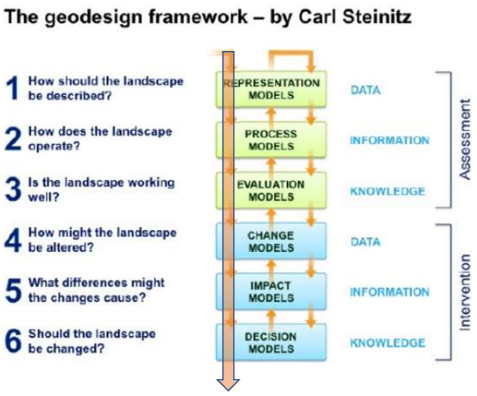
Objectives

- The project aims to consider natural processes, such as urban forestry and river restoration in the New Development Areas in Hong Kong.



Background

First Iteration – The *Why* Questions

Study Area and the People of the Place

Representation – How should the study area be described?

- Two North Development Areas (NDAs) designated by Hong Kong Government
- Currently, rural villages along Shek Sheung River between two highly-populated cities, Hong Kong and Shenzhen
- 612 ha to accommodate a total population of about 176,900
- To build 59,900 flats with social and cultural facilities
- To provide about 37,700 employment opportunities
- To provide commercial, research and development areas for the future
- To improve transport network
- To preserve river valley

Process – How does the study area operate?

- Population growth
- Urbanization
- Abandonment of farmland
- Fragmentation of green space

Evaluation – Is the current study area work well ?

- Declining water quality in river
- Diminishing forest areas
- Fragmented green space
- Non-productive farms
- Country park areas considered to be the back garden of Hong Kong


Canalized River with Pollution


Non-productive Farm


Unpopular Amenity Space

Change – How might the study area be altered ?

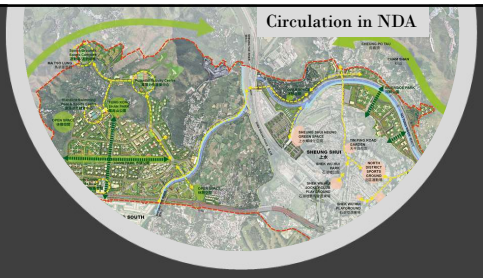
- Sustainable planning – green infrastructure, e.g urban forestry & river restoration
- Affordable housing
- Multi-functional landscape – agriculture as well as amenity
- Provide alternatives
- Engage stakeholders
- Learning from other cities

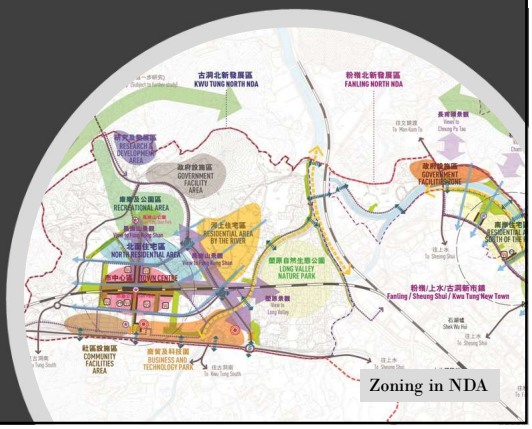

Government Plan for Fanling North


Government Plan for Kwu Tung

Impact – What differences might the changes cause ?

- Amenity spaces enjoyed by citizens
- Connectivity of green space
- Preserve cultural heritage

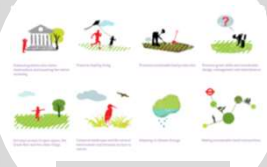




Decision – How should the study area be changed ?

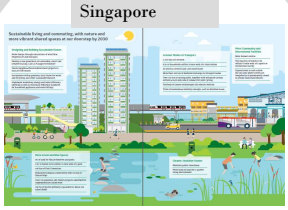
- Decision model taking into account of local stakeholders' opinions
- Get away from the status-quo from government-led development

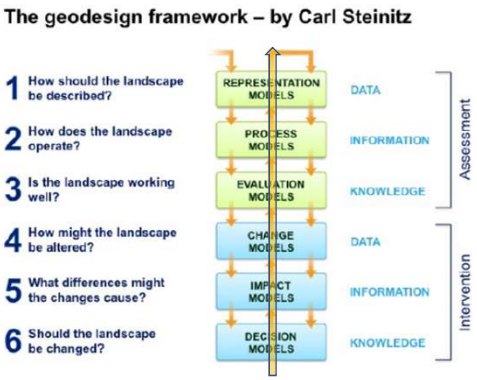
Stakeholder Groups In Hong Kong



Multi-functional in London Green Grid

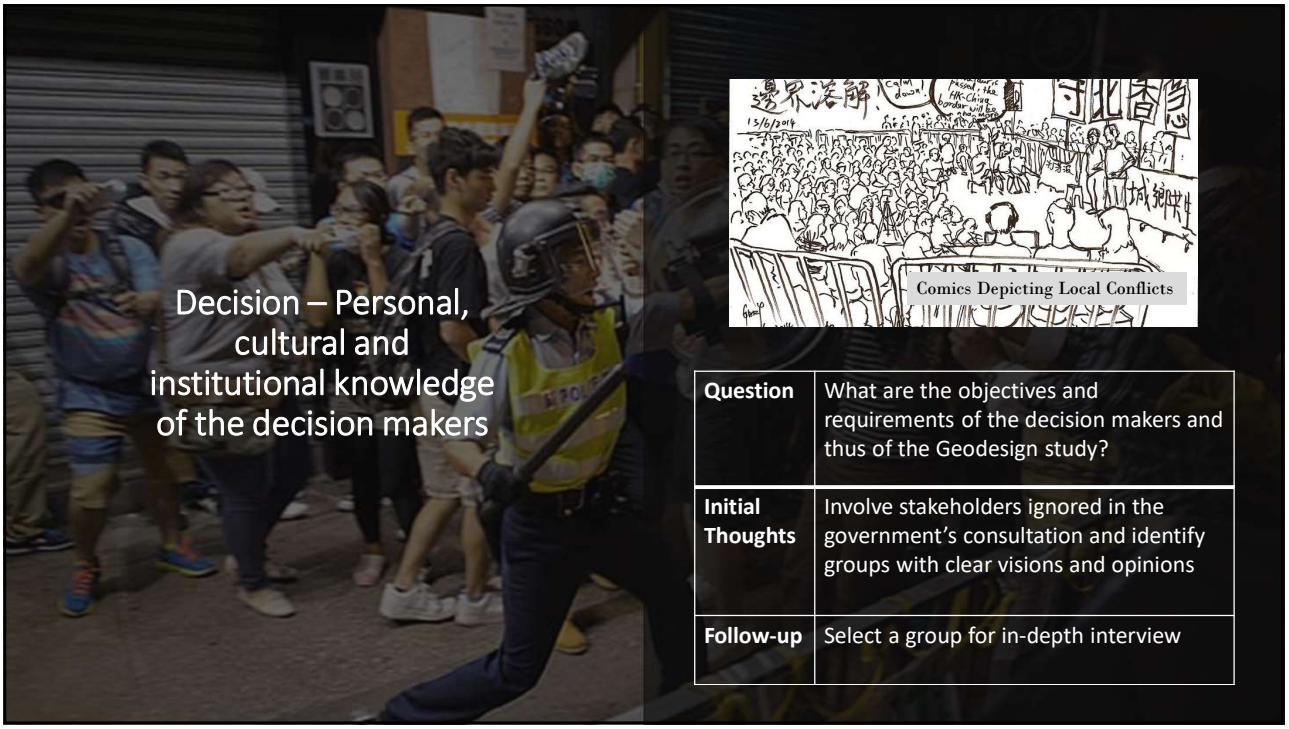
Clear Targets in Singapore





Methodology

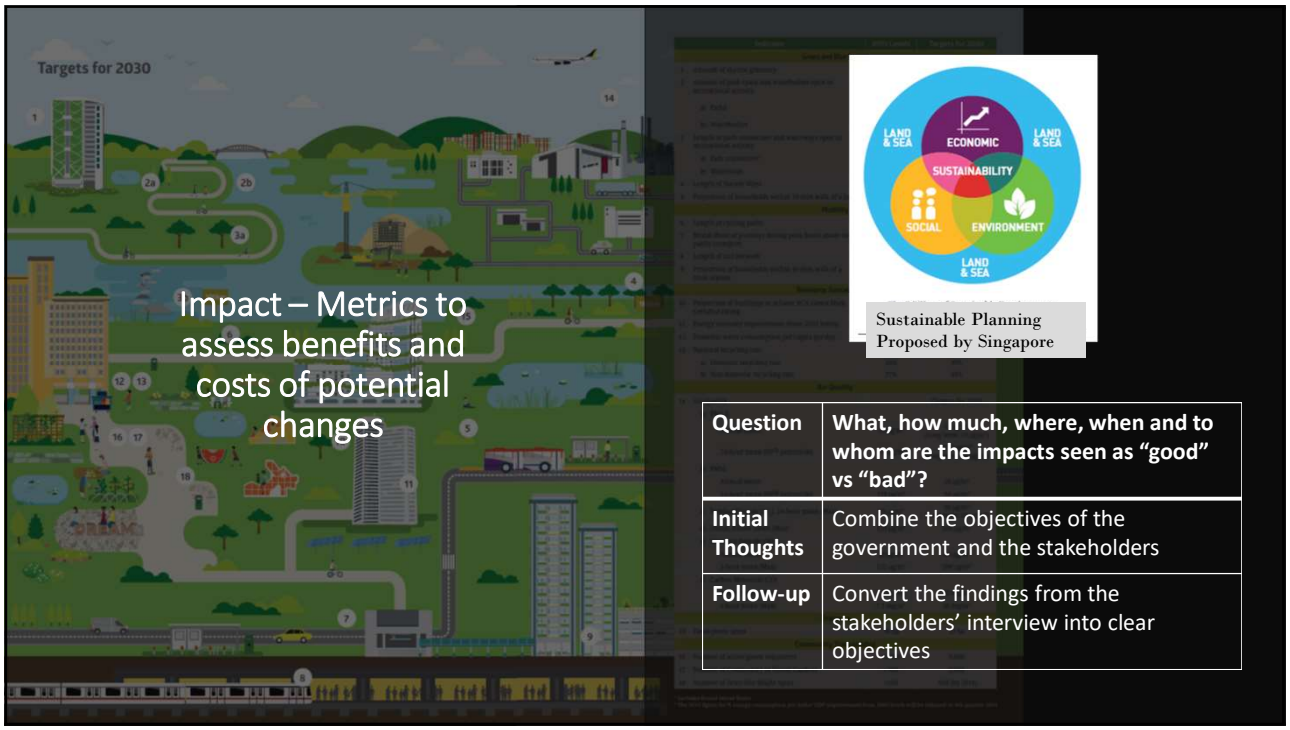
Second Iteration – The How Questions



Decision – Personal, cultural and institutional knowledge of the decision makers

Comics Depicting Local Conflicts

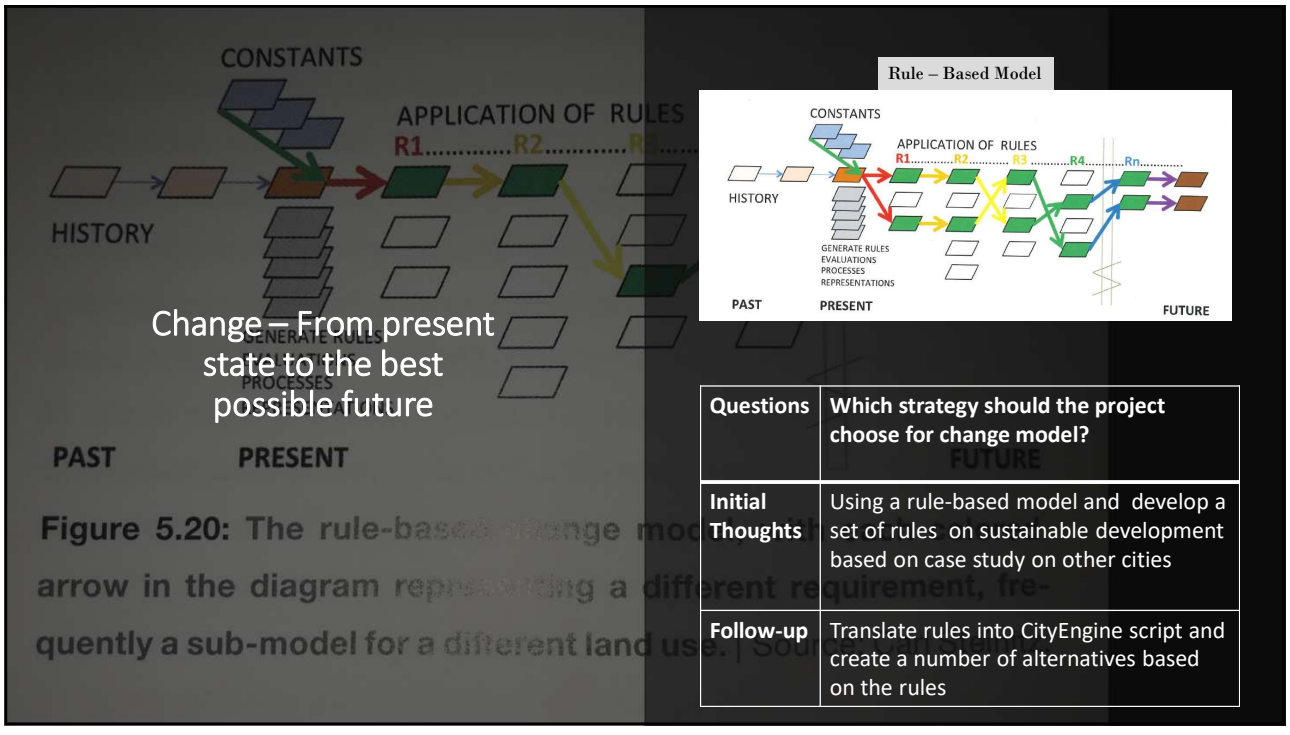
Question	What are the objectives and requirements of the decision makers and thus of the Geodesign study?
Initial Thoughts	Involve stakeholders ignored in the government's consultation and identify groups with clear visions and opinions
Follow-up	Select a group for in-depth interview



Impact – Metrics to assess benefits and costs of potential changes

Sustainable Planning Proposed by Singapore

Question	What, how much, where, when and to whom are the impacts seen as "good" vs "bad"?
Initial Thoughts	Combine the objectives of the government and the stakeholders
Follow-up	Convert the findings from the stakeholders' interview into clear objectives

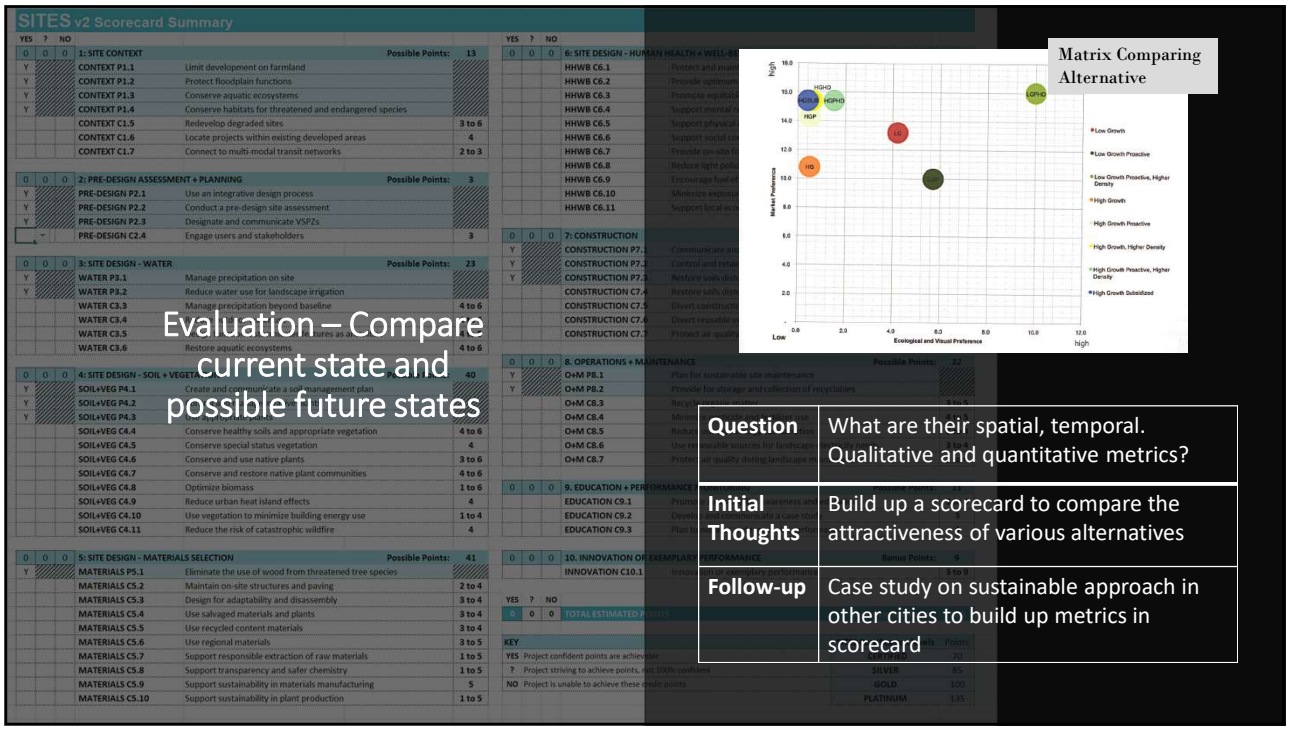


Change – From present state to the best possible future

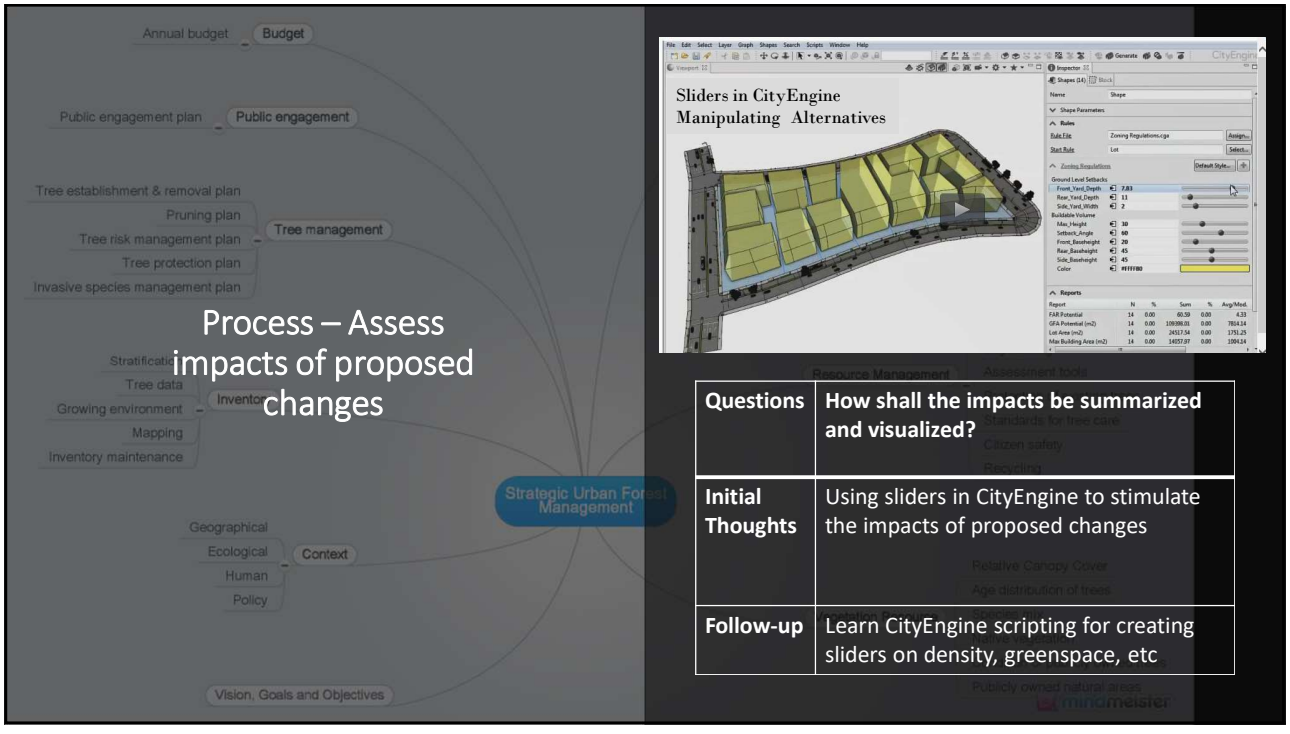
Figure 5.20: The rule-based change model ... arrow in the diagram representing a different requirement, frequently a sub-model for a different land use. | Source:

Rule – Based Model

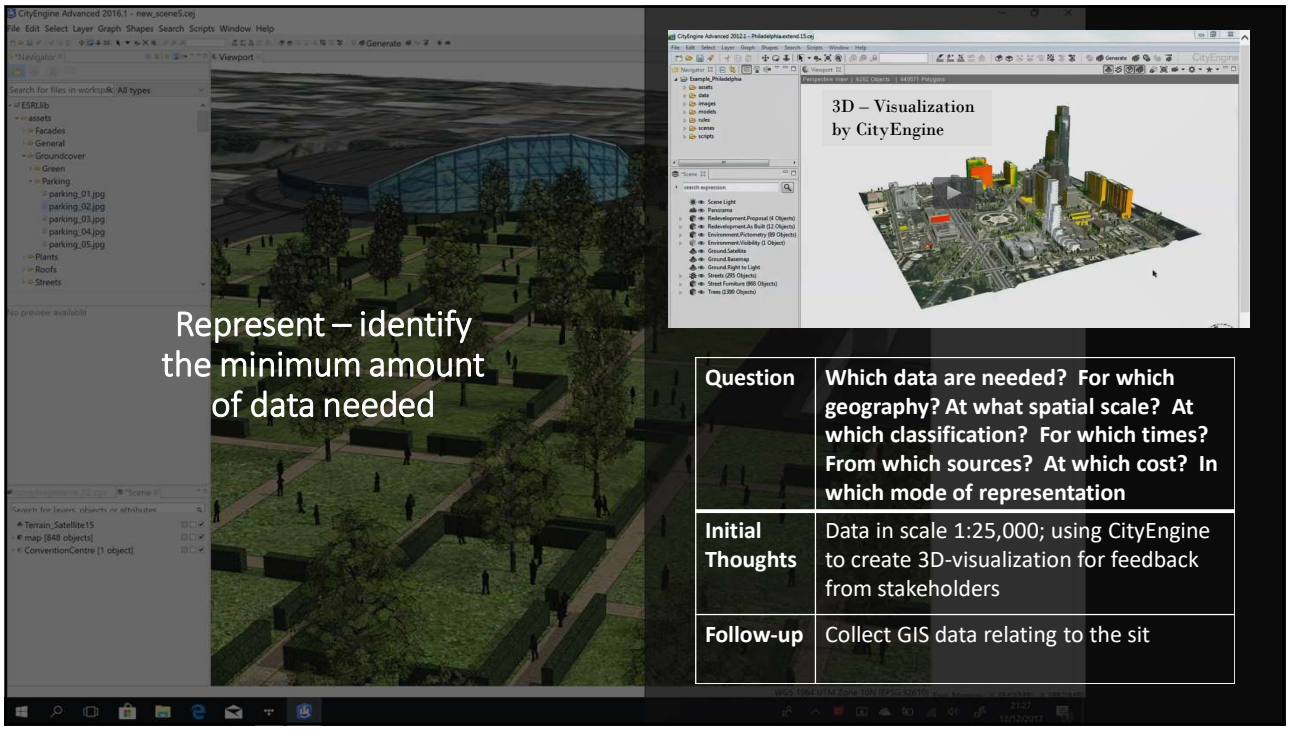
Questions	Which strategy should the project choose for change model?
Initial Thoughts	Using a rule-based model and develop a set of rules on sustainable development based on case study on other cities
Follow-up	Translate rules into CityEngine script and create a number of alternatives based on the rules



Question	What are their spatial, temporal. Qualitative and quantitative metrics?
Initial Thoughts	Build up a scorecard to compare the attractiveness of various alternatives
Follow-up	Case study on sustainable approach in other cities to build up metrics in scorecard

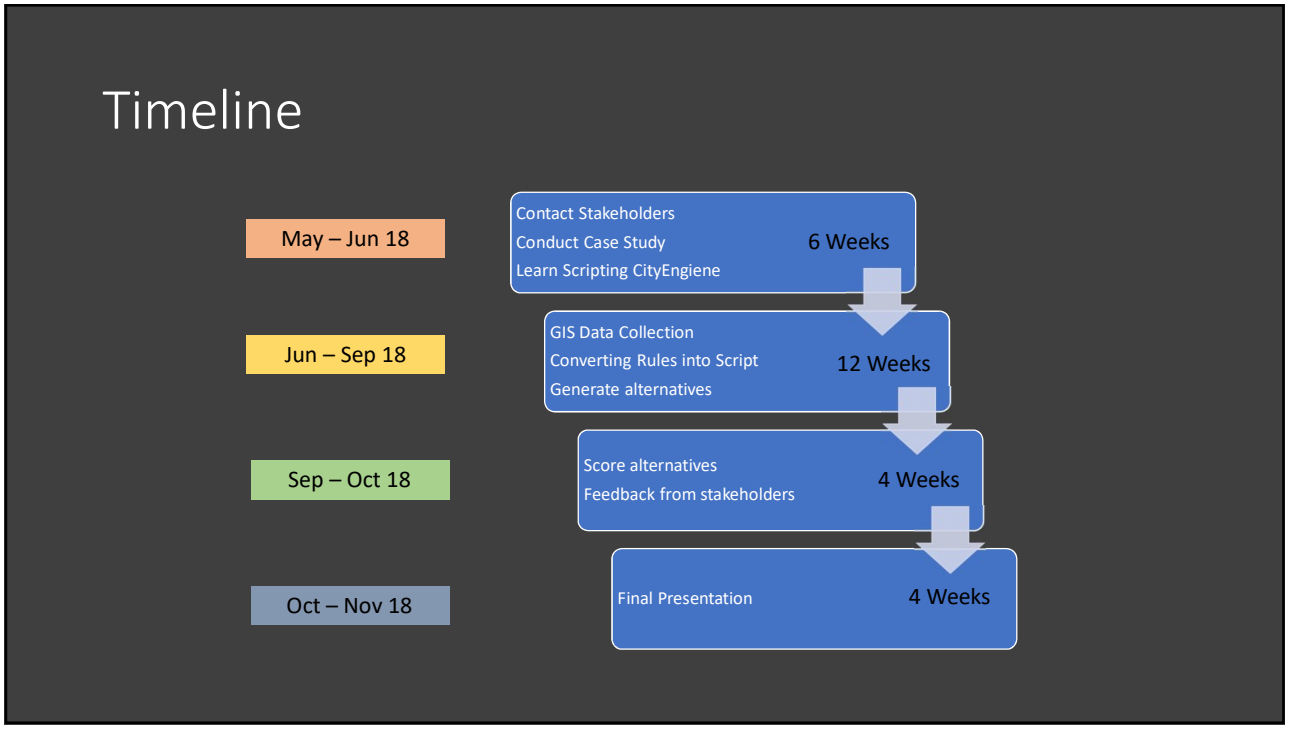


Questions	**How shall the impacts be summarized and visualized?**
Initial Thoughts	Using sliders in CityEngine to stimulate the impacts of proposed changes
Follow-up	Learn CityEngine scripting for creating sliders on density, greenspace, etc



Question	**Which data are needed? For which geography? At what spatial scale? At which classification? For which times? From which sources? At which cost? In which mode of representation**
Initial Thoughts	Data in scale 1:25,000; using CityEngine to create 3D-visualization for feedback from stakeholders
Follow-up	Collect GIS data relating to the sit

Timeline



Anticipated Results

- A set of alternative plans addressing the community need to be compared with the Government's plan
- Identify the People of the Place and collect their opinions from new development in Hong Kong
- Convert the People's opinion into a set of rules which is then translated into a CityEngine script
- A scorecard with quantifiable metrics to compare alternative plans
- 3D-visualization based on CityEngine