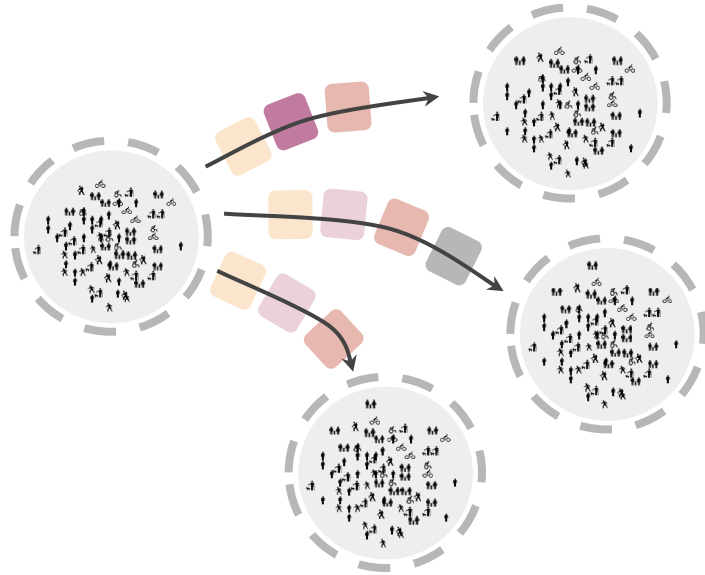
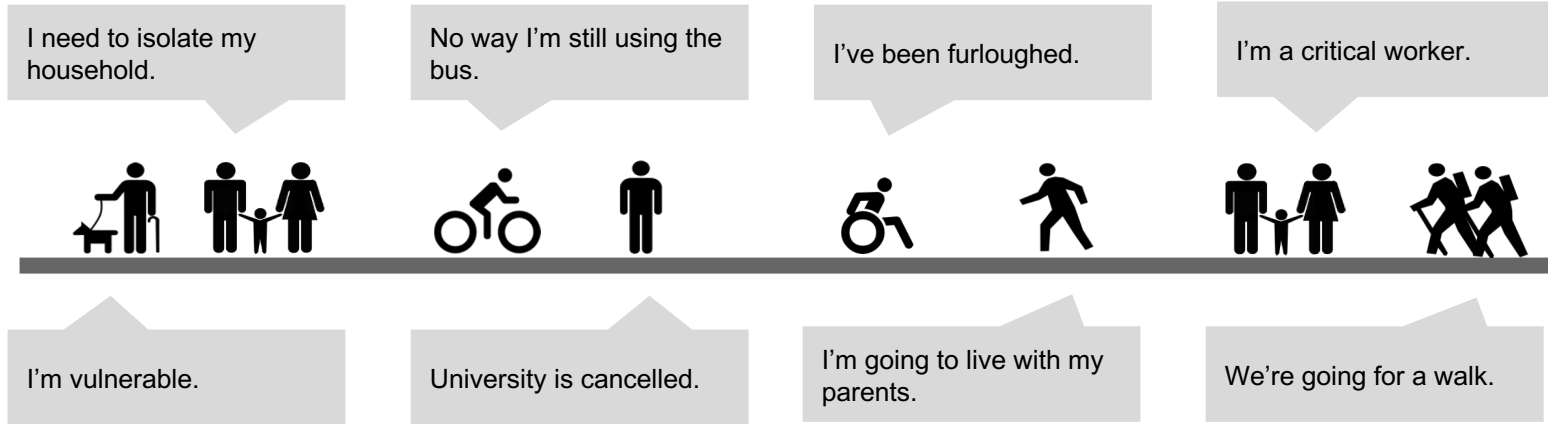


# Pandemic Activity Modeller/Modifier (PAM)

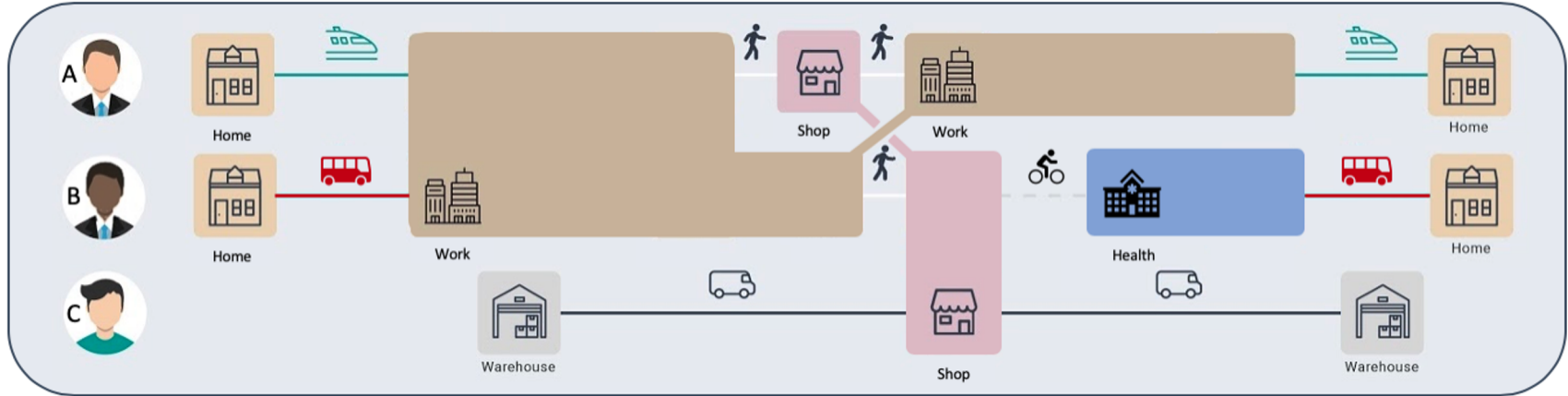


**MOTIVATION:** People are behaving differently, (i) new rules, (ii) new decision making and (iii) changes to employment:



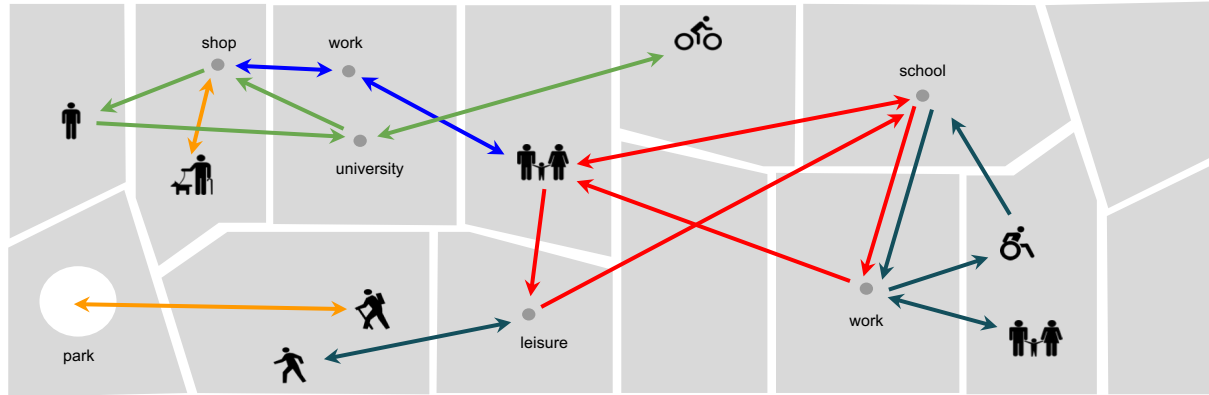
*Existing models are out of date and the rules/scenarios are changing rapidly.*

We work with **ACTIVITY PLANS:**



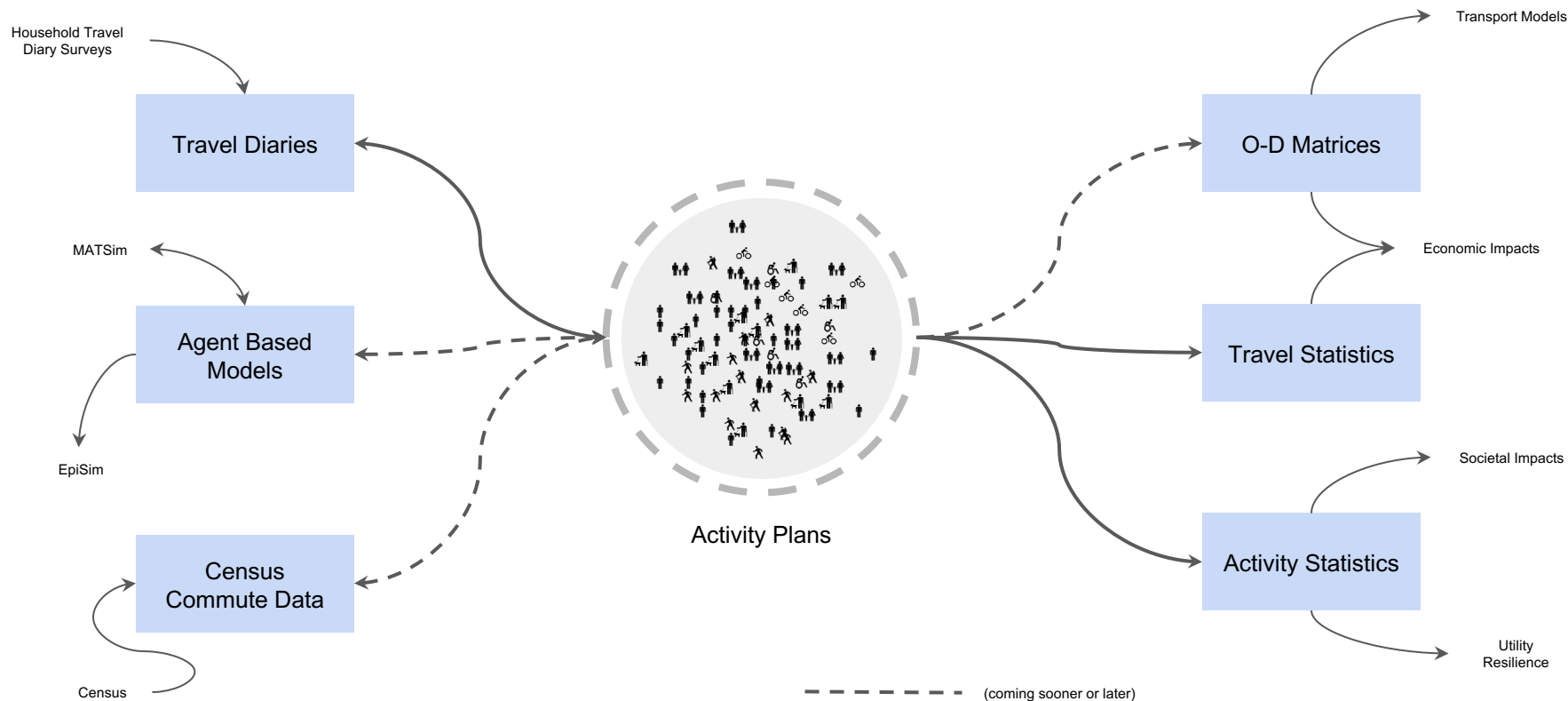
*Activity Plans include detailed disaggregate info about a population and its activities*

**ACTIVITY PLANS** are useful for modelling transport demand:

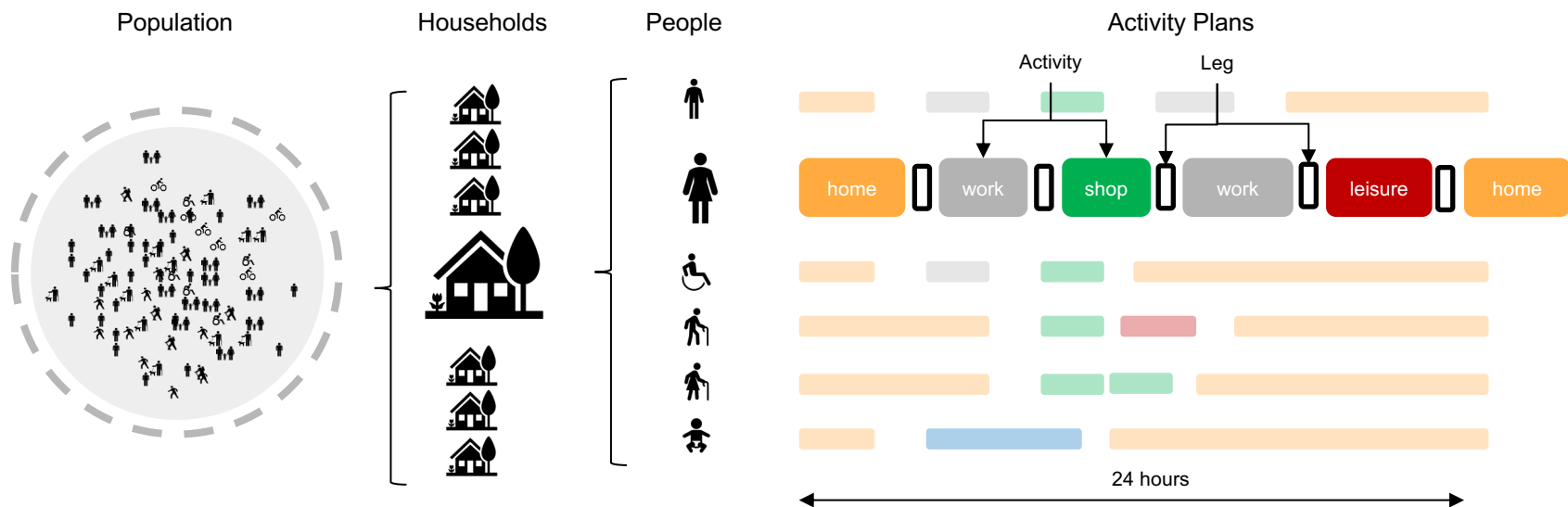


*... but also: any model or analysis that cares about where and when people are travelling or doing things, can make use of Activity Plans*

## PAM FEATURE (1/2) - reading and writing to and from Activity Plans and other formats/outputs:



## PAM CORE (1/2) –Data Structure:



## PAM FEATURE (2) - modifying activity plans using policies, for example:



*if **critical worker**;  
isolate household  
with  $p = 0.1$ , else;  $p$   
 $= 0.05$*



*if not **critical  
household**; then  
remove all education  
activities*



*if **person age**  $> 50$ ;  
then isolate with  $p =$   
 $0.2$*



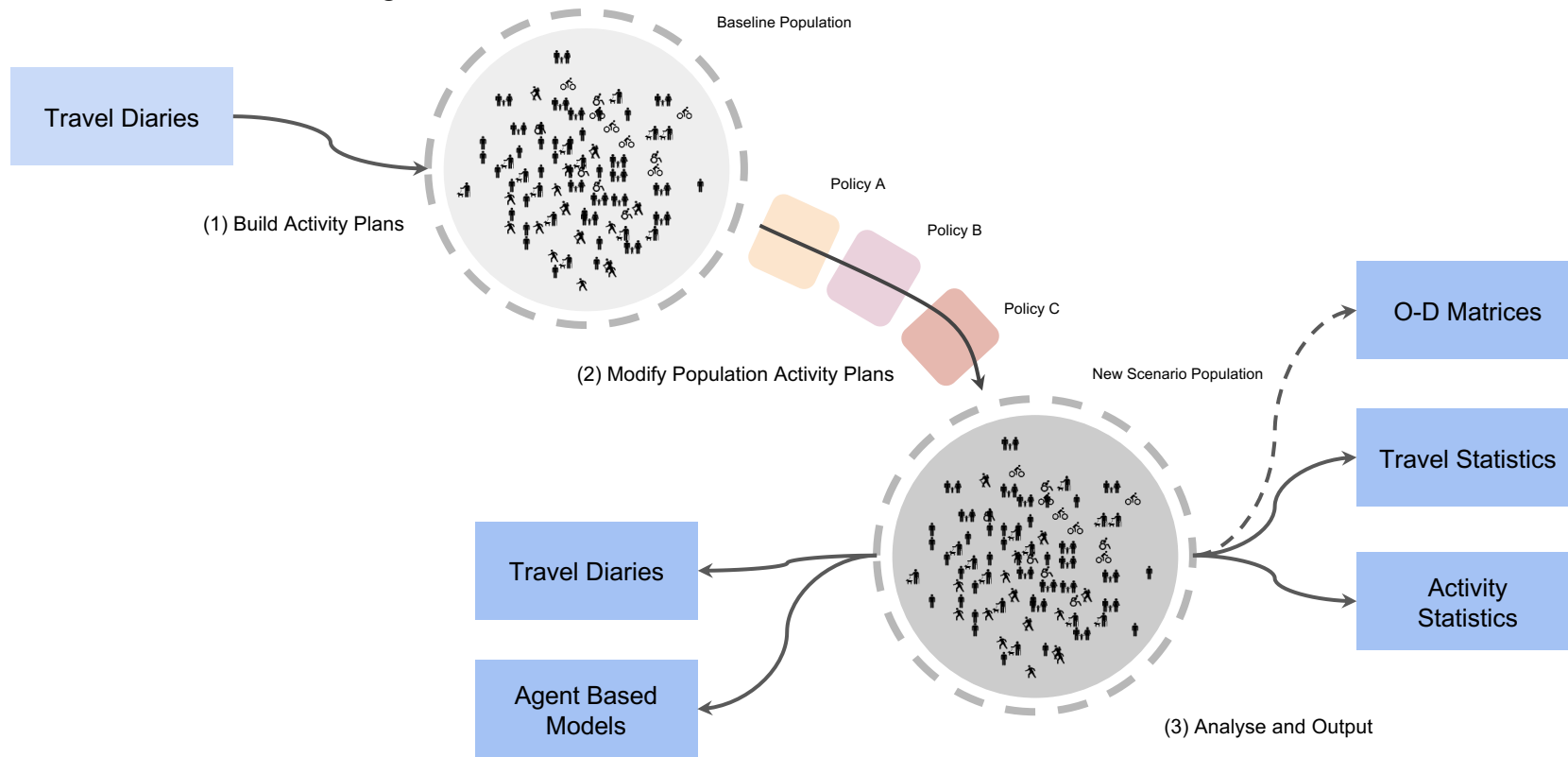
*if **income**  $> 50k$ ;  
remove work  
activity  $p = 0.9$*

## PAM CORE (2/2) – Modification Logic:

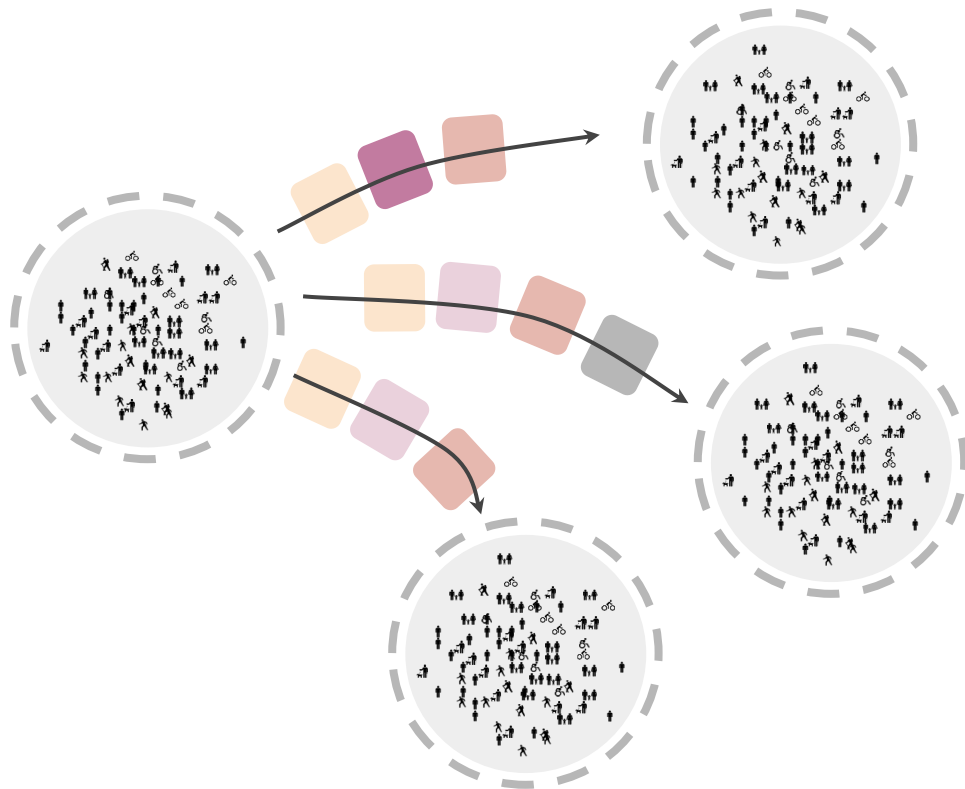


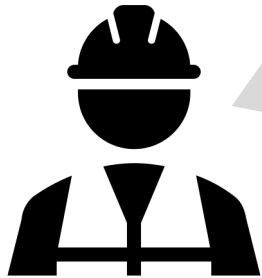


## PAM APPLIED - eg:



**BUT** - PAM is a Tool - it doesn't know what's correct, or what the most likely scenarios are:





Example User Story:

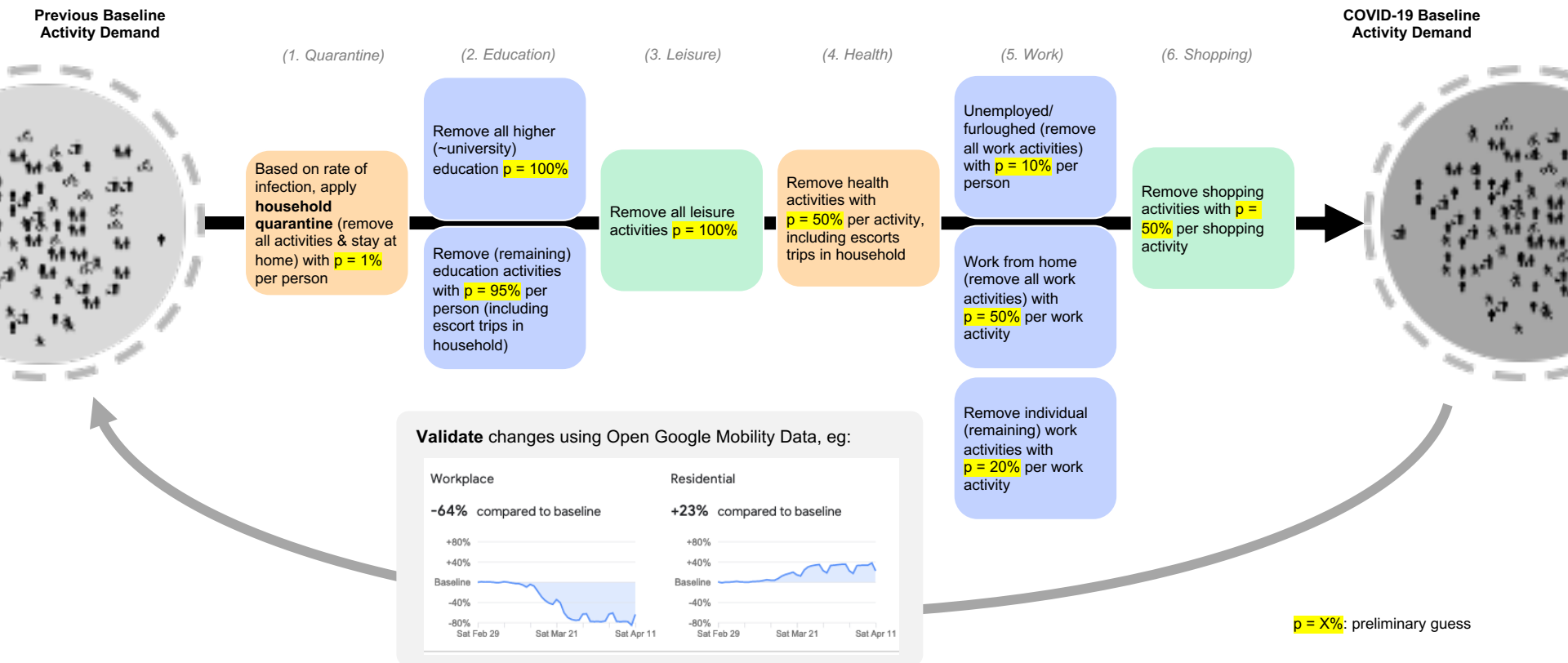
*"We've reduced transit services as best we can for our drivers and public safety. But we're unsure what impact this has had on people's travel behaviour."*

*"I want to consider closing/opening some stations to better serve the existing demand, but my existing demand model is out of date..."*

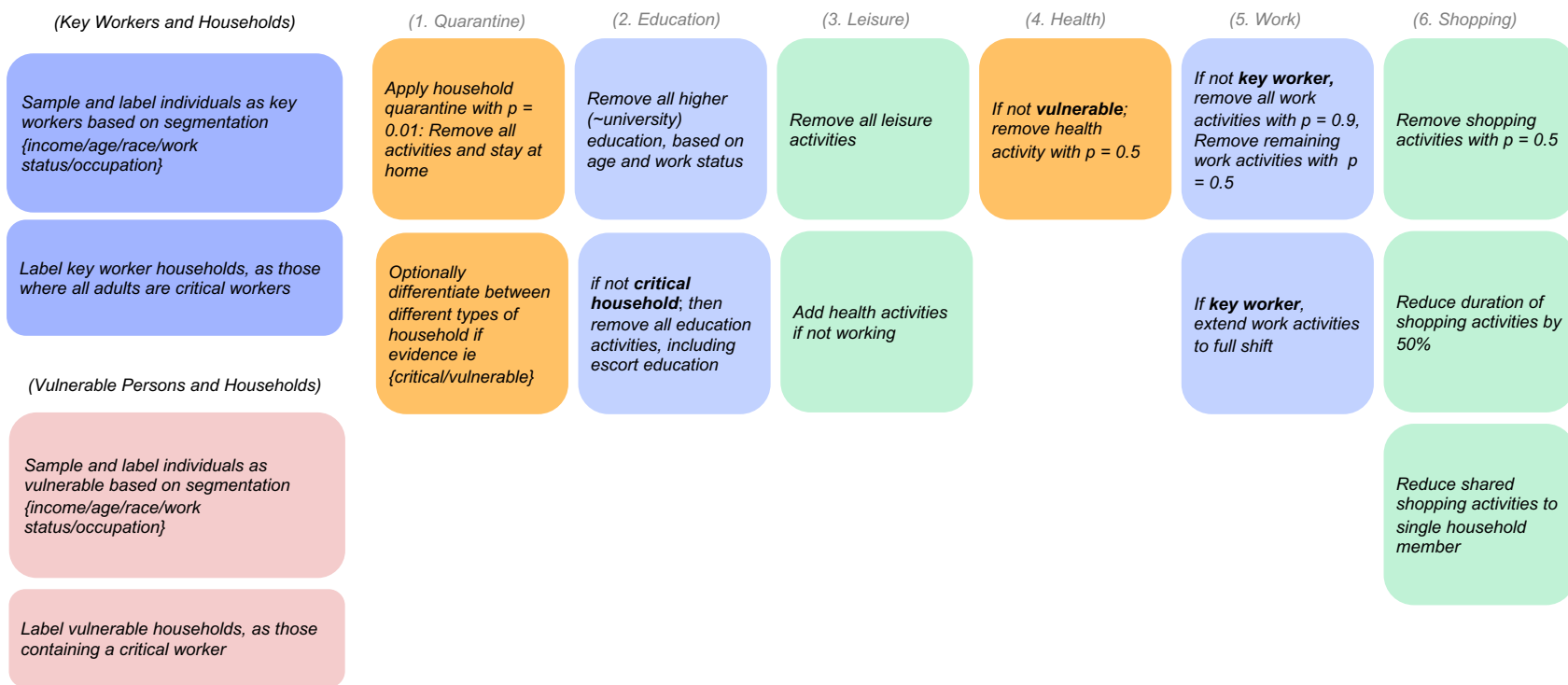
*"If I can get my demand model adjusted for this new baseline then I can start to make more careful decisions – I am sure there are going to be some trade-offs between costs, risks and economic benefits."*

- Local Authority Transport Planner

## Baseline 19 – preliminary policy proposals for building a new demand baseline:



## Baseline 19 – more **advanced** policy proposals (2/2):



PAM is Open Source and needs help, we are looking for people to help with:

**1. Literature Review**/theoretical vetting by transport modellers/planners

- ie. is the approach useful?
- ie. does the approach sound theoretically ok? - is there any existing lit?

**1. Research** - what new policies do we need - mode shift?/add daily exercise?/activities closer to home? etc

**1. Data** - we need to try out policies and validate them with data

- eg can we recreate Google mobility data for different cities with different rules?

**1. Python** dev of any level - get in touch please

**1. Got a use case?** or new output requirement? - let us know - we will add it to the project

We have more details about the project and how to get involved here:

<https://github.com/arup-group/pam>

Including an example notebook here:

<https://github.com/arup-group/pam/blob/master/notebooks/pam-getting-started.ipynb>

Feedback:

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