

## Regional EST Policy Dialogue and Training Workshop

### Module 2: Zooming in on Regional Resilience Plans for Urban Transport Services and Infrastructure



**Venue:** AIT Conference Center

**Date:** October 10, 2017, 13:00 - 15:00

# Transportation Infrastructure Development in Thailand: Go Green or Go Grey?



# ACTS

Asian Center for Transportation Studies

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Asian Institute of Technology (AIT)

Specialization: Transportation Engineering

# Does your country face the following problems?

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Congestion



Pollution



Climate Change



Gasoline  
Consumption



Equity (rich vs. poor)



Urban Sprawl



Car Accidents



Does your son want  
a new car, before a  
new house?



**Why does the government make cars  
as a necessary thing in life?**



# How much do you weigh?



Why do you want to carry  
a 1.5-ton piece of iron with you,  
instead of only you?

# Does the poor have cars? Building free roads for whom?



Low Income

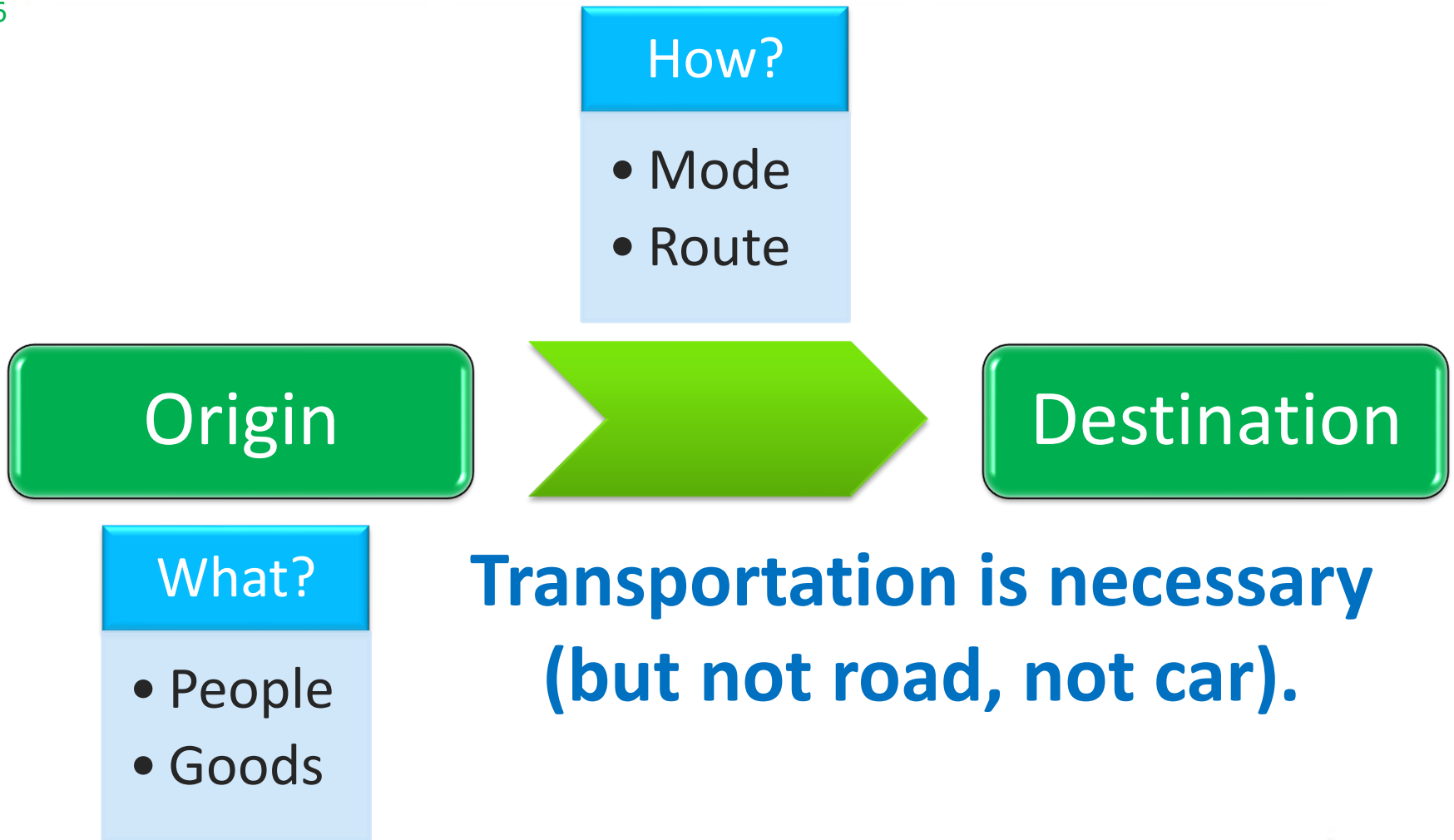


Middle Income

It also does not make sense to encourage them to borrow money to purchase a car.

# Basic Principle of Transportation

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# *Transportation*

Go Green

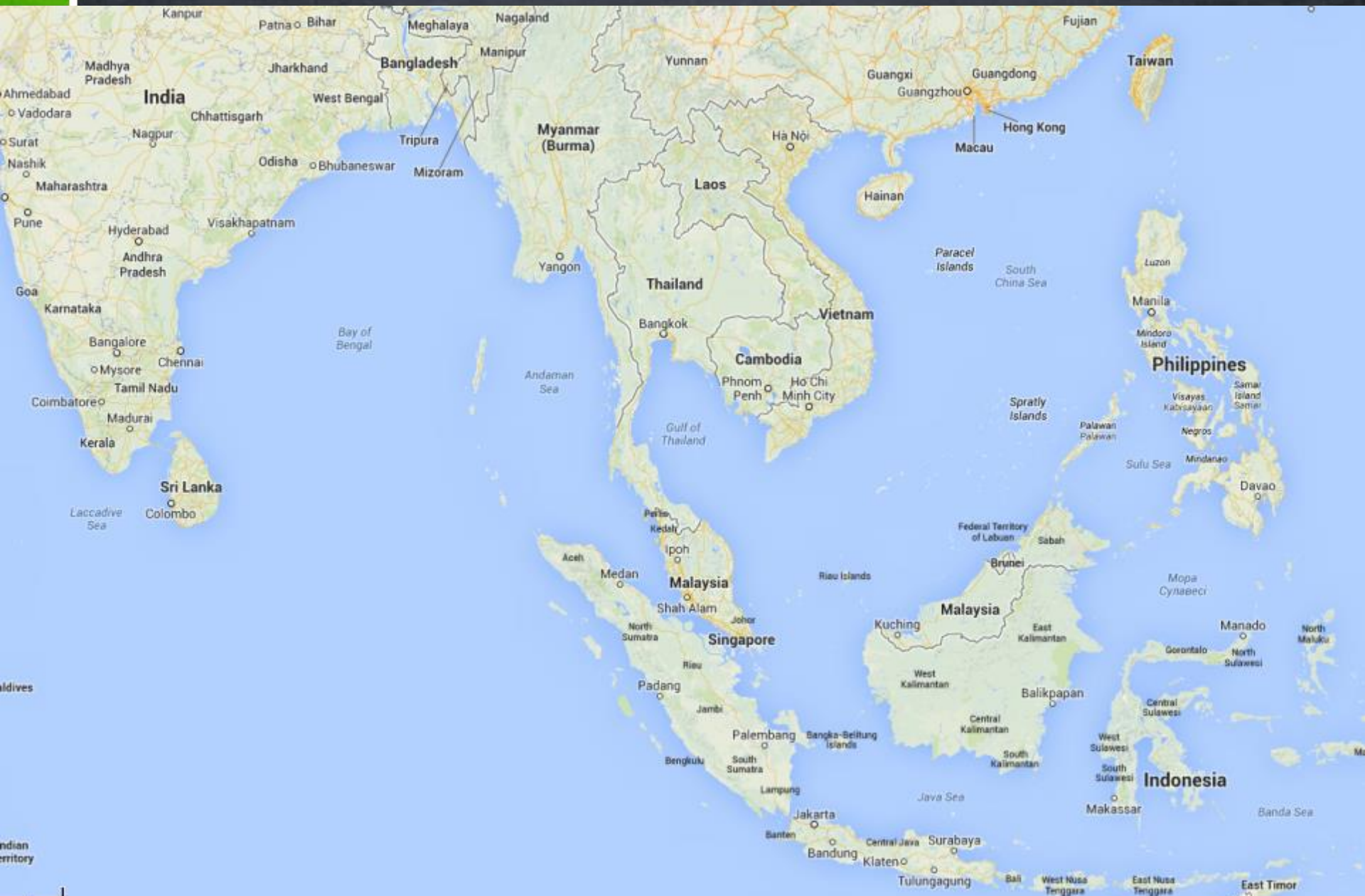
Go Grey



# Background



# Thailand has geographical advantages in AEC.



# The Current Problem of Thai Transportation

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Source: OTP



**85%**

**Road**

**Transportation**



**12%**

**Maritime**

**Transportation**



**2%**

**Rail**

**Transportation**



**1%**

**Airway**

**Transportation**

- Rely too much on road transportation.
  - Both passengers and freights
  - Costly
  - Difficult to increase capacity

# Traffic Problems in Bangkok--World Ranking

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**Bangkok**



Jakarta



Nairobi  
(in Kenya)



Manila



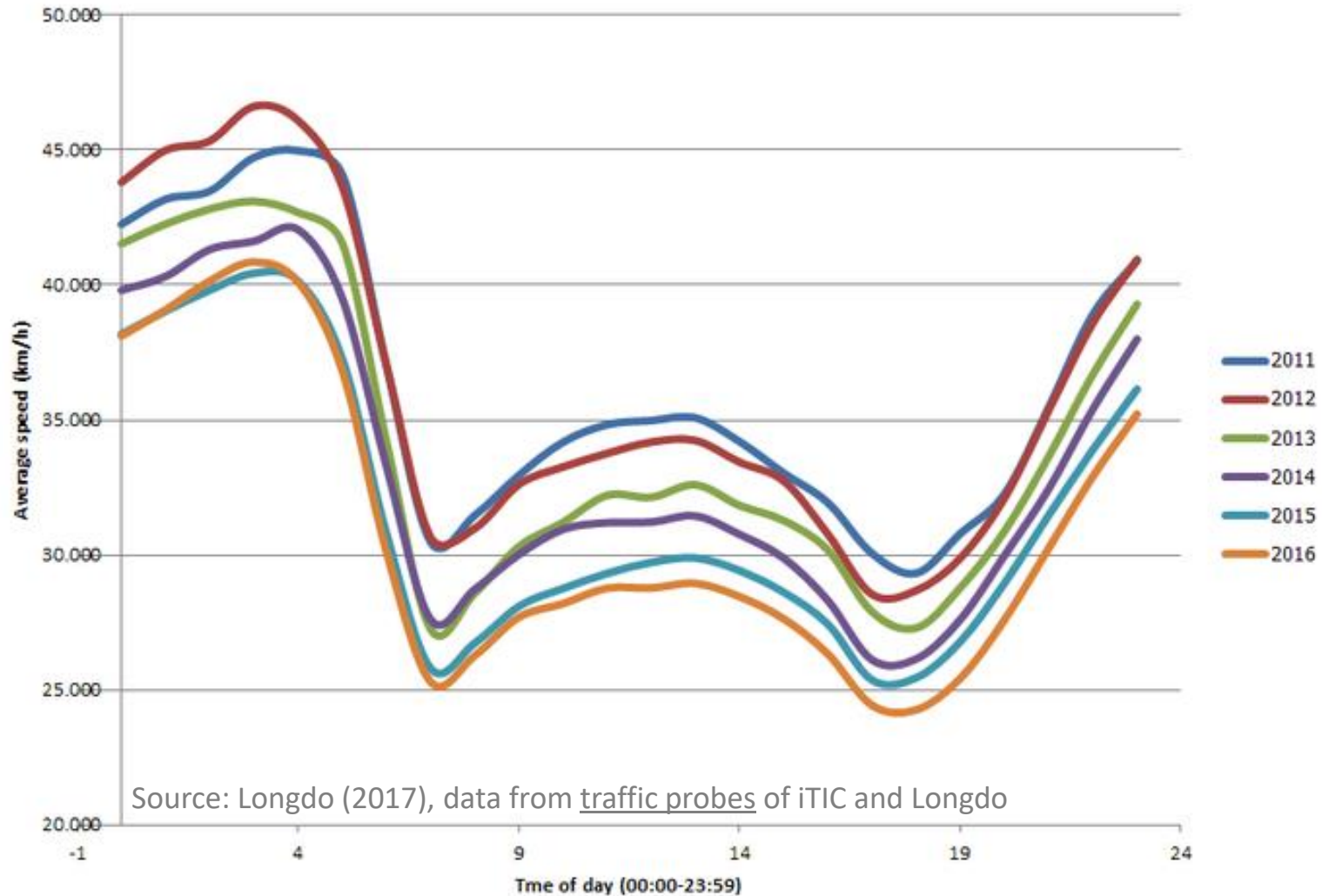
Mumbai

Ranking	City
<b>1</b>	<b>Bangkok</b>
2	Jakarta
3	Nairobi
4	Manila
5	Mumbai
6	Kampala
7	Lexington
8	Austin
9	Seoul
10	Dhaka

Source : BBC (2013)

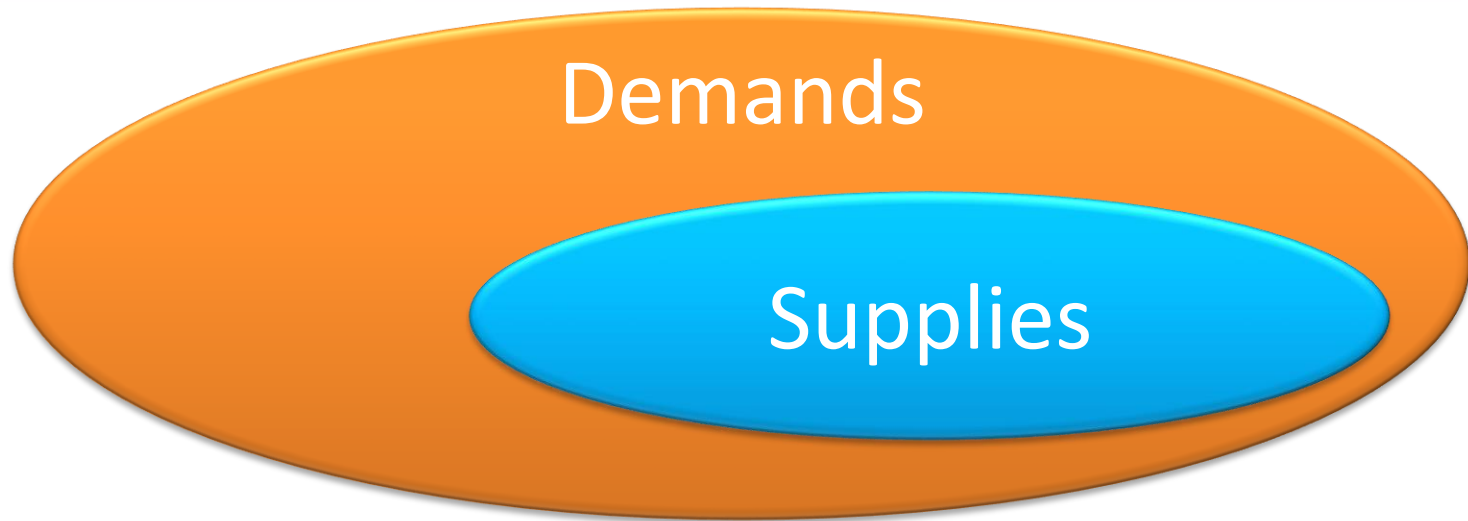
# The trend of “Do Nothing” is even worse.

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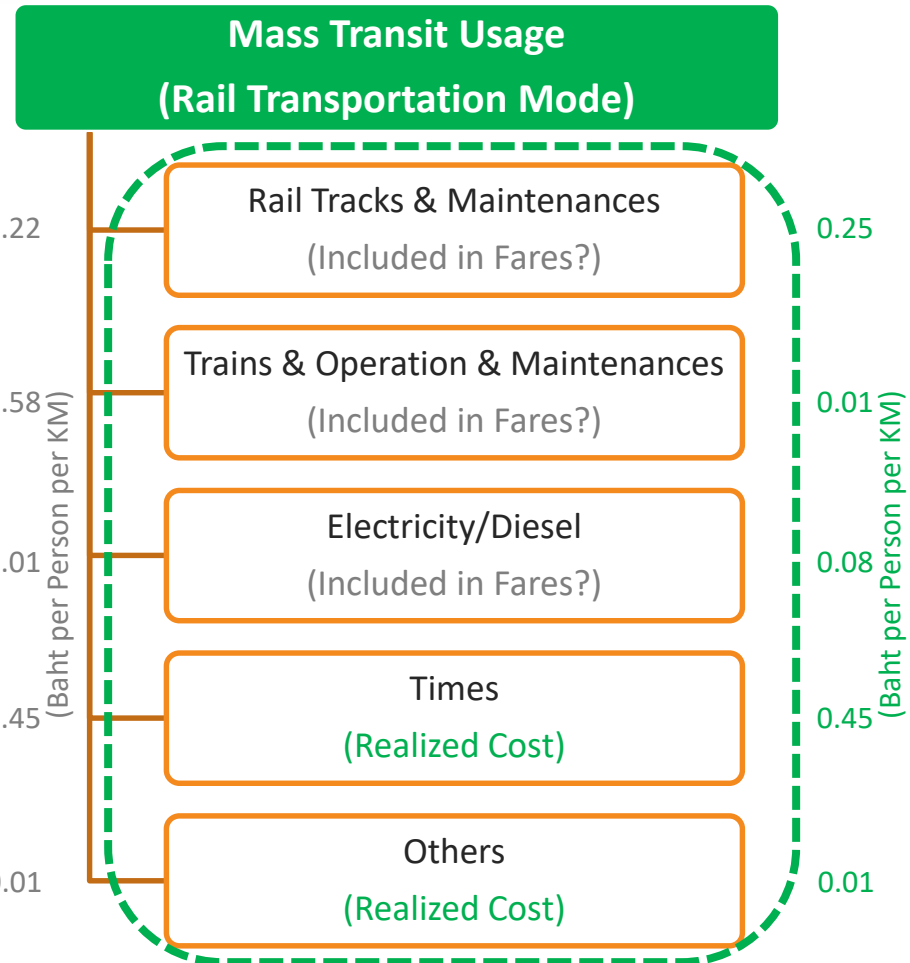
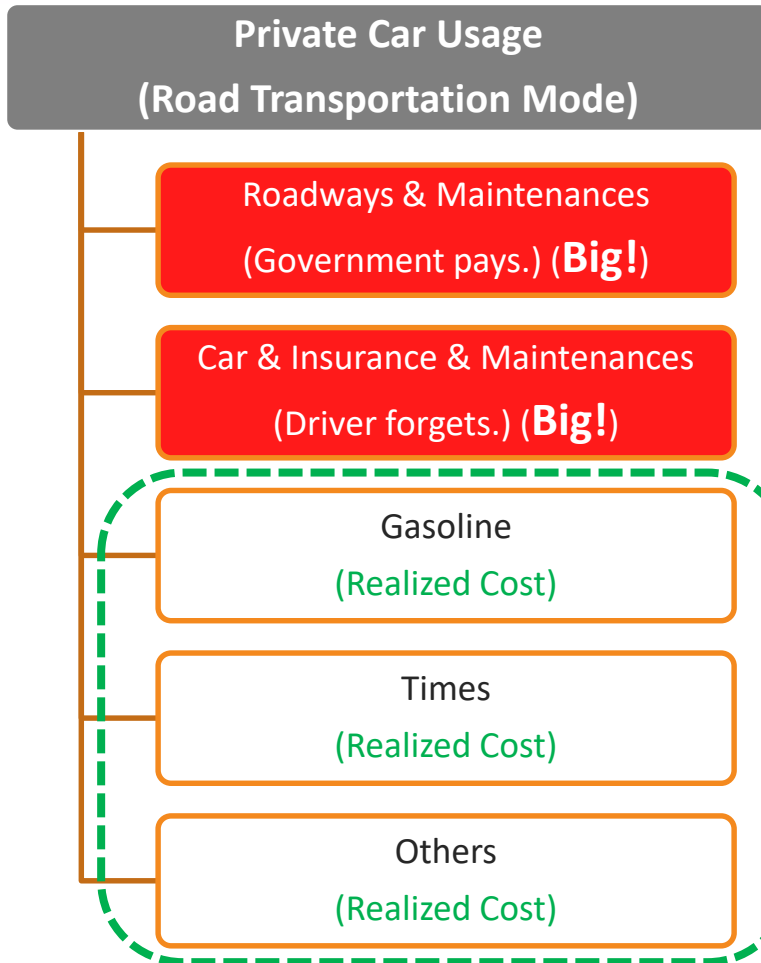


# Cause of Congestion (in a big picture)

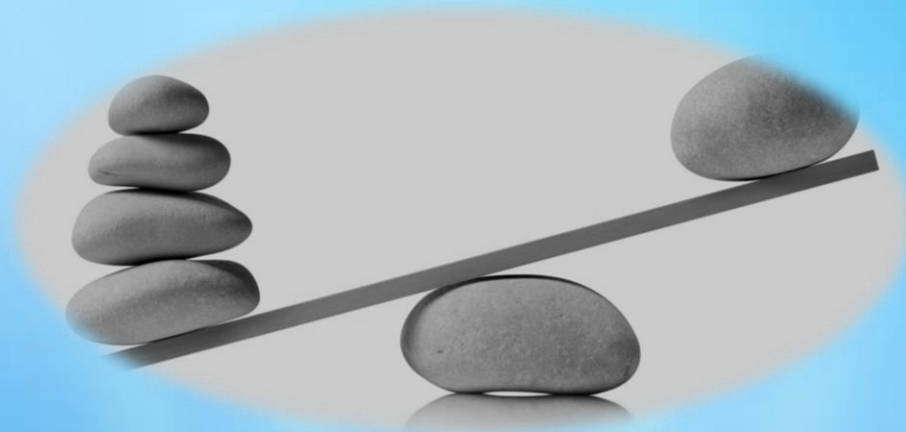
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- Demands >> Supplies
  - Especially for the private cars
- Demands:
  - 17M Trips per day (forecasted to be 35M by 2030)
  - Drivers underestimate the cost of private car usage.
- Supplies:
  - Grow with a much lower rate.
  - Lack of transit supplies in many O-D pairs



How can we make a fair competition?

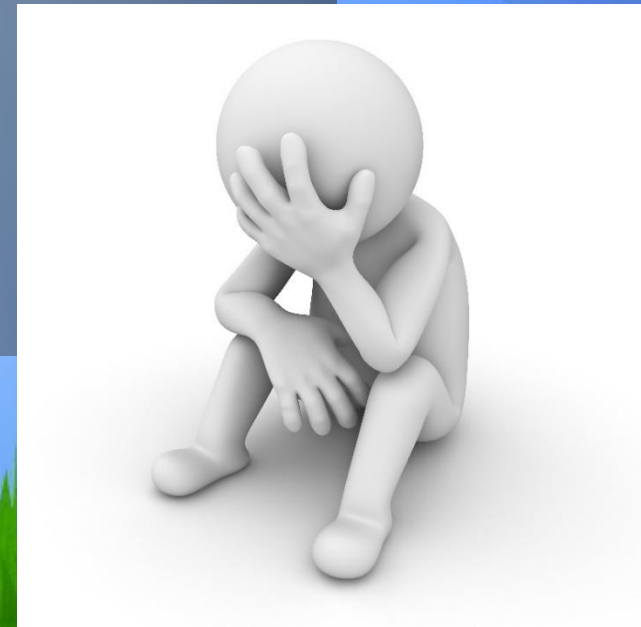


# “Mode Shift”

- It is the government’s job to intervene the unfair market.
- Keep building a new road will never be enough.
- Traveling by car is not sustainable and very expensive.



# Problems





Most people agree that we must  
improve public transportation,

**but...**

# There are many redundant agencies; work quite independently. → Plans, not plan!

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- Roads:
  - DOH (Department of Highways)
  - DORR (Department of Rural Roads)
  - EXAT (Expressway Authority of Thailand)
  - Local agencies
- Rails:
  - SRT (State Railway of Thailand) (ordinary trains)
  - BMA (Bangkok Metropolitan Administration) (BTS line)
  - MRTA (Mass Rapid Transit Authority of Thailand) (Blue and Purple lines)
  - SRTET (ARL line)
- Buses:
  - DLT (Department of Land Transport)
  - BMTA (Bangkok Mass Transit Authority)
  - Private companies
  - Local agencies

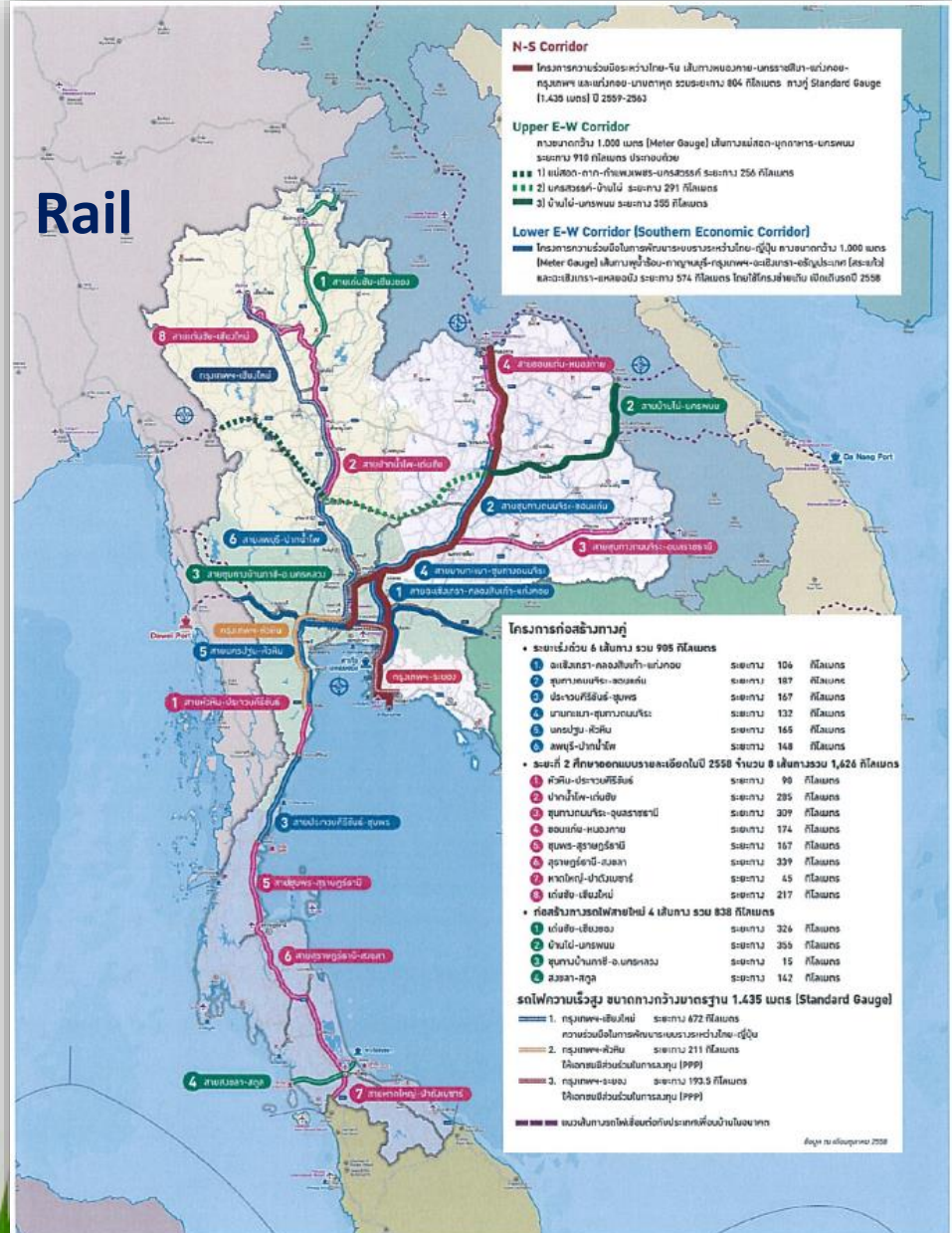
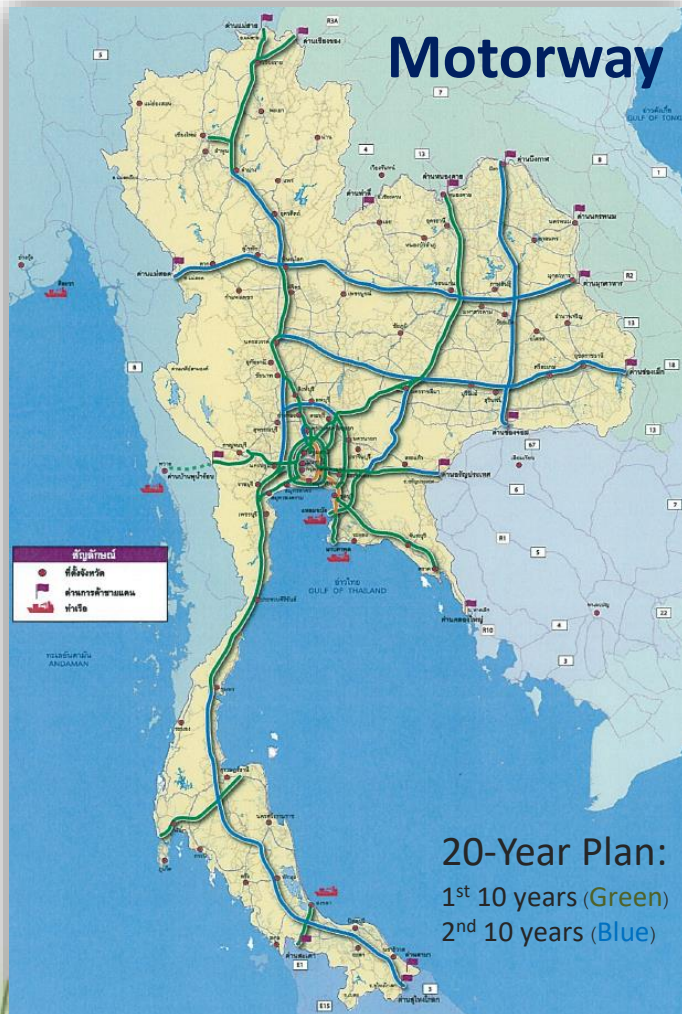
# Redundancy: Motorway vs. Rail

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Motorway Master Plan (2016):

Distance = 6,612 km

Budget = 2 MM



**We have already have a  
lot more roads than rails  
(120,000 vs. 4,000 km).**



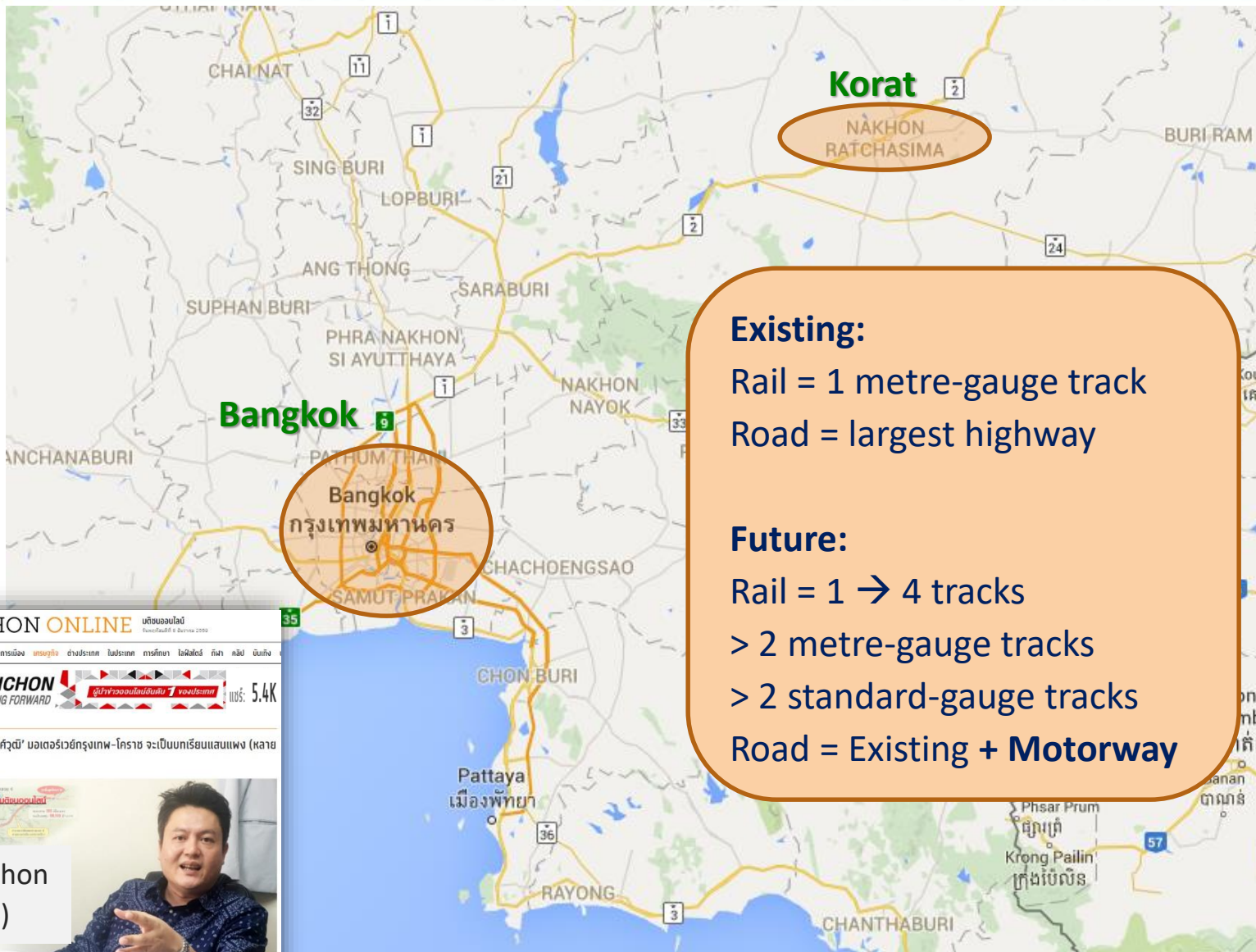
**Government changes;  
Plan changes.**



# An Ongoing Tragedy: Bangkok-Korat

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About 260 km



## Existing:

- Rail = 1 metre-gauge track
- Road = largest highway

## Future:

- Rail = 1 → 4 tracks
- > 2 metre-gauge tracks
- > 2 standard-gauge tracks
- Road = Existing + **Motorway**



MATCHION ONLINE

ส่วนประชาสัมพันธ์ การเมือง เศรษฐกิจ สังคม ไลฟ์สไตล์ กีฬา วัฒนธรรม

**MATCHION** WINNING FORWARD

ข่าวเศรษฐกิจวันนี้ 7 พฤษภาคม 2561

ราคา: 5.4K

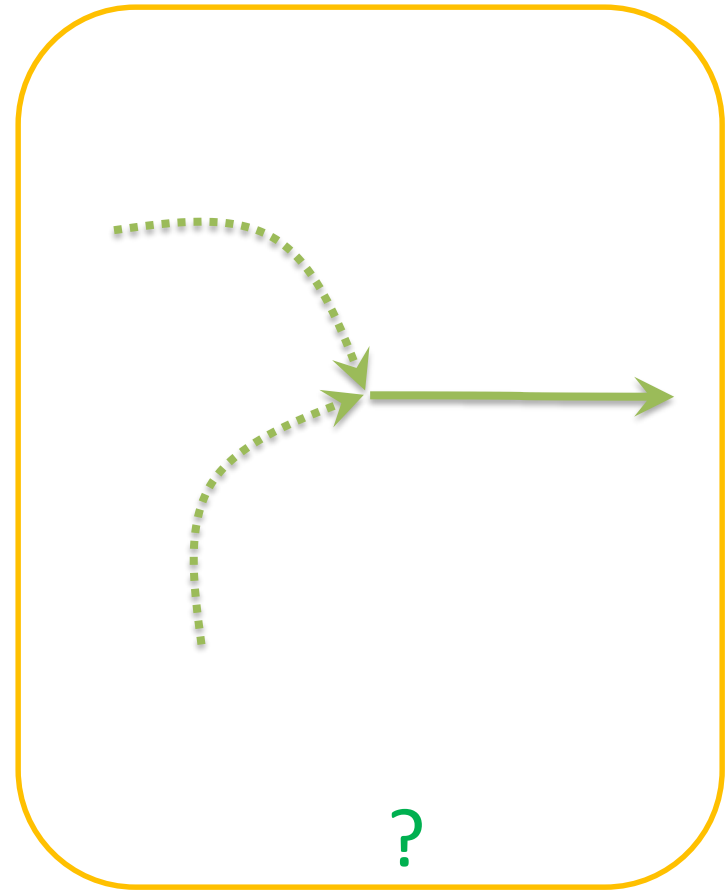
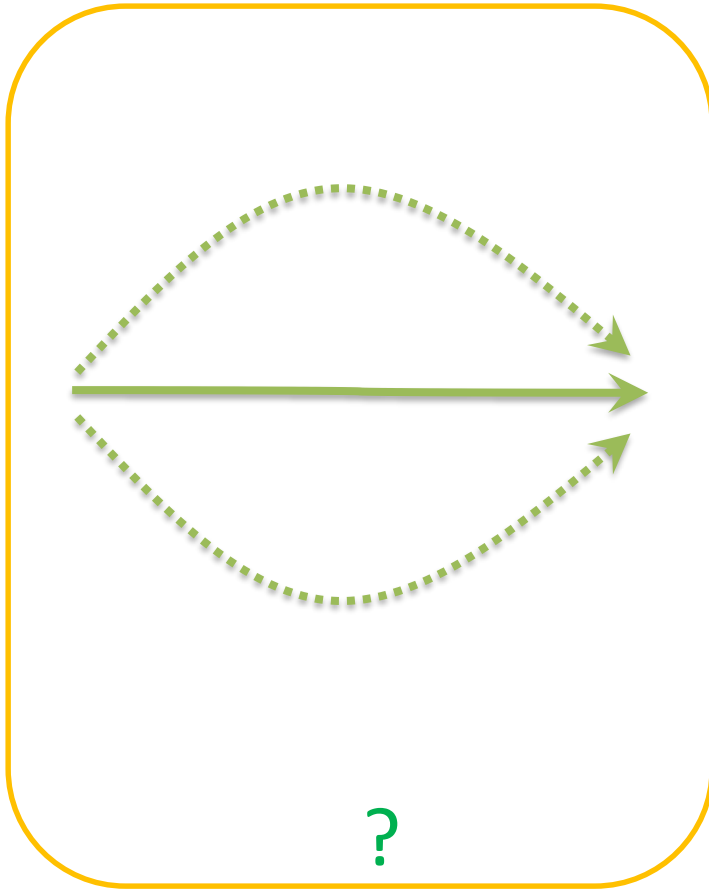
‘สุรเชษฐ์ ประวีณวงศ์วุฒิ’ มอเดอเรเตอร์กรุงเทพ-โคราช จะเป็นที่เรียนแบบแพง (หลายแสนล้าน)

Matchion (2016)

A man in a blue patterned shirt speaking at a podium.

# “Compete” vs. “Complement”

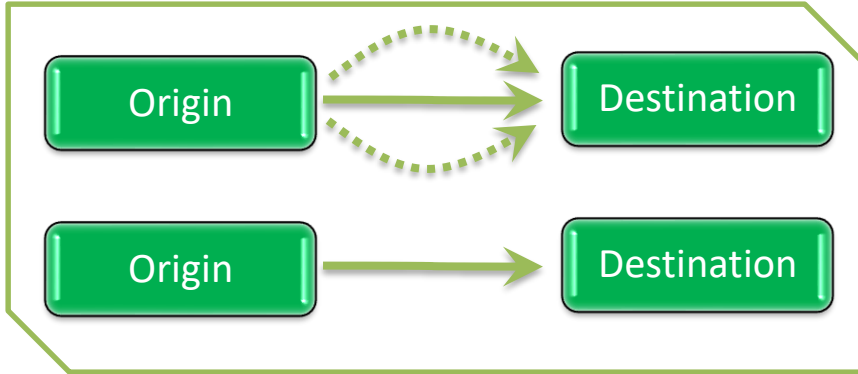
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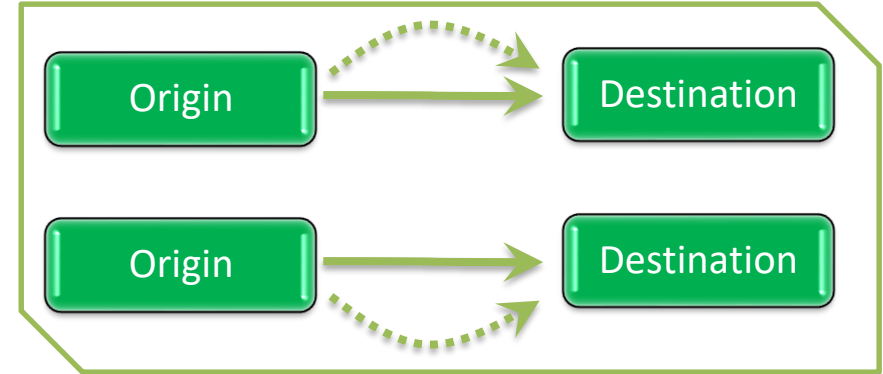
# With a limited budget, which one is better?

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Scenario 1:



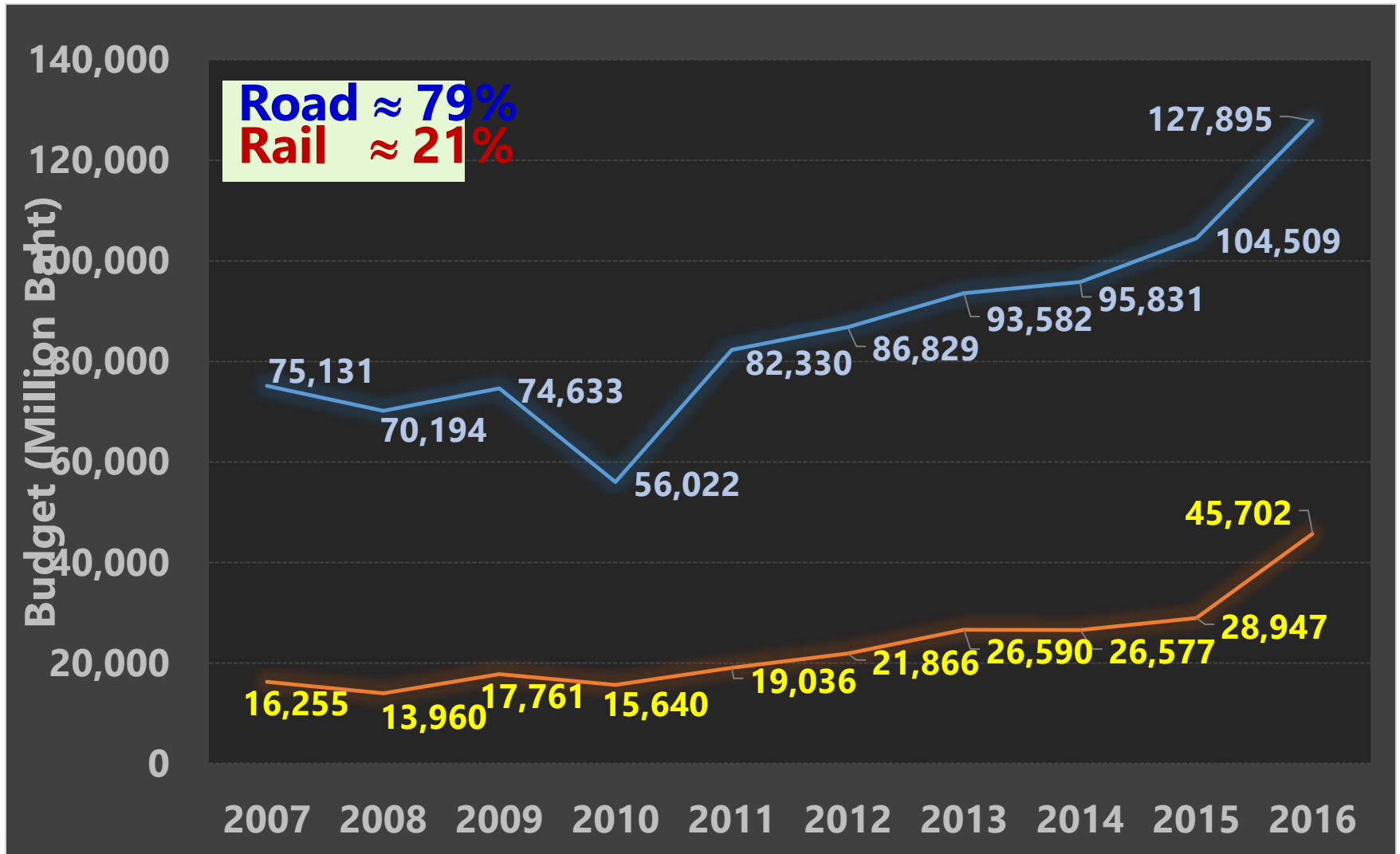
Scenario 2:





# Budget Trend

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# 1<sup>st</sup> car policy

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- While announcing to support mode shift (from road to rail) [MOT], another team [MOF] of the same party announced the 1<sup>st</sup> car policy.
- Give a 20%-discount if never own any car before (in a form of tax incentive).
- Poor people have more debts.

# Toll Roads vs. Free Roads



# SUMMARY

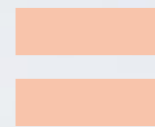




You



1.5  
Tons



Waste

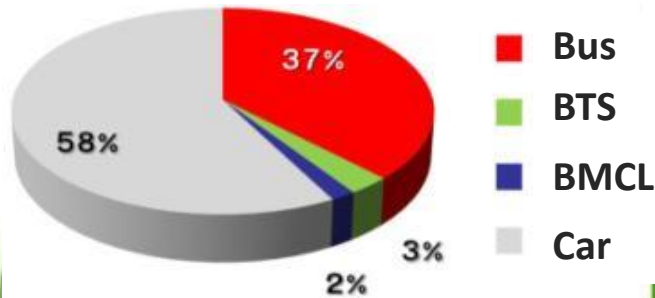
# “Public Transport System in Bangkok”

## Public Land Transport

- Bus Transit
  - BMTA Buses (regular/AC)
  - Private Bus & Mini Bus
- Rail Transit
  - Elevated Rail (BTS/Airport Link)
  - Underground Rail (MRT)
- Para Transit
  - Conventional (Taxi/Tuk-Tuk)
  - Unconventional (Passenger Van, Hired Motorcycles)

## Public Water Transport

- Long-tailed Boats
- Ferry Boats
- Express Boats



# Bangkok's Transportation Problems and Possible Solutions

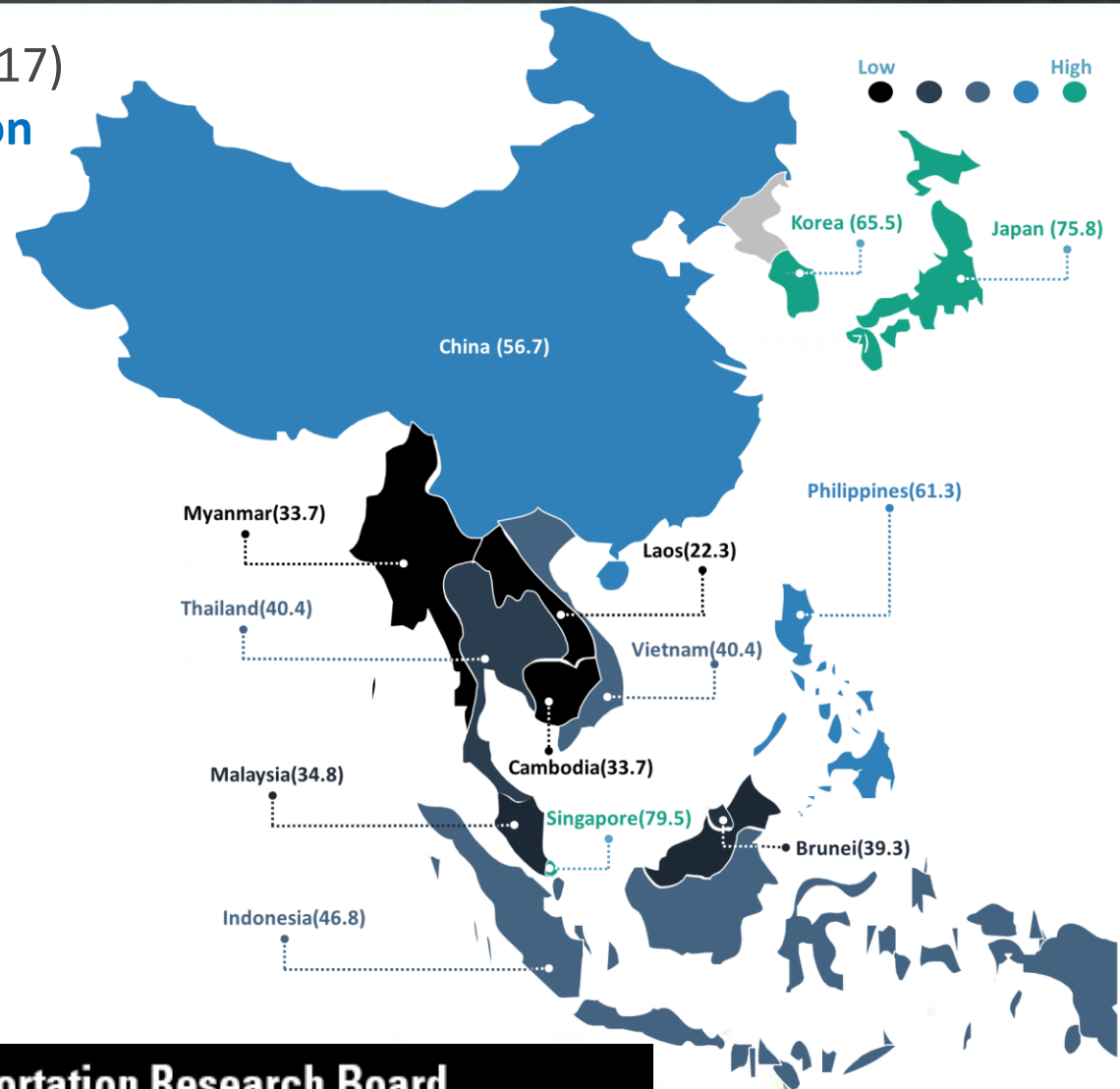
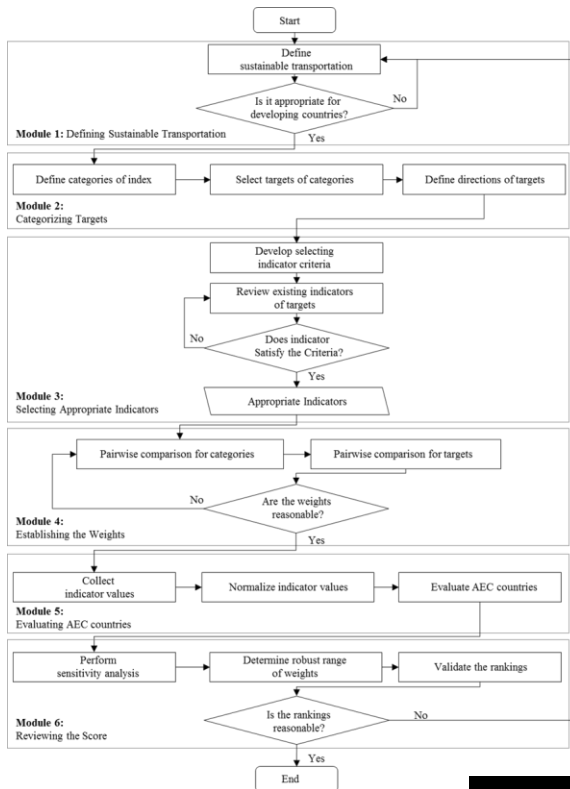
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- We rely too much on private cars.
- With the current scheme of subsidizing for roads (relative to others), people “unreasonably” pick the mode of transportation (they don’t care or forget hidden costs).
- It is the government’s job to balance the shares among transportation modes to an appropriate level.
- The most important thing is: “we should have the plan, not plans”.
  - How to come up with a reasonable plan is difficult, but necessary [next slides].

# We need a “Sustainable Transportation Index” to monitor.

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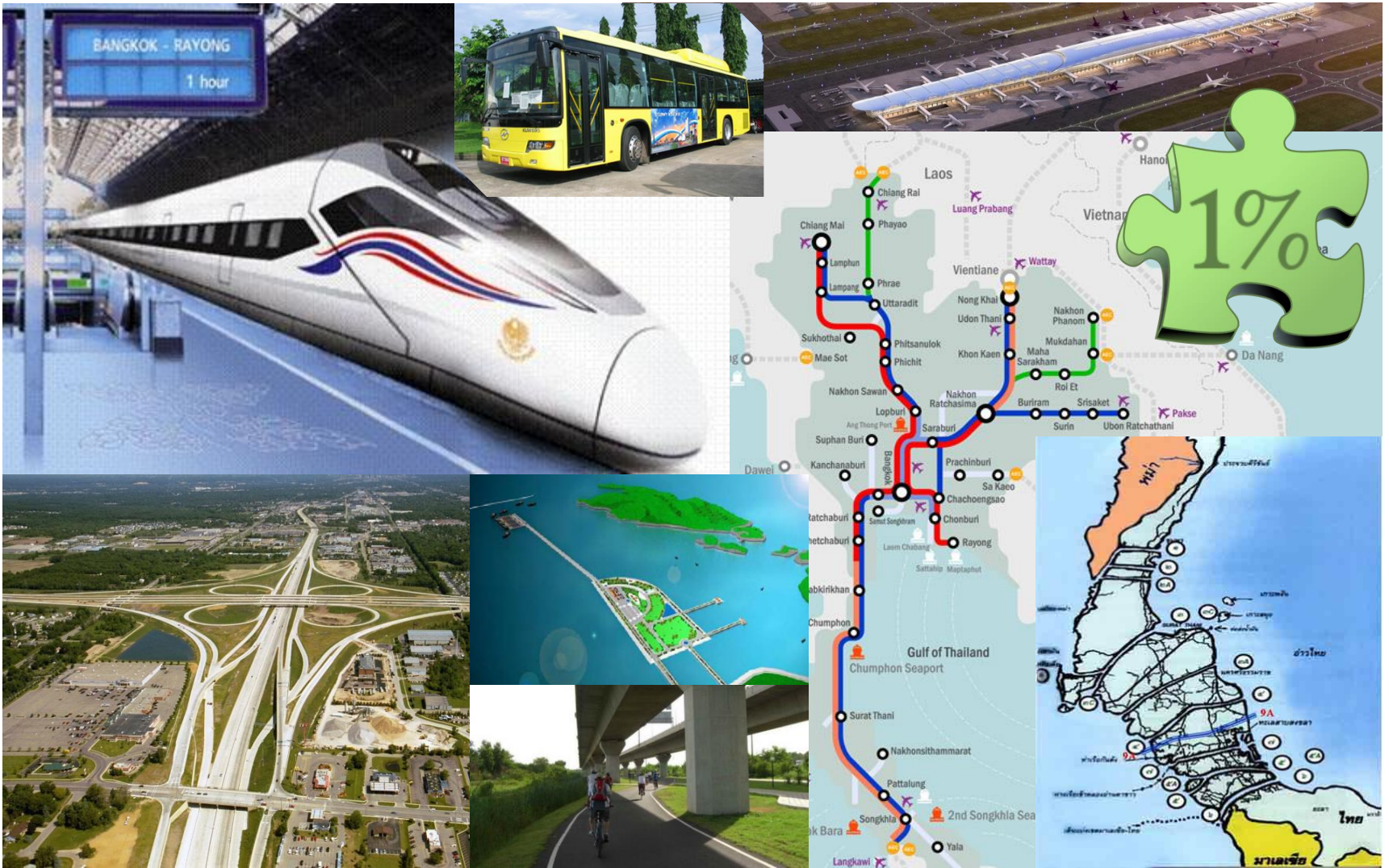
## Lee and Pravinvongvuth (2017) A Sustainable Transportation Index and its Application to AEC Countries





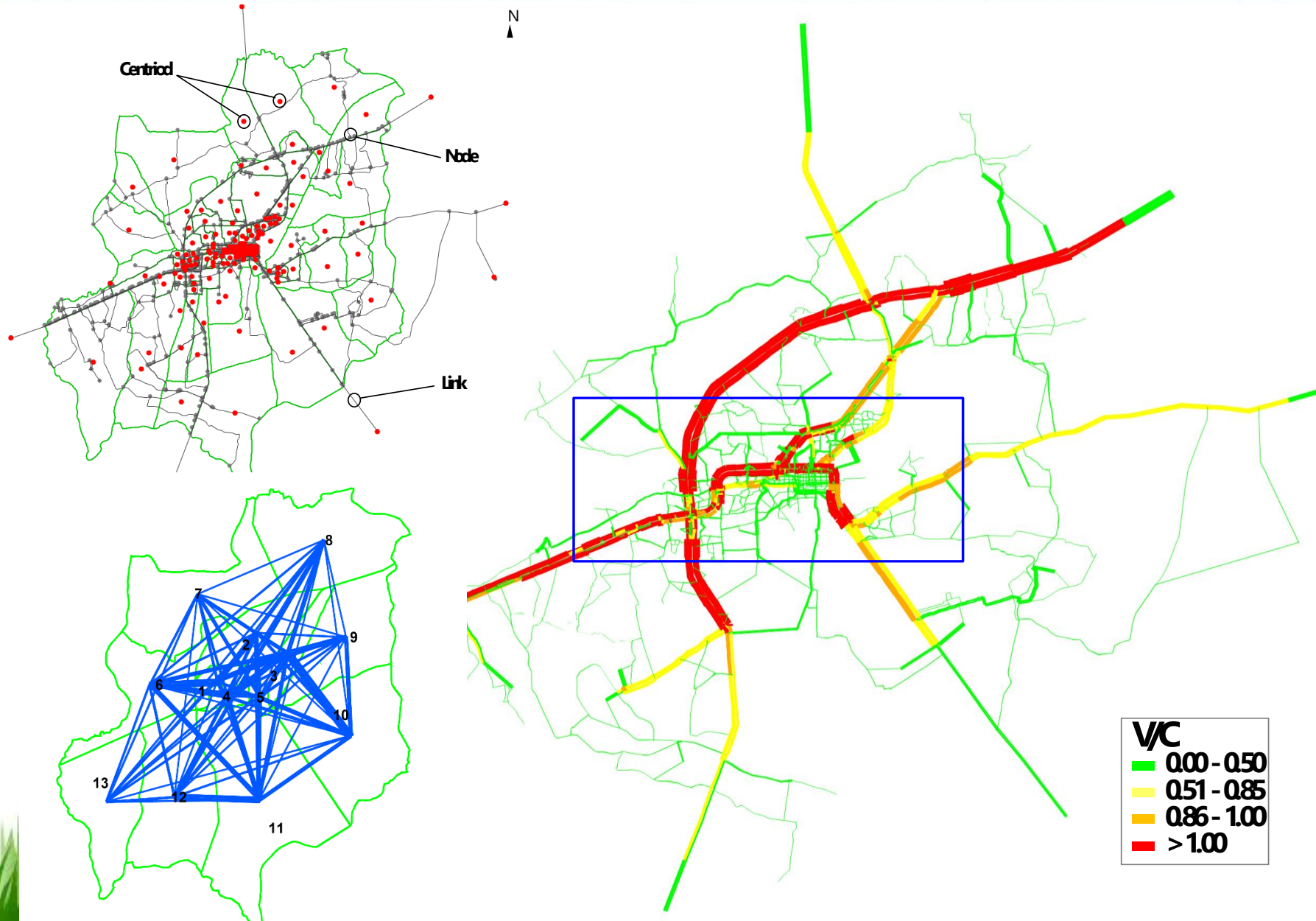
# Feasibility Studies

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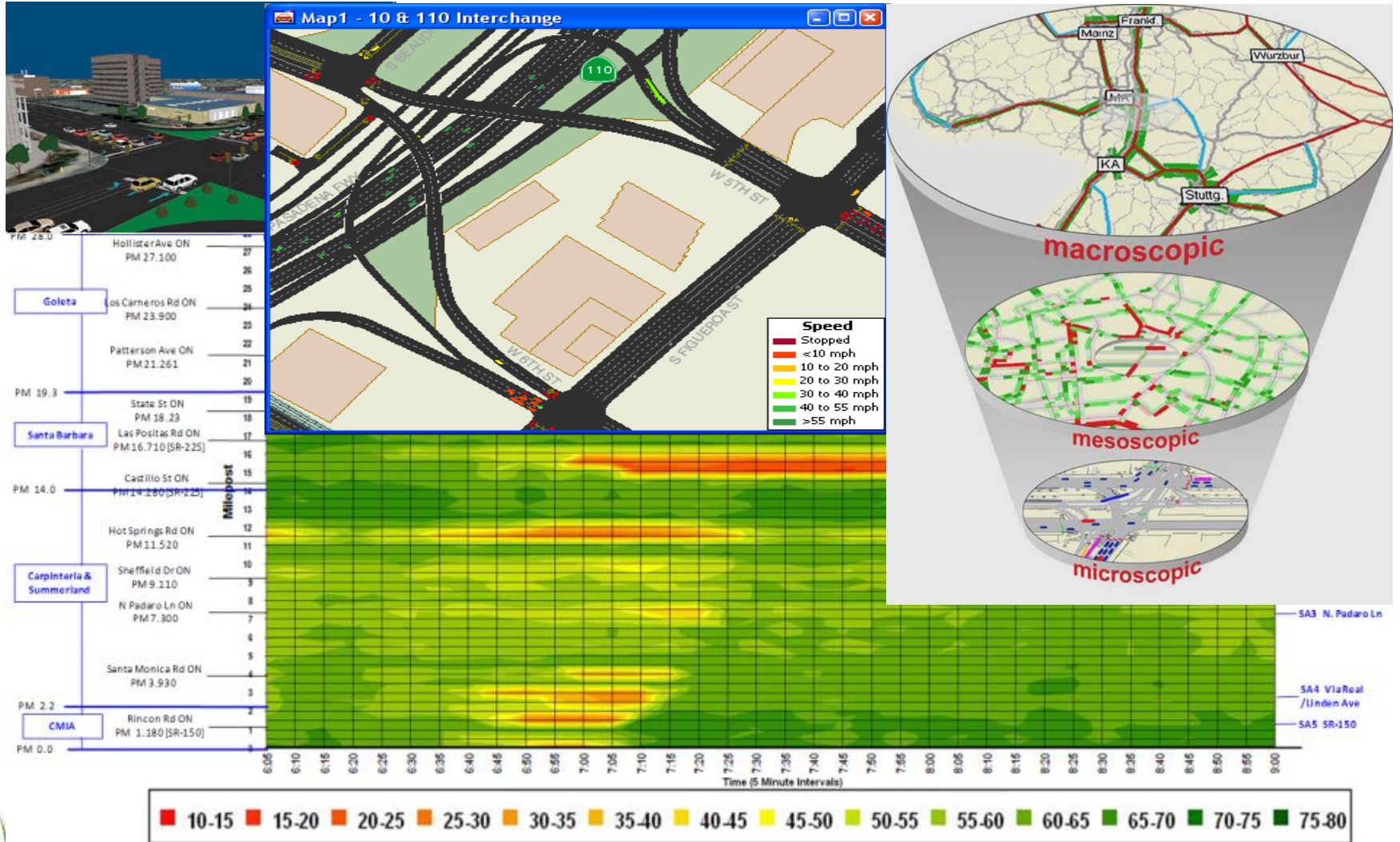
# Travel Demand Modeling

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# Traffic Simulation

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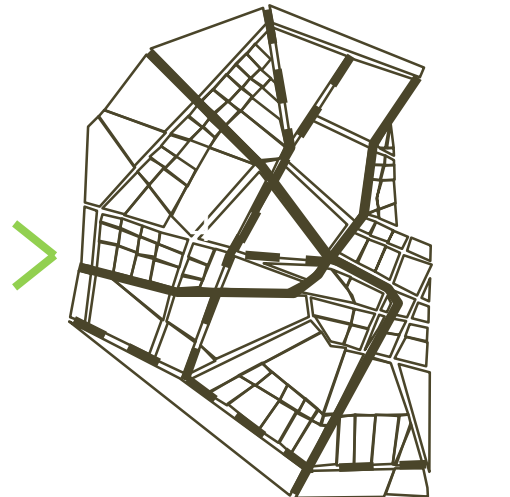
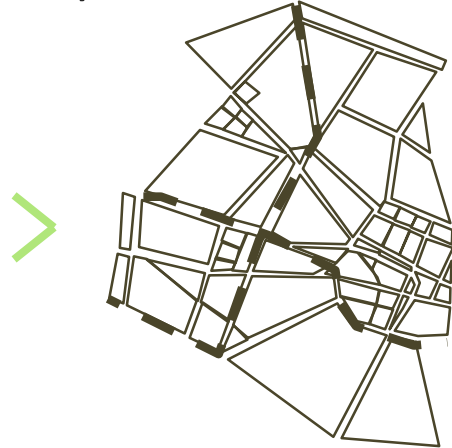
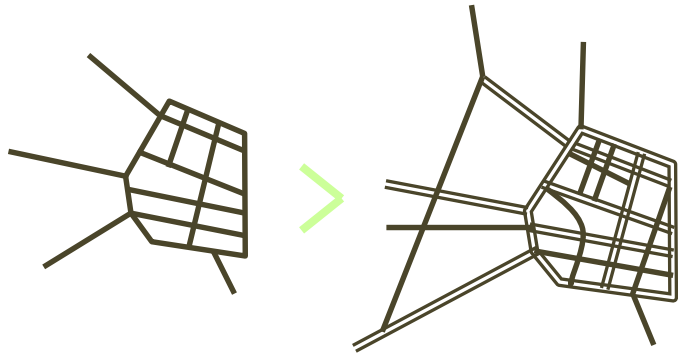


# Suggestions



# Transportation System Evolution with Urban Area Growth

37 Evolution Steps (by **population**):



Minor Ways — + Arterials —

**Sparse Settlement**    **Small City**  
 (say <100K)    (say 100K-500K)

Travel by individual vehicles    Addition of arterials and public transport service

+ Separated ways - - -

**Medium City**  
 (say 500K-2M)

Introduction of semi-rapid transit

+ Fully controlled ways —

**Large City**  
 (say >2M)

Addition of freeways and rapid transit

1. Walking
2. Car
3. Taxi

4. Bus (ROW C)
5. Wider Road

6. Transit improvement (ROW B)
7. Guided (not steered) transit (LRT)

8. Freeways [+ Toll]
9. Rapid Transit (ROW A)
10. Full automation of rapid transit

(Vuchic, 2007)

# Quote of the Day:

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“A developed country is not a place where the poor have cars, it’s where the rich use public transportation.”

(by Mayor of Bogota, Mr. Enrique Penalosa)

Tokyo, Japan



Mode Shift

Shall we go **Green** or Grey?

