

# Mobility & Accessibility of Rail Transit Network in Bangkok



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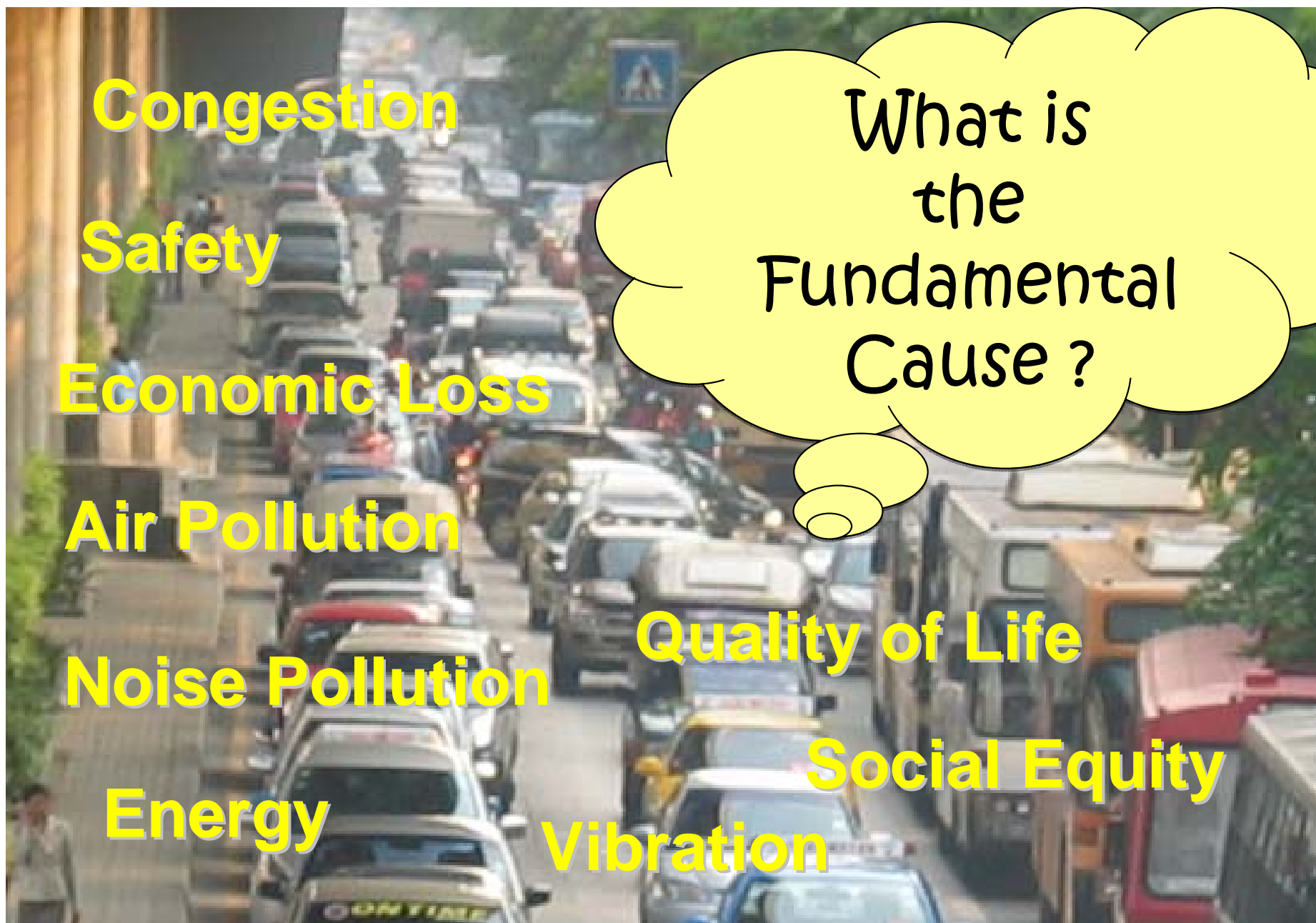


- ❖ **Background**
- ❖ **Evaluation framework**
  - Indicators
- ❖ **Rail network scenario**
- ❖ **Conclusion**



[www.global-greenhouse-warming.com](http://www.global-greenhouse-warming.com)

# Urban Transportation Problems



# Rail Transit in Bangkok



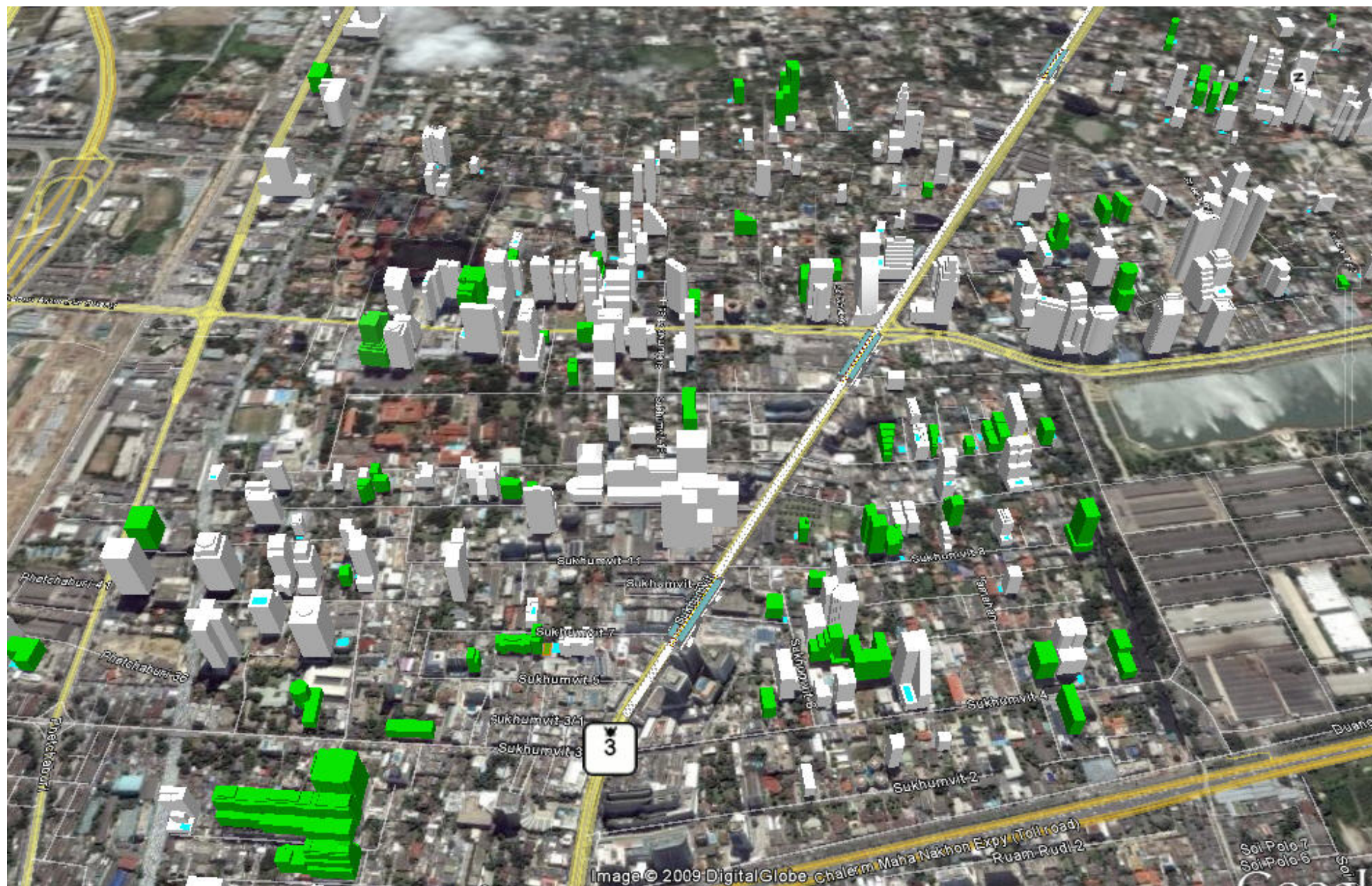


# BTS & MRT Corridor



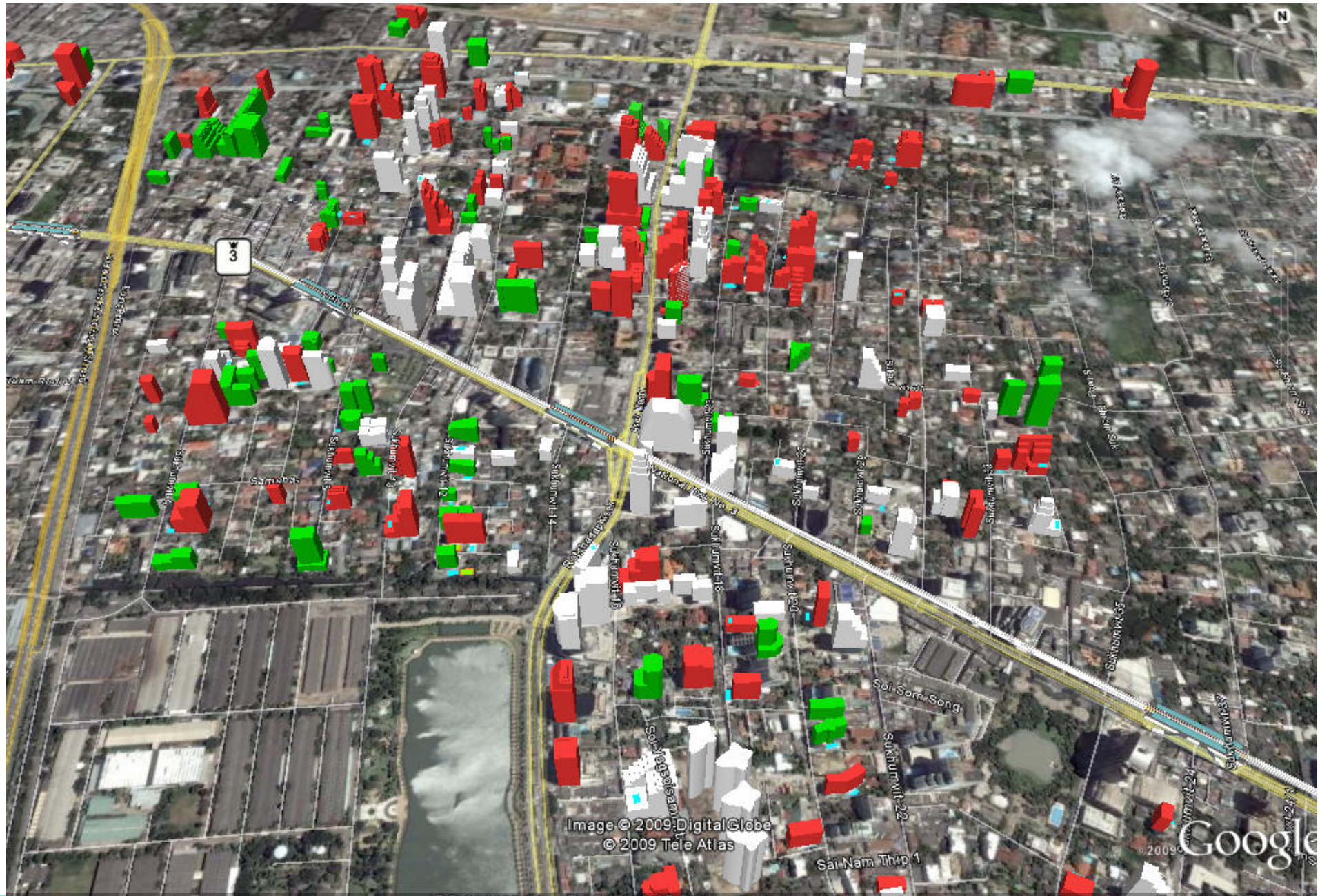


# Before BTS (1992)





# During BTS Construction (1992-1998)





# After BTS Opened (1999~)

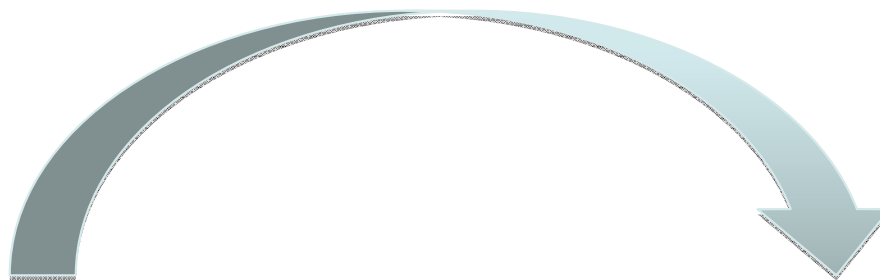




# Land Use /Transport Interaction



**Travel Demand**



**Land Use**

**Transportation**



**Accessibility**





# Transport Indicators



	Type or Category	Performance Measures
<b>Accessibility</b>	Roadway	Percentage of population residing within 10 minutes or 5 miles of public roads
<b>Mobility</b>	Travel speed	Average speed Peak-hour speed
	Delay, congestion	Hours of delay Percentage of limited-access highways in urban areas not heavily congested during peak hours
	Amount of travel	Vehicle-miles of travel (VMT) on highways Percentage of VMT at specific road classes
<b>Quality of Life</b>	Accessibility Mobility	Percentage of motorists satisfied with travel times for work and other trips





## ❖ Travel pattern

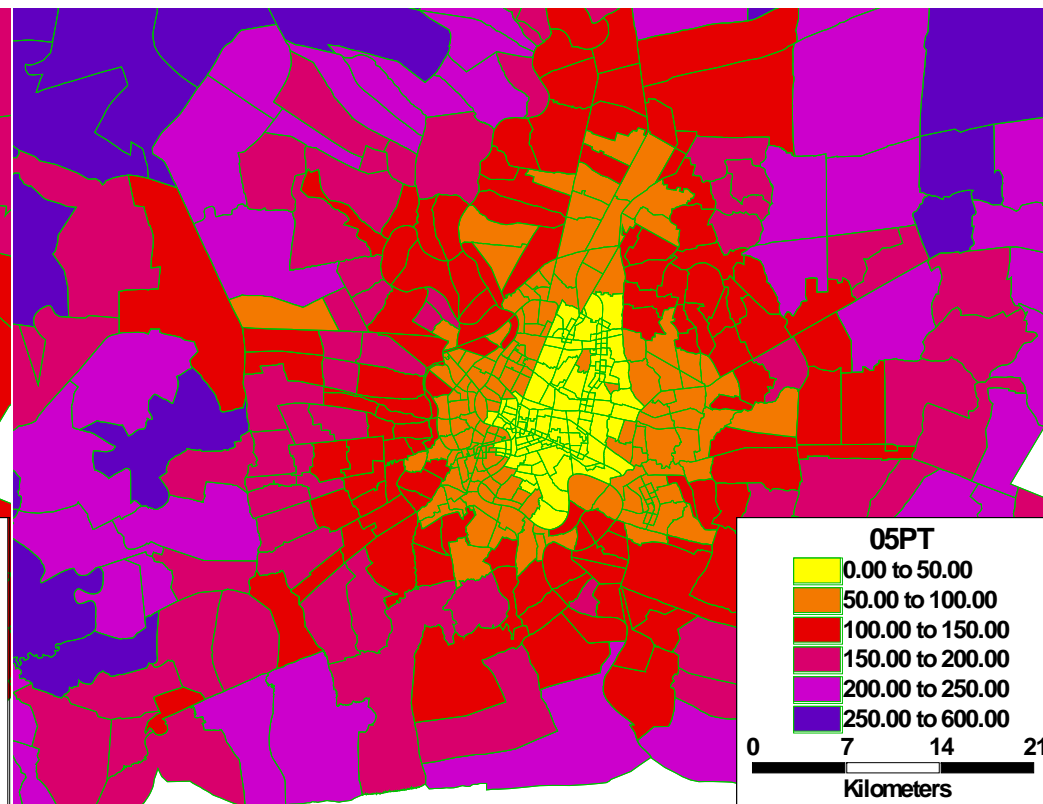
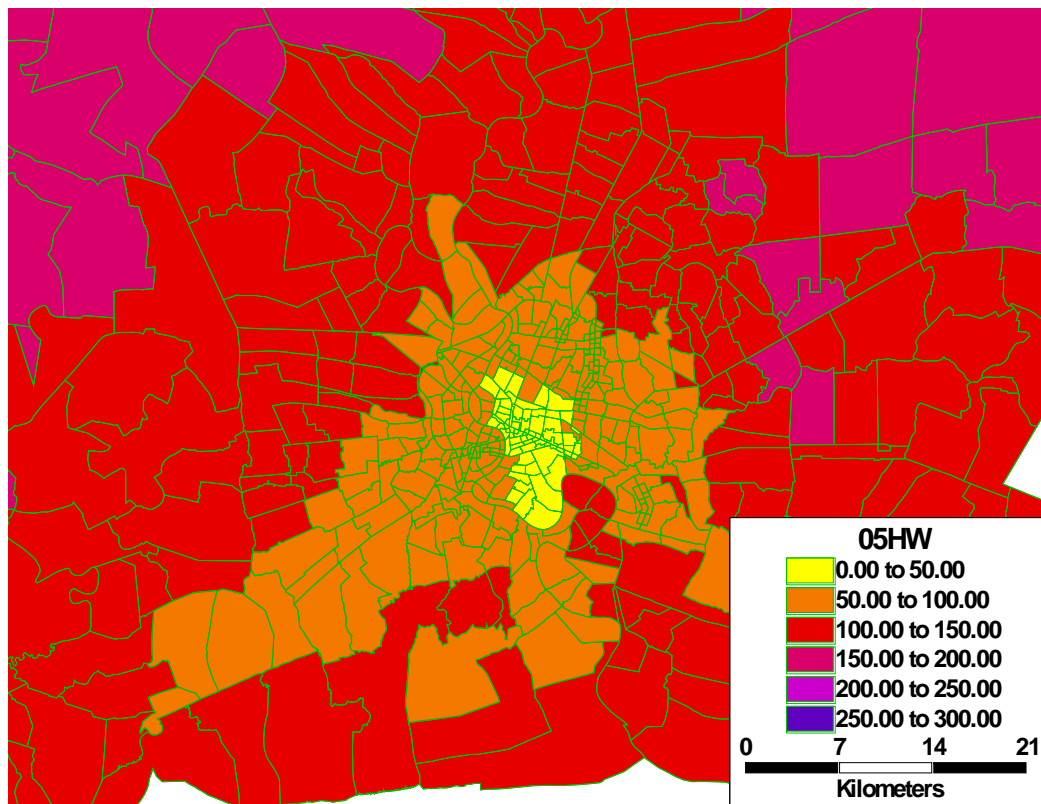
- Mobility
- Accessibility
- Location-specific travel preference

## ❖ Land development

- Property value uplift



# Mobility (2005)



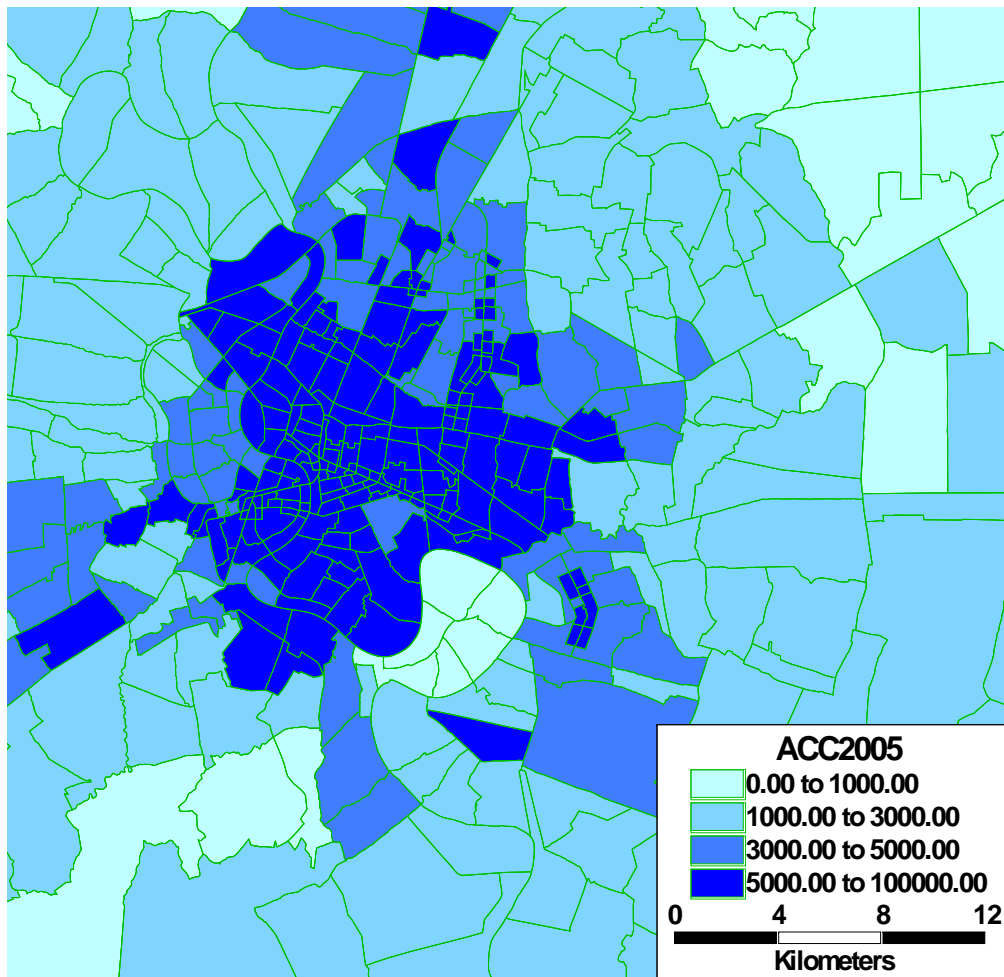
Private mode

Public mode

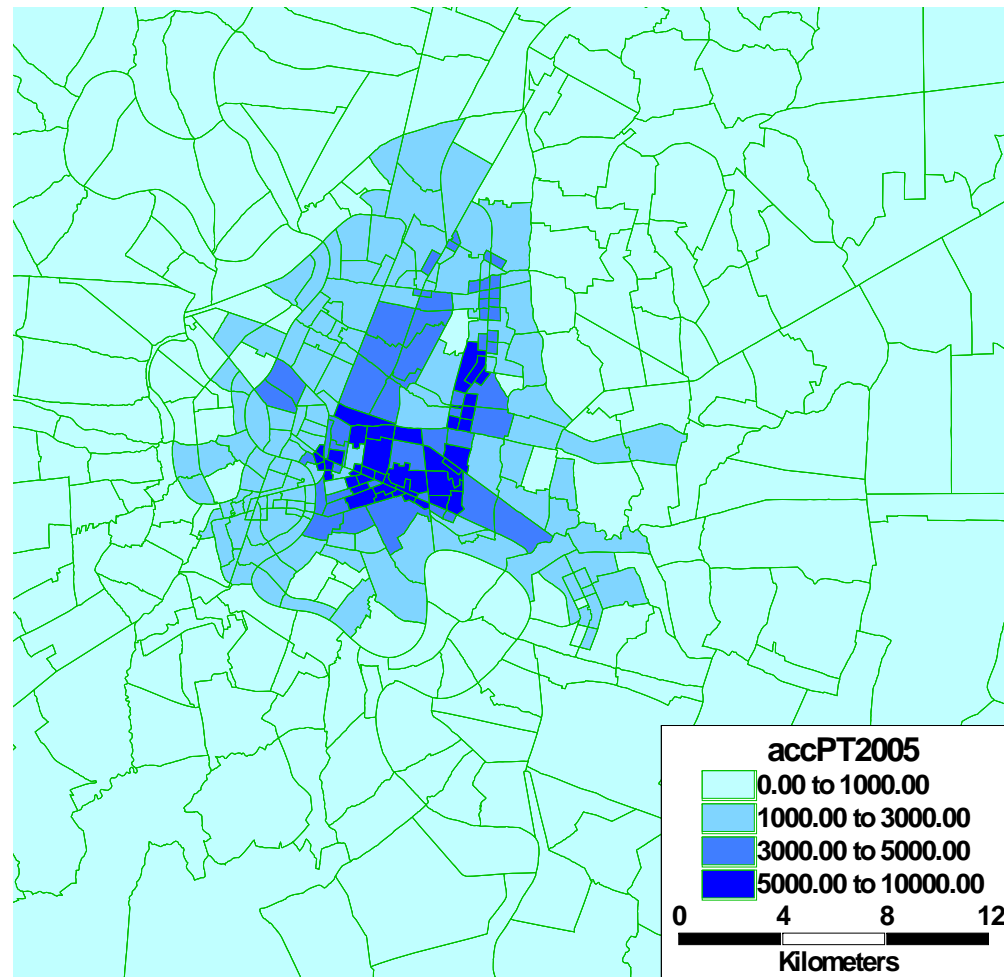
❖ Travel time to city center “Silom”



# Employment Accessibility (2005)



Private mode

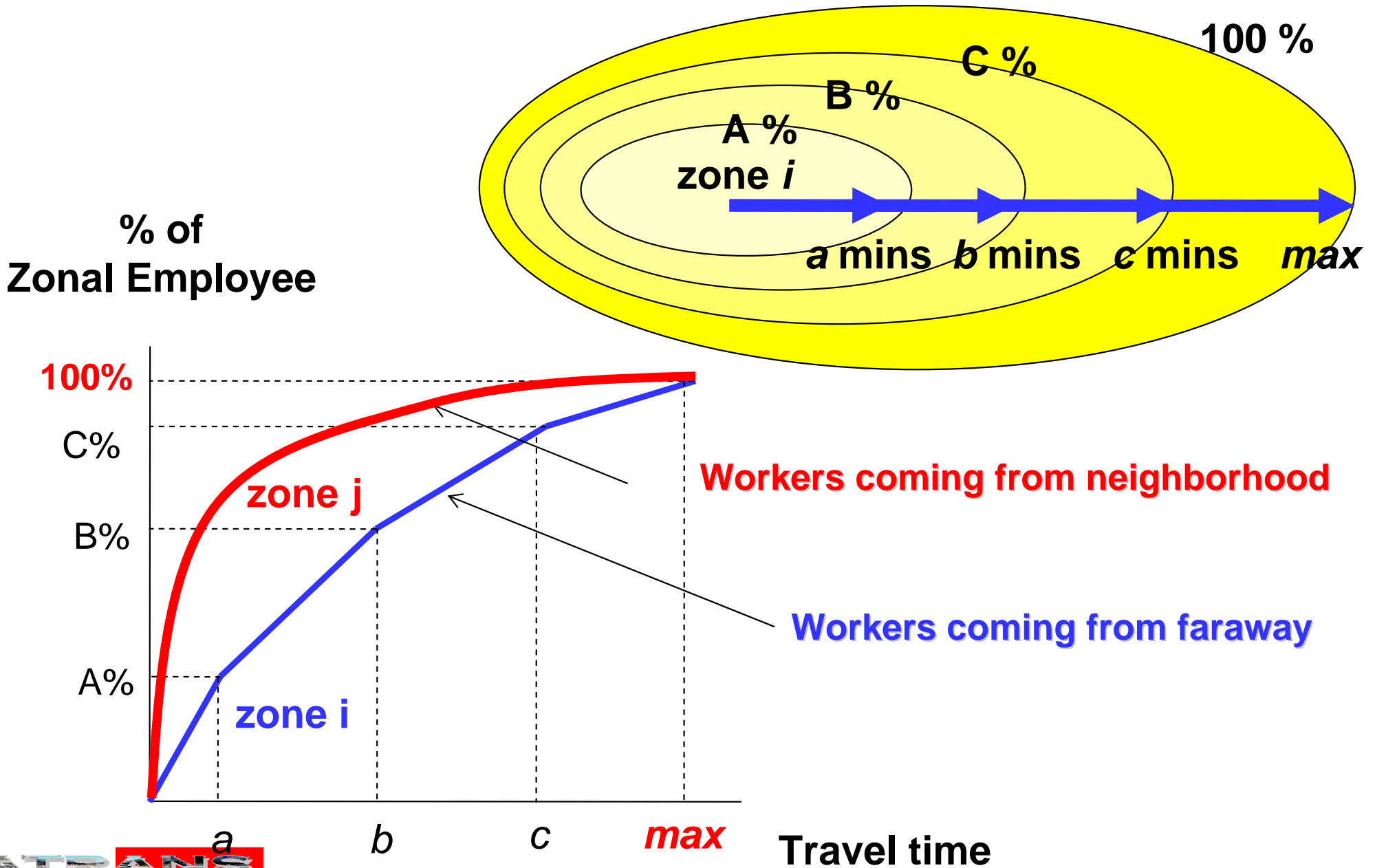


Public mode

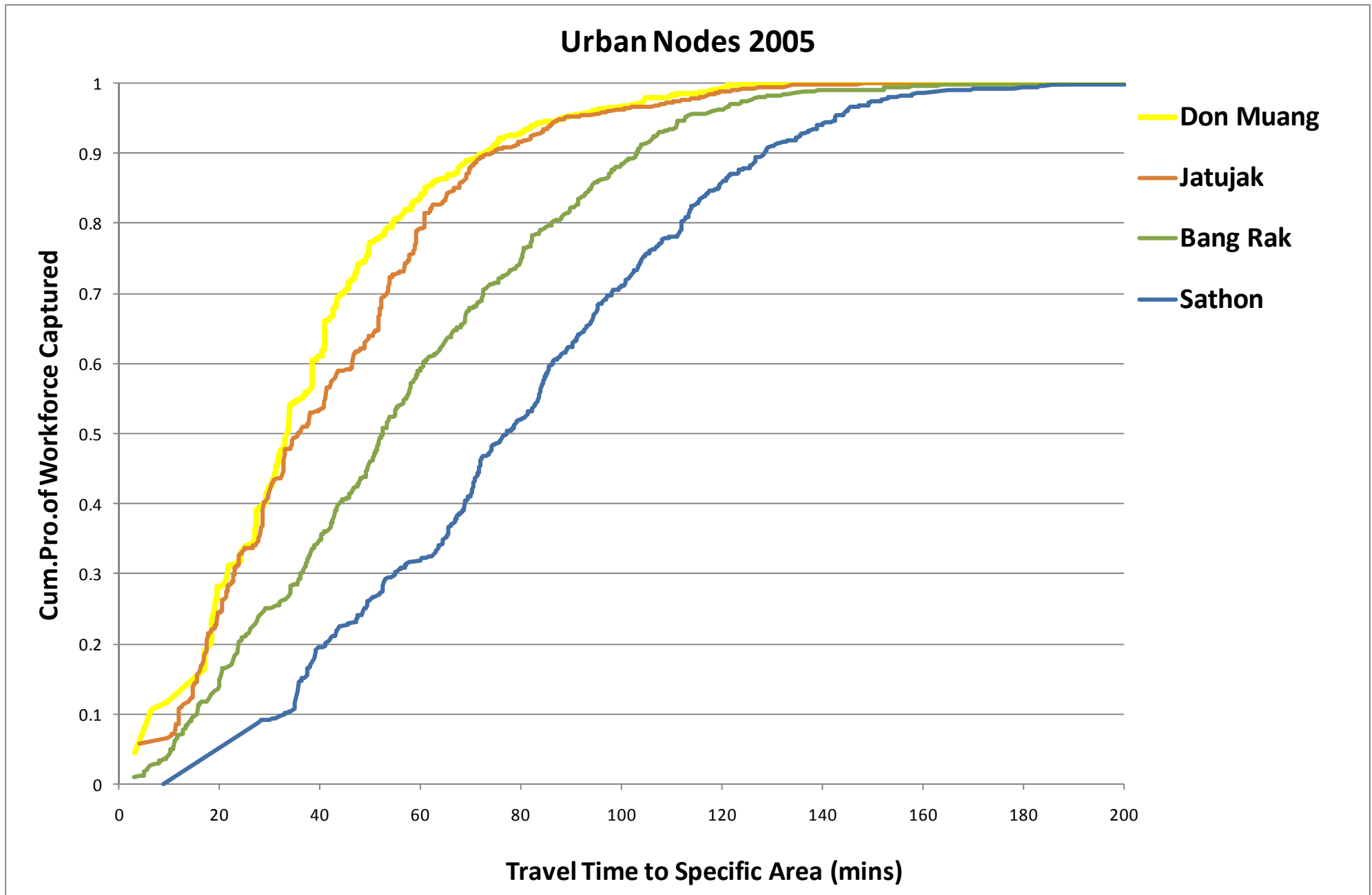
$$A_i = \sum_j Emp_j \exp(-0.001t_{ij})$$



# Location-Specific Travel Preference



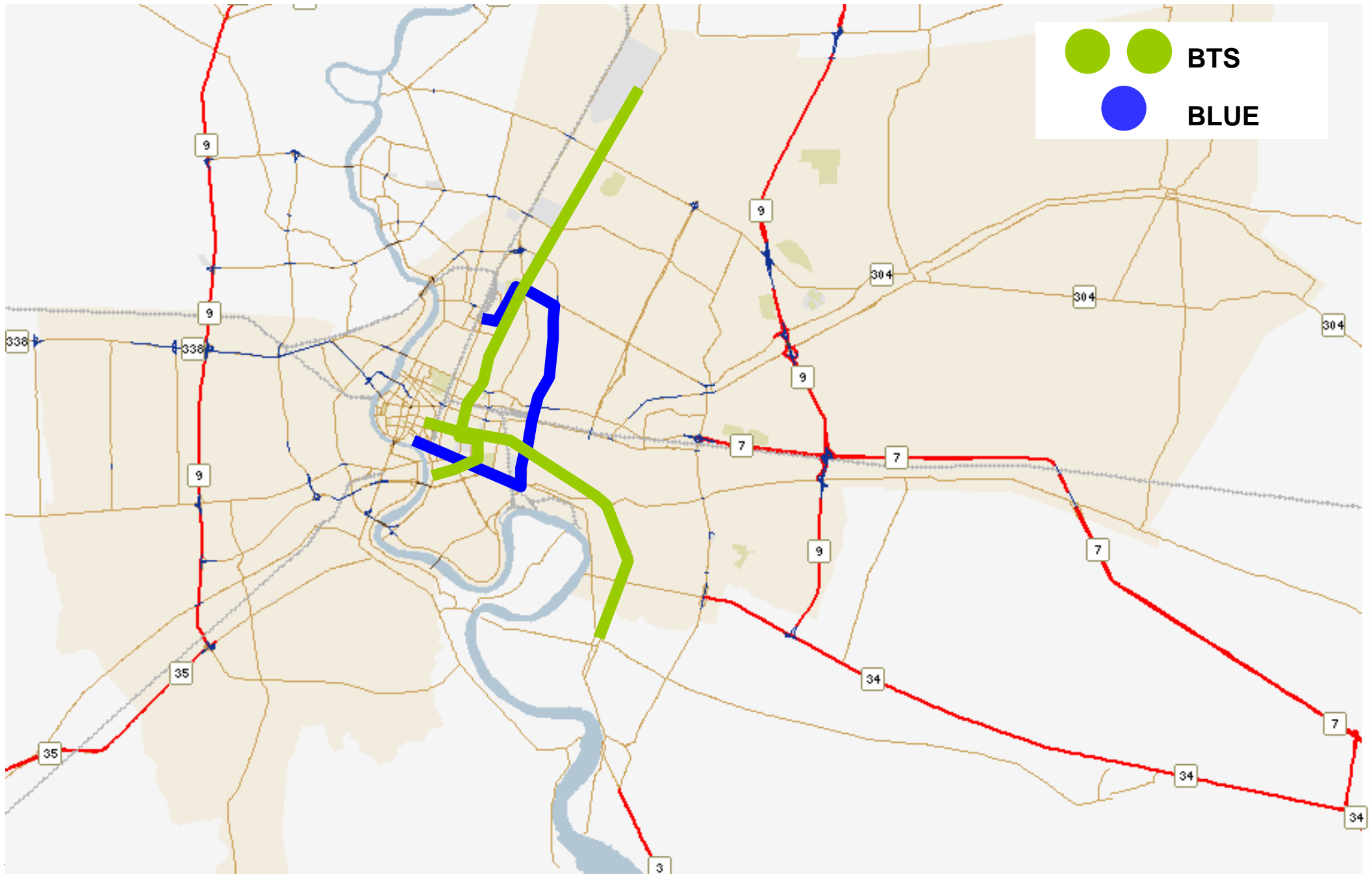
# Location-Specific Travel Preference in BKK



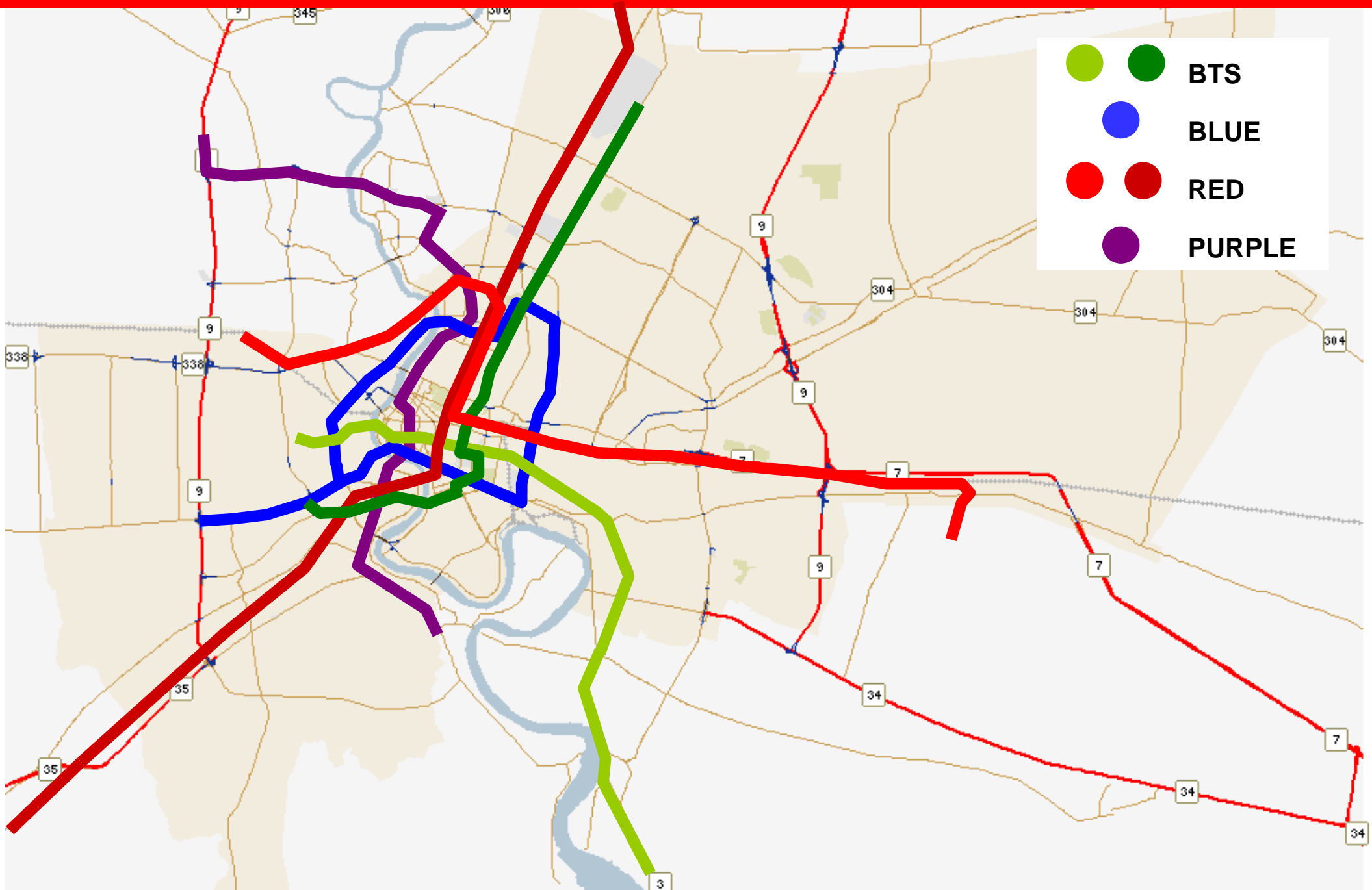




# Scenario A - Present Network

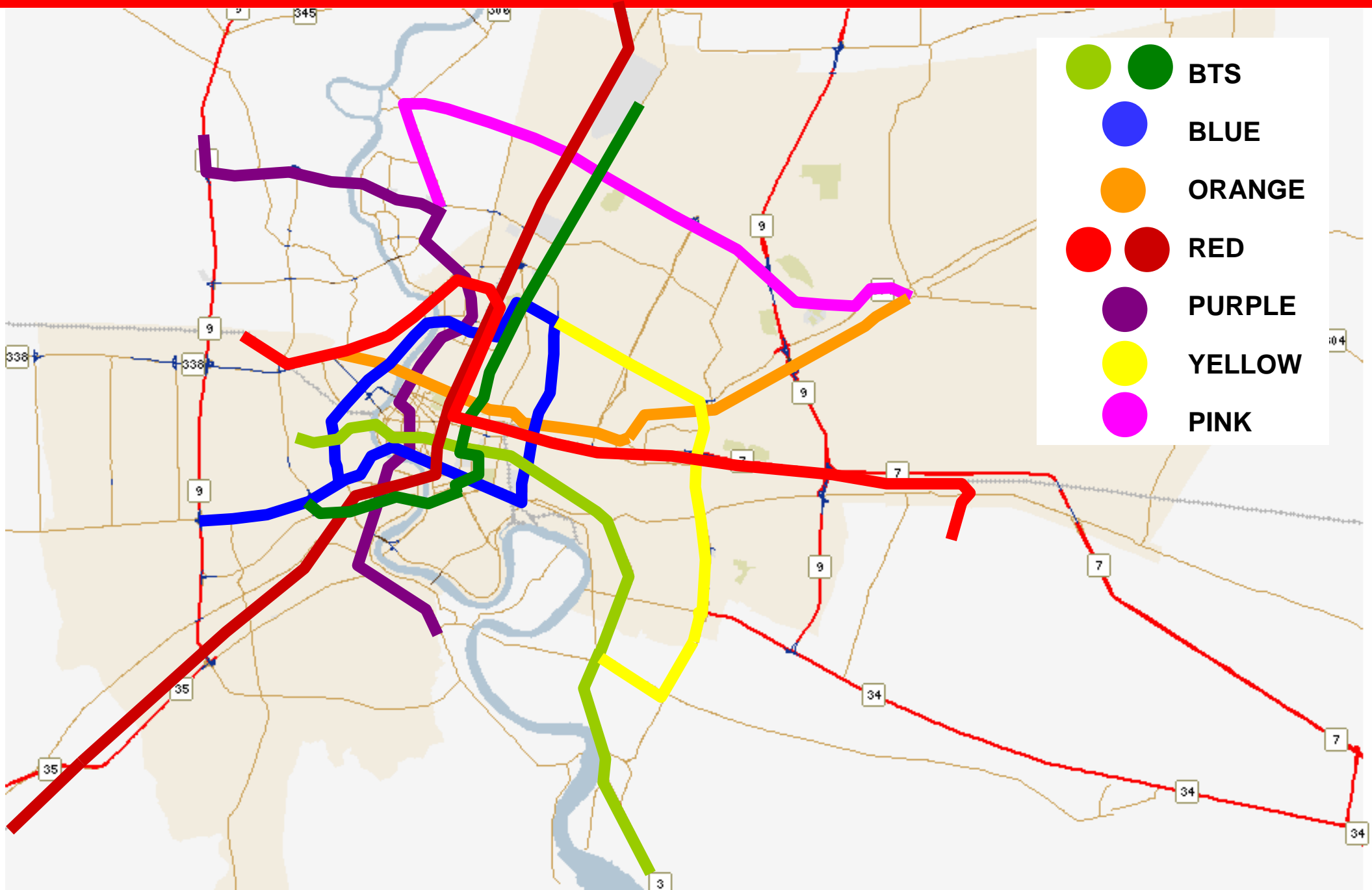


# Scenario B - Add 3 Lines





# Scenario C - Full Network



# Scenario



	<b>2005</b>	<b>2010</b>	<b>2025</b>
<b>A - Present Network</b>	<b>Base</b>	<b>10A</b>	<b>25A</b>
<b>B - Add 3 Lines</b>		<b>10B</b>	<b>25B</b>
<b>C - Full Network</b>		<b>10C</b>	<b>25C</b>



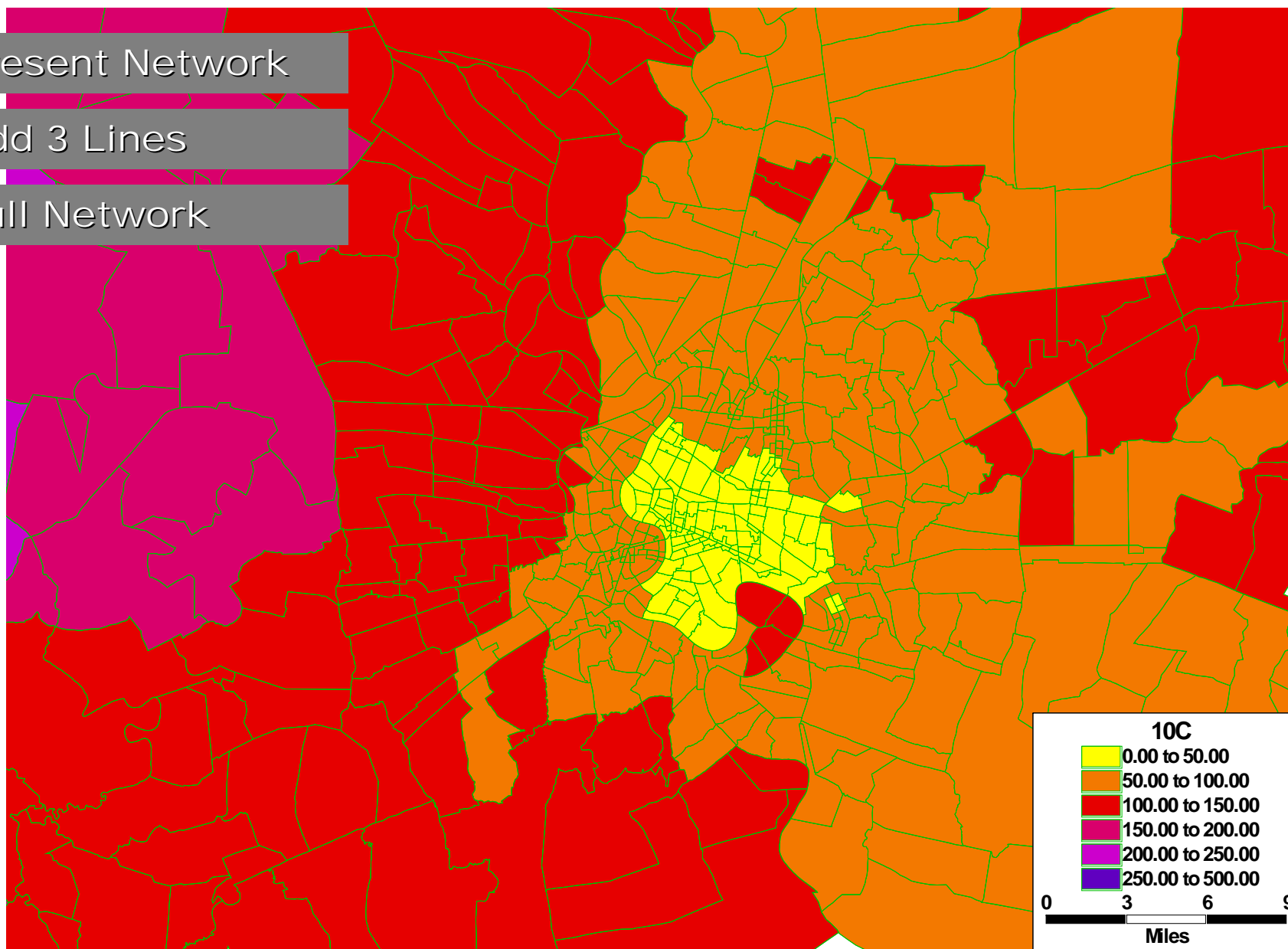
# Mobility 2010

Travel Time to Sathon (Min)

10A - Present Network

10B - Add 3 Lines

10C - Full Network



# Mobility (2025)

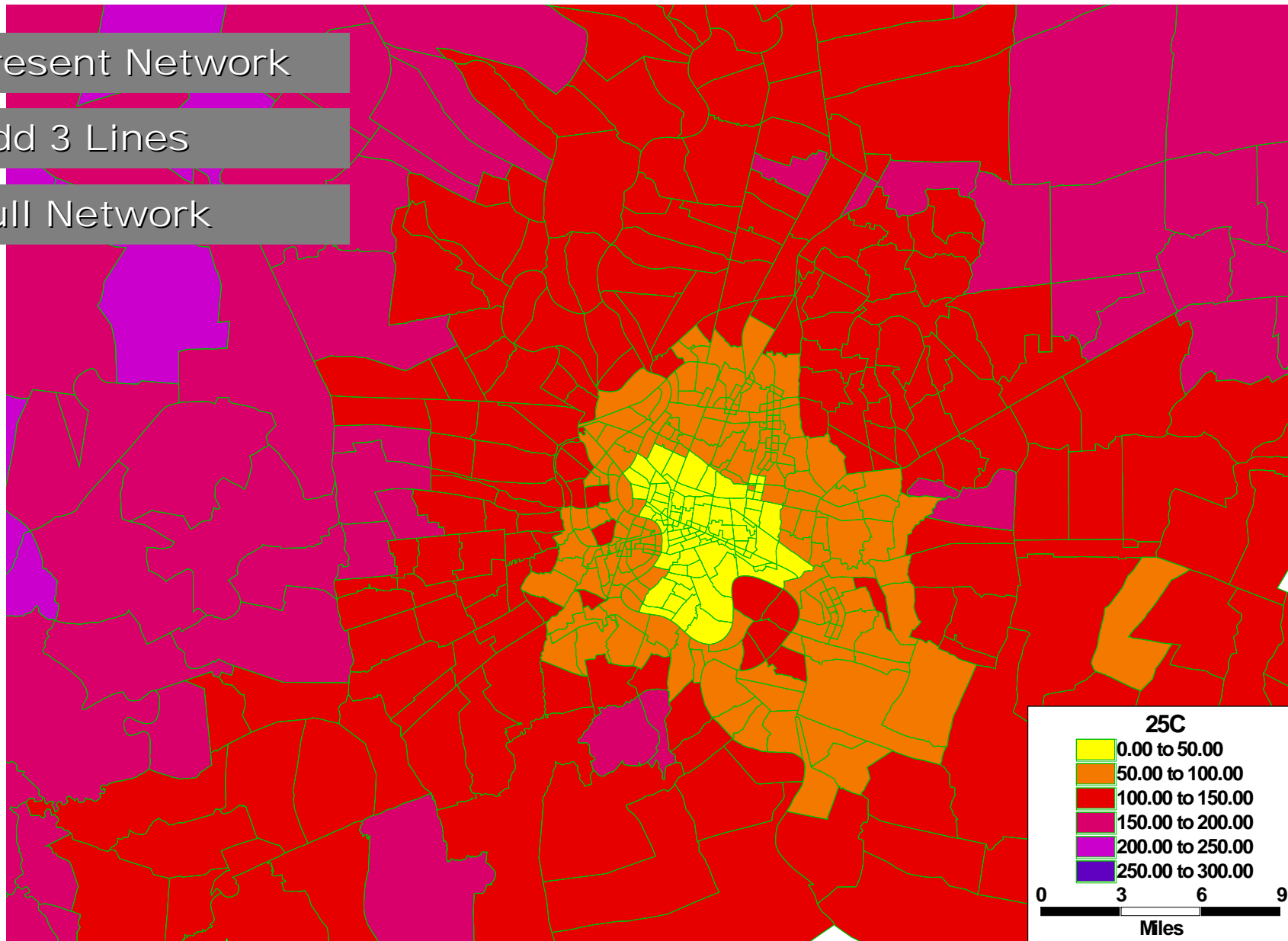


Travel Time to Sathon (Min)

25A - Present Network

25B - Add 3 Lines

25C - Full Network





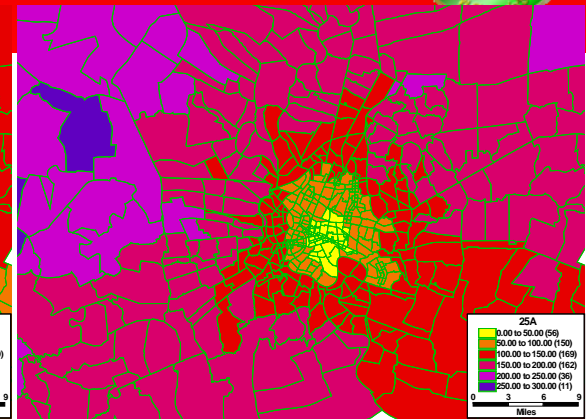
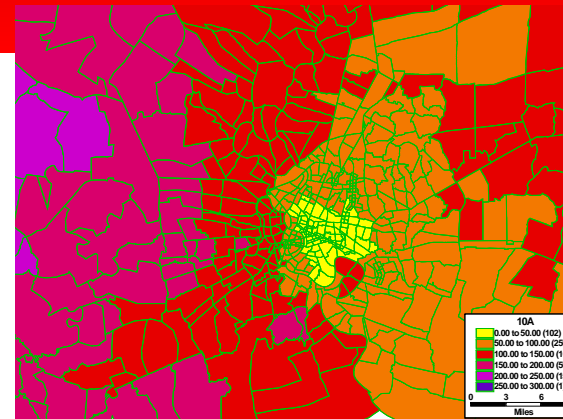
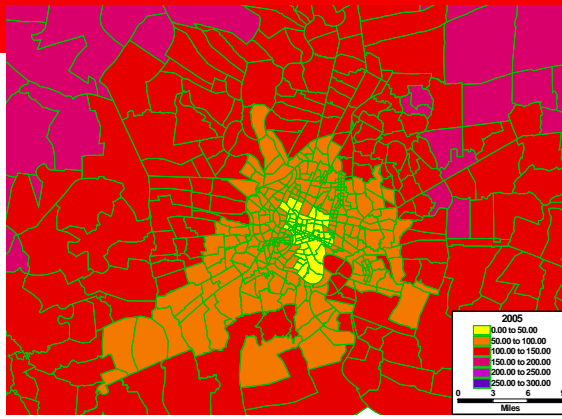
Mobility

2005

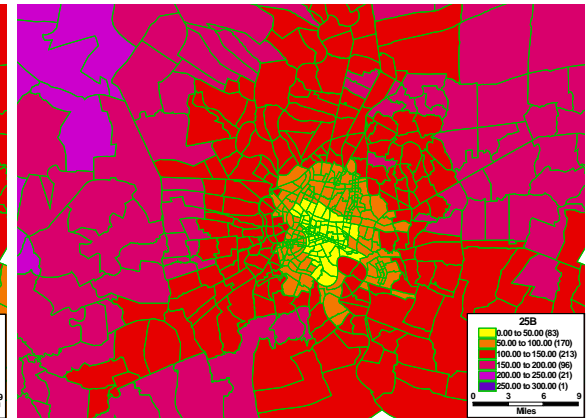
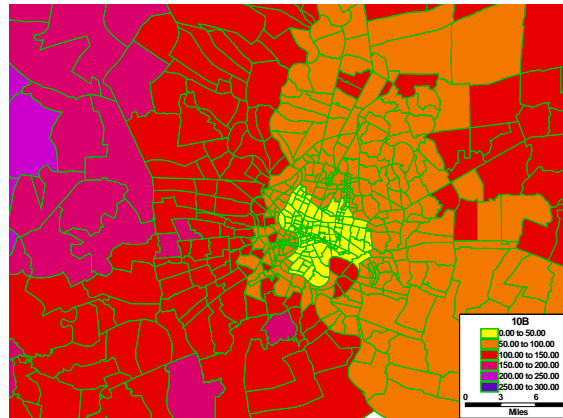
2010

2025

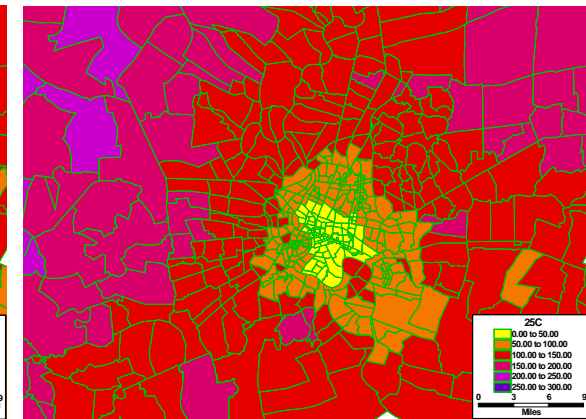
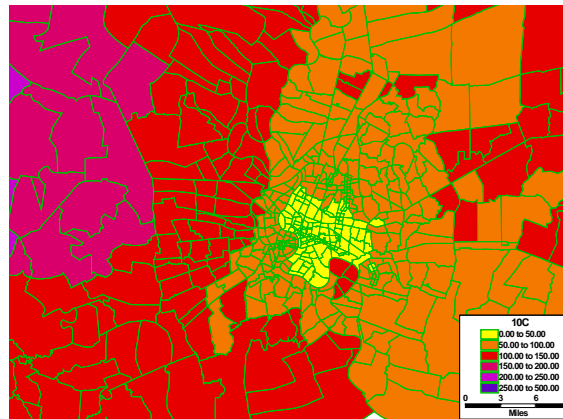
A  
Present  
Network



B  
Add  
3 Lines



C  
Full  
Network



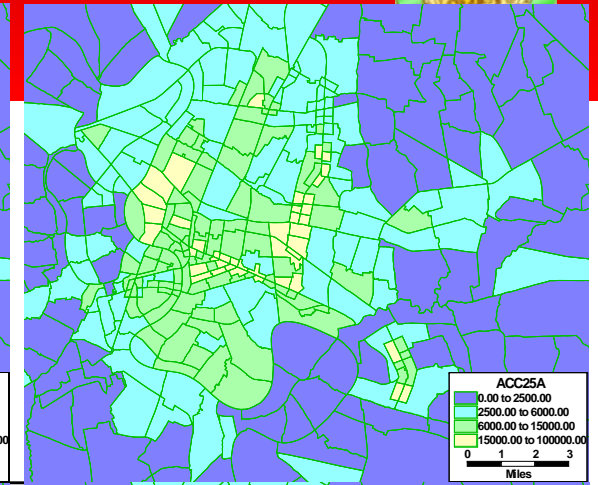
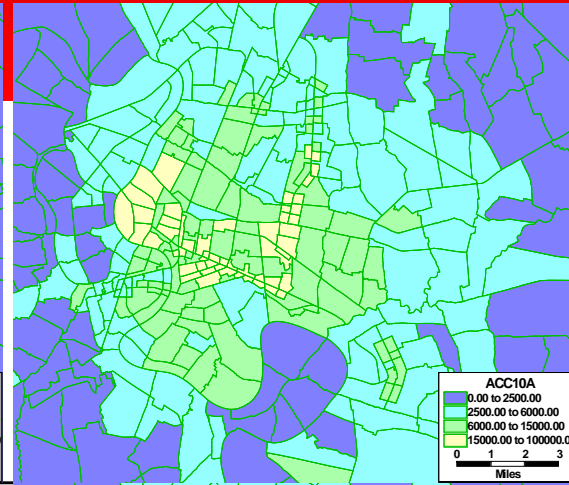
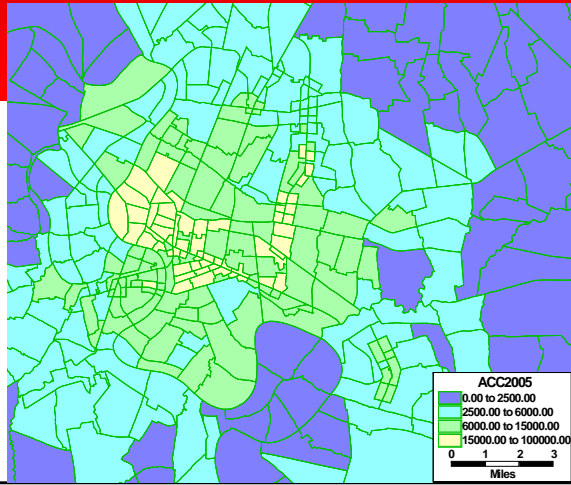
# Accessibility

## 2005

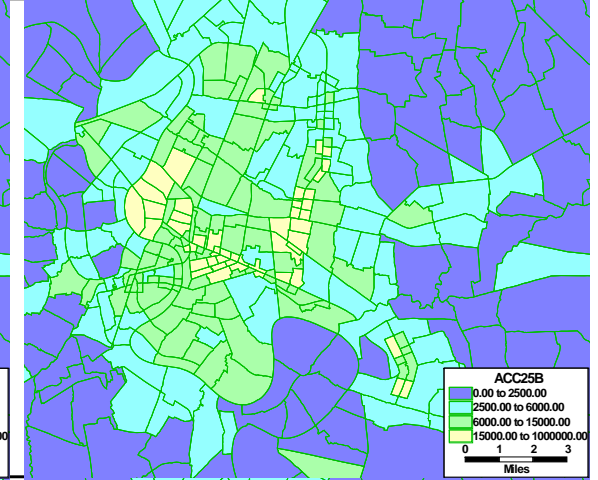
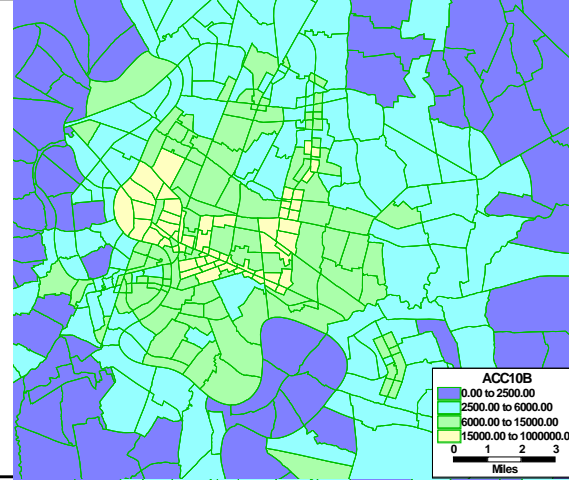
## 2010

## 2025

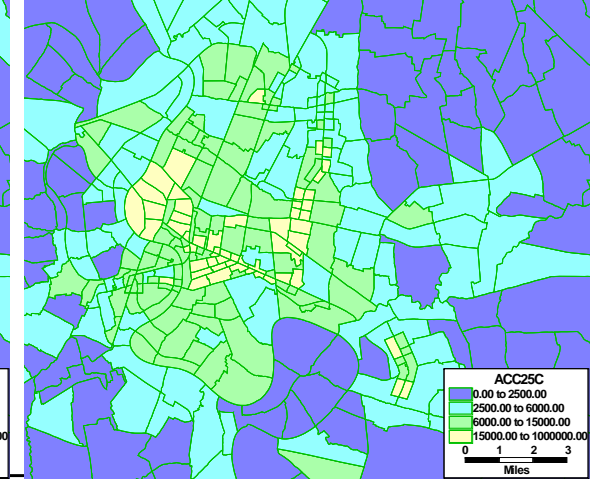
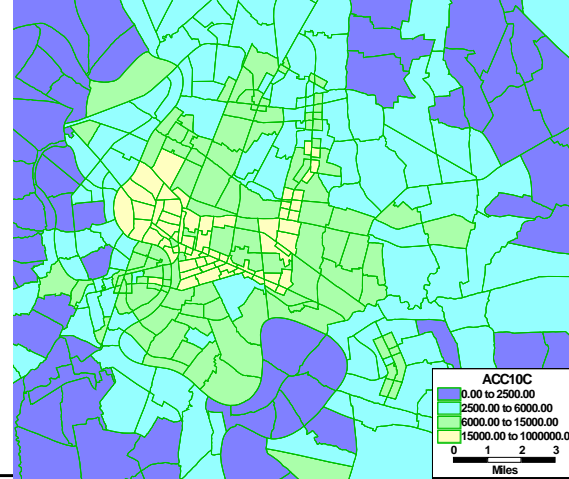
A  
Present  
Network



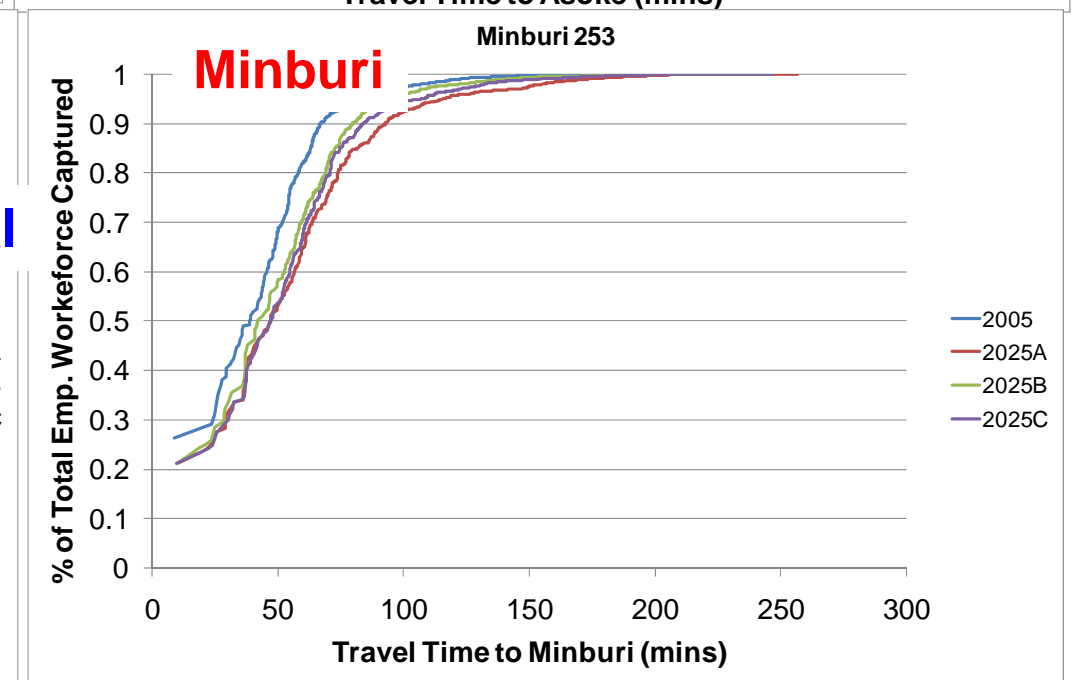
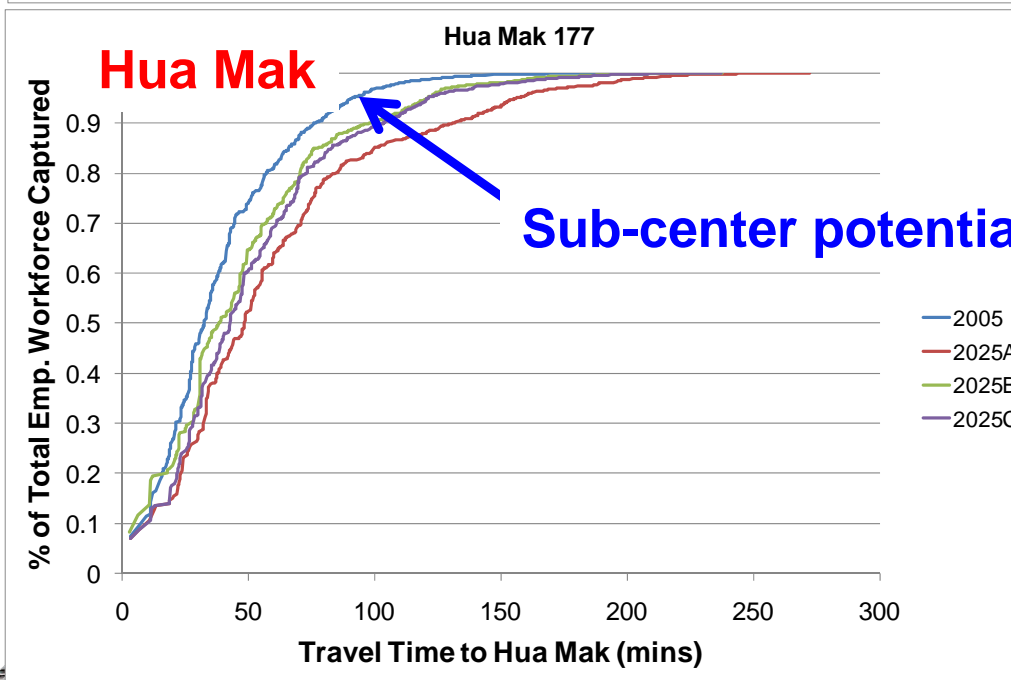
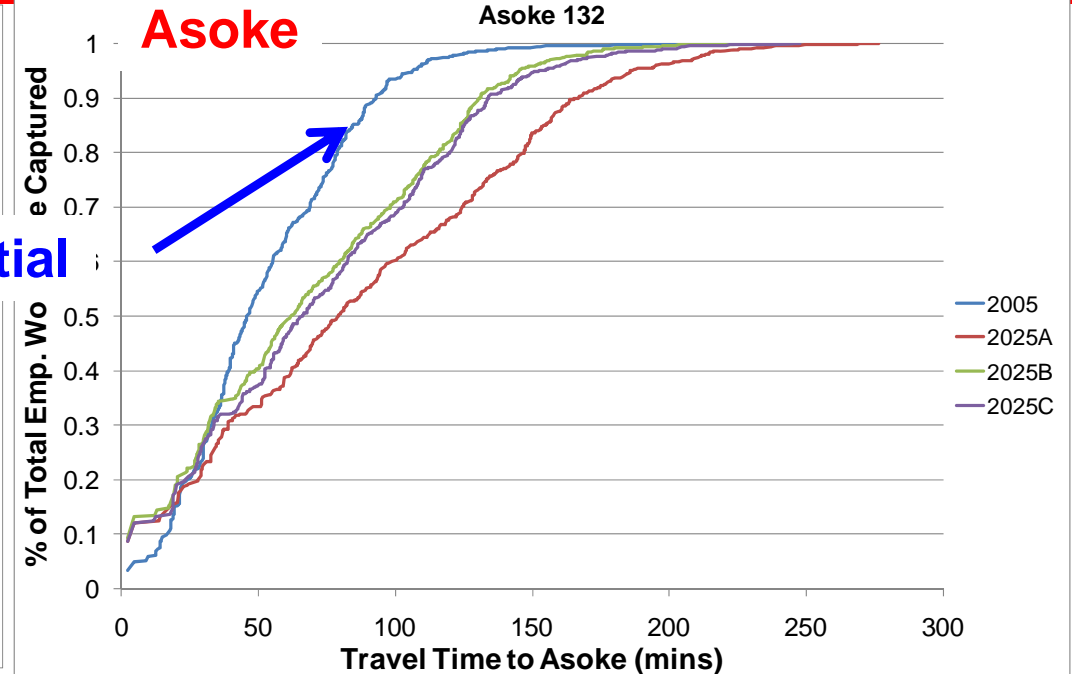
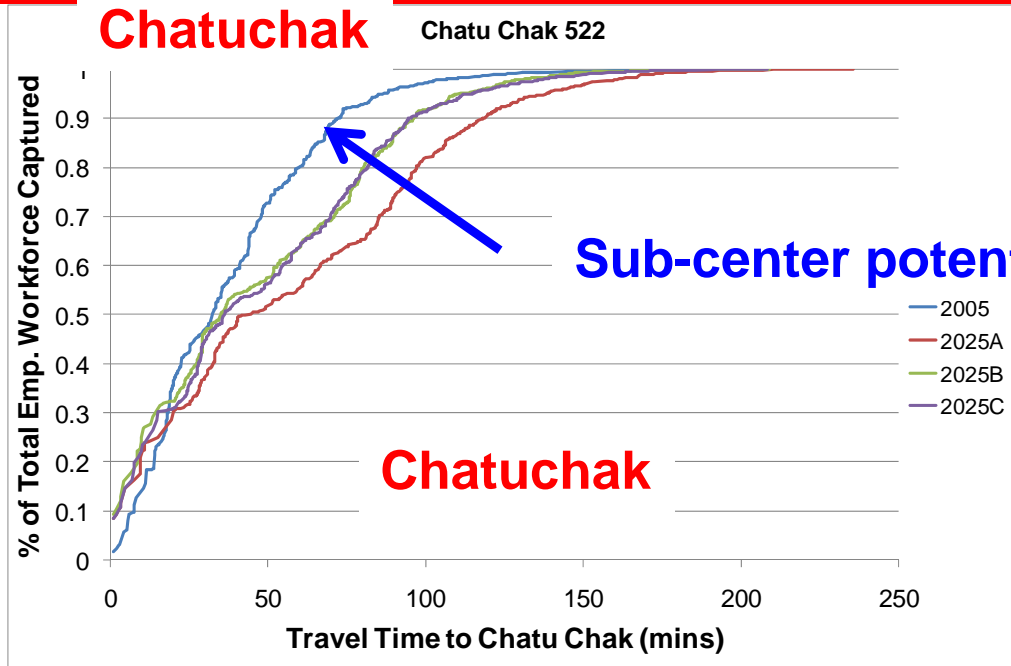
B  
Add  
3 Lines



C  
Full Network

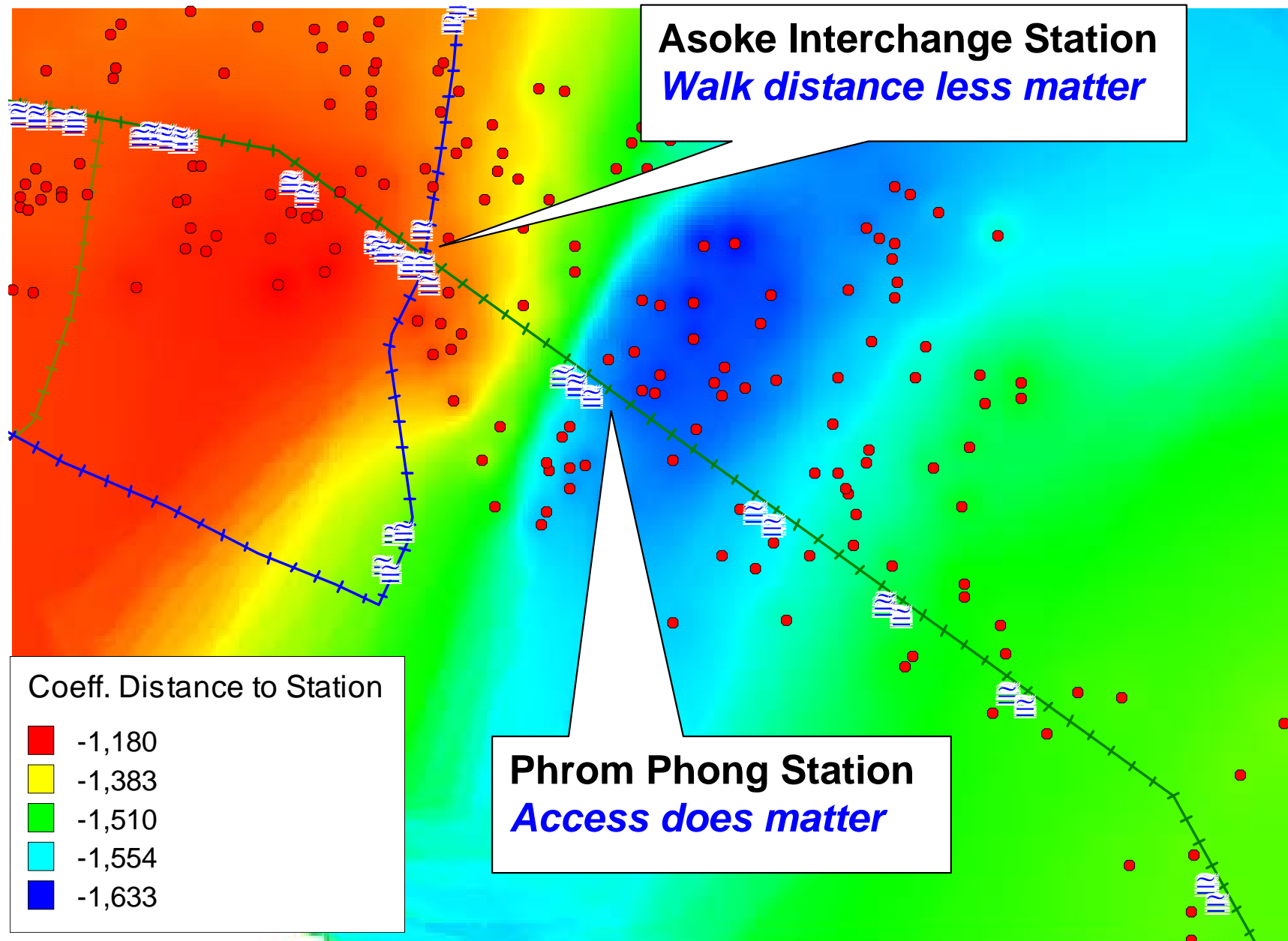


# Location-Specific Travel Preference





# Land Value Uplift: Spatial Hedonic Study



# Concluding Remarks



- ❖ **Rail transit has strong impacts on**
  - Area development
  - Travel pattern
- ❖ **Transit-Oriented Development**
  - Station impact
  - Proper evaluation of transit impact
    - Mobility
    - Accessibility
    - Travel pattern
    - Land value capture
  - Comprehensive discussion

