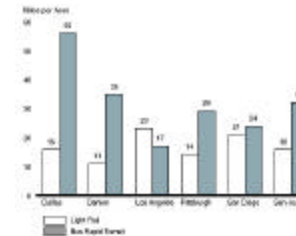
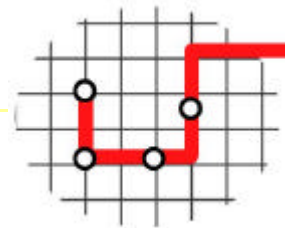


BRT : Bus Rapid Transit



2003. 8

(TERI)

I. BRT system

BRT

BRT : Bus Rapid Transit

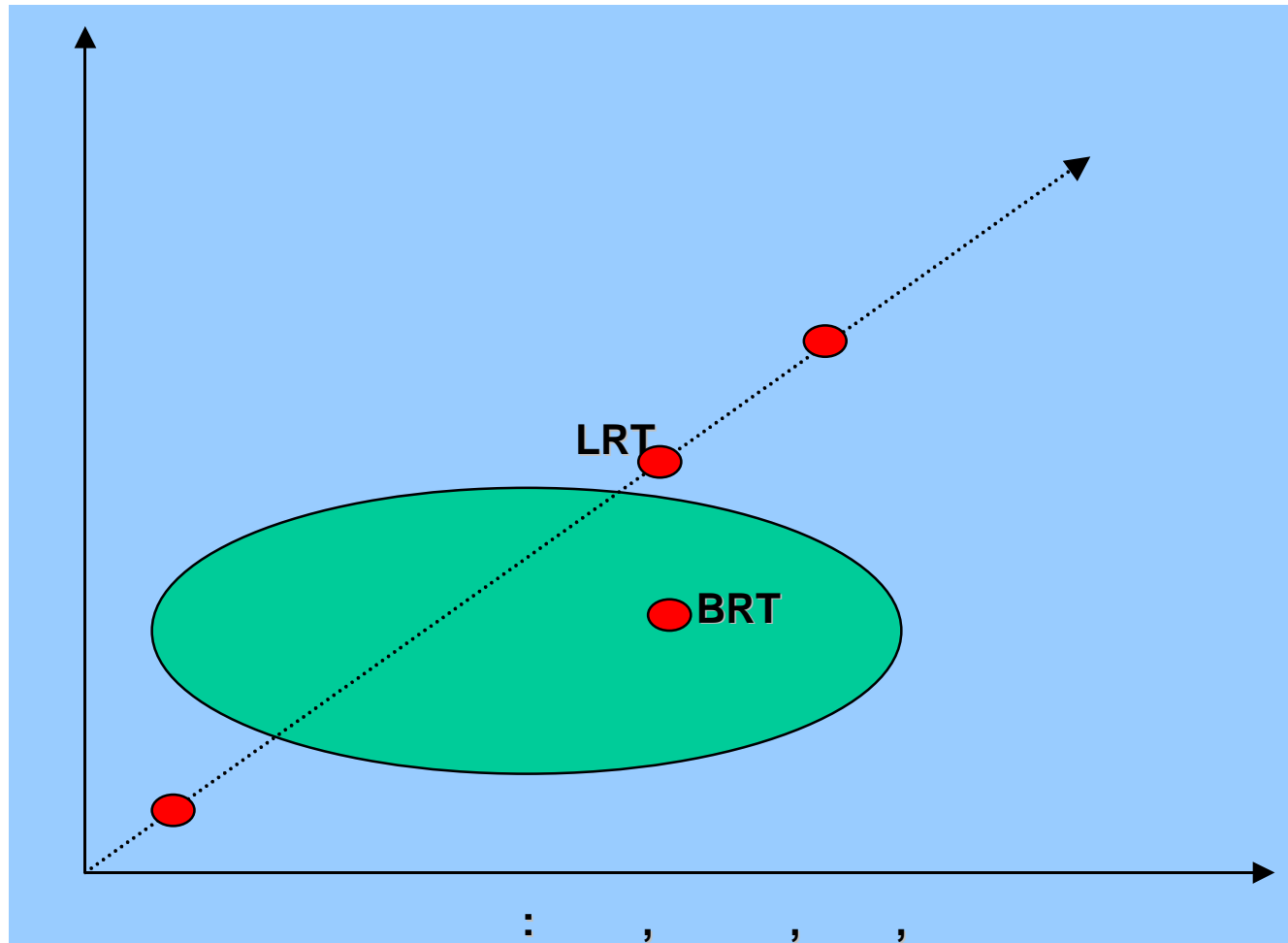
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"rapid mode of transportation that can combine the quality of rail transit and the flexibility of buses"(FTA, US)

BRT system



BRT Systems

Systems in operation(49)

Latin America(9)

Belo Horizonte
Bogota
Campinas
Curitiba
Goiania
Porto Alegre
Quito
Recife
Sao Paulo

Asia(11)

Akita
Ankara
Fukuoka
Gifu
Istanbul
Kanazuwa
Kunming
Miyazaki
Nagoya
Nigata
Taipei

North America(13)

Chicago
Honolulu
Los Angeles
Miami
Ottawa
Oceania
Adelaide
Brisbane
Orlando
Philadelphia
Pittsburgh
Seattle
Vancouver

Europe(16)

Bescaçon
Bradford
Claremont Ferrand
Dijon
Eindhoven
Essen
Grenoble
Ipswich
Leeds
Limoges
Lyon
Montpellier
Nancy
Rennes
Rouen
Strasbourg.



Systems in operation

BRT Systems

Systems in development(45)

North America(14)

**Albany
Alameda and Contra Costa
Boston
Charlotte
Chicago
Cleveland
Dulles Corridor
Eugene
Hartford
Las Vegas
Louisville
Montomery County
San Francisco
Toronto**

Asia(4)

**Bangalore
Delhi
Dhaka
Jakarta**

Latin America(15)

**Barranquilla
Bogota (expansion)
Cali
Cartagena
Cuenca
Guatemala City
Guayaquil
Lima
Medellín
Mexico City
Panama City
Pereira
Quito (expansion)
San Juan
San Salvador**

Africa(4)

**Accra
Cape Town
Dakar
Dar es Salaam**

Europe(7)

**Annecy
Brest
Caen
Maubeuge
Nice
La Rochelle
Toulon**

Oceania(3)

**Auckland
Perth
Sydney.**

II. BRT System



1. "Travel Way"
(/)
2. Stations
(/)
3. Vehicles
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4. Service
()
5. Route Structure
()
6. Fare Collection
()
7. ITS/ Technologies
()

1. “Travel Ways”(/)

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:(Houston, Charlotte)

/

(Curitiba, Brisbane, Pittsburgh, Ottawa)

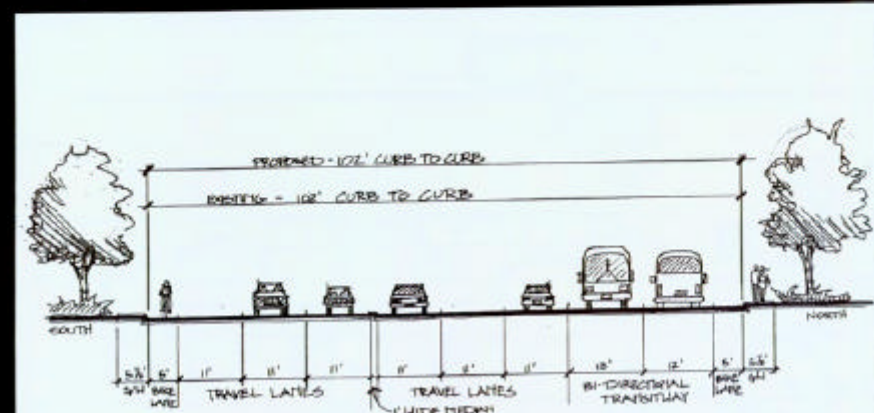
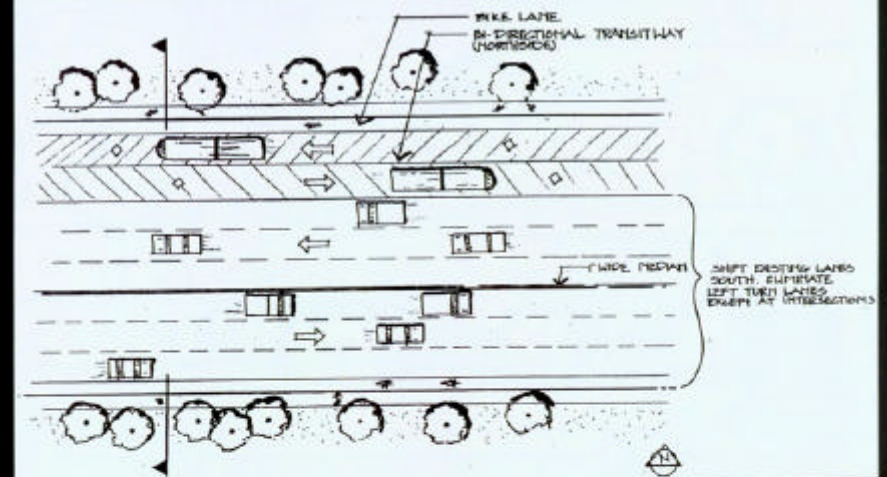
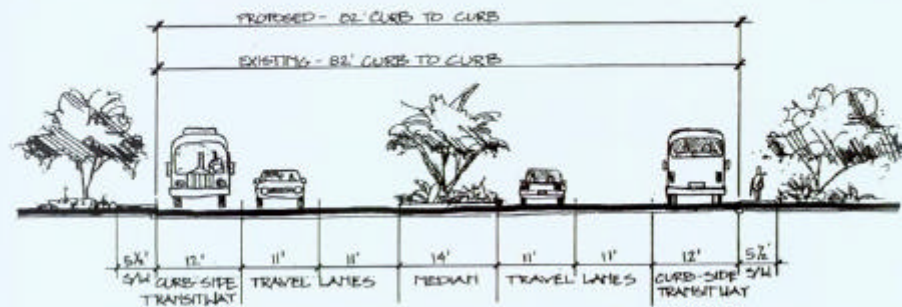
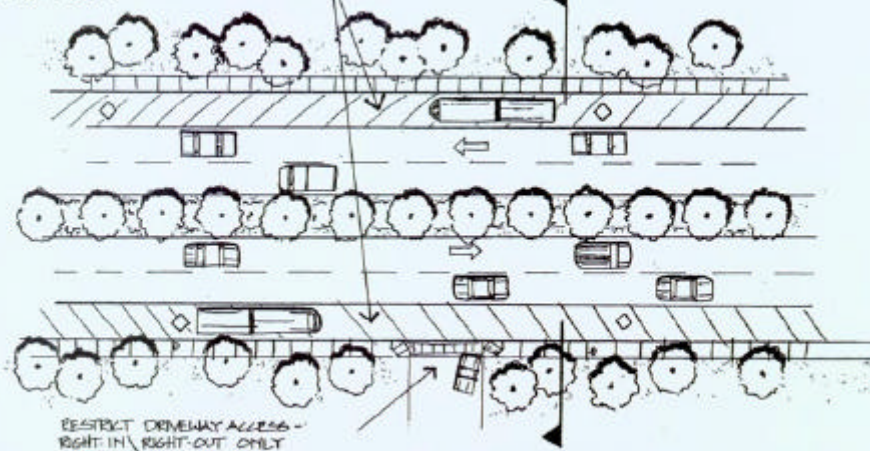
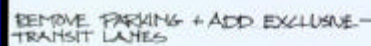
(mall)

(Seattle Denver)

(Los Angeles)

- **Queue jump (Auckland, NZ)**

BRT



Queue Jumper

1

BRT

(

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Rouen, France



Figure 4. TEOR station and exclusive lane used in both directions.



Figure 6. Interchange station with fixed-floors buses and park-and-ride facility.

⋮



Quito, Ecuador



Boston, USA



Seattle, USA

Bogota, Colombia



Figure 10. entrance of Transmilenio station providing access to mobility-impaired passengers.



Figure 9. Transmilenio buses at station viewed from pedestrian bridge.

Adelaide, Australia



Brisbane, Australia



Auckland, New Zealand



Los Angeles, CA



Eugene, OR

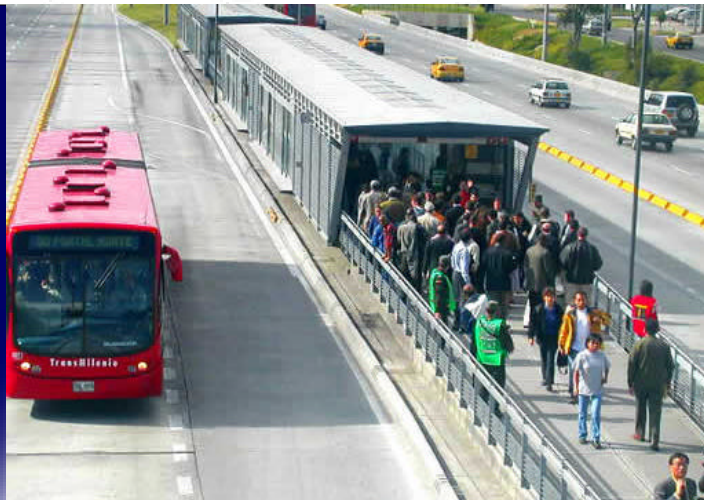


2. /

Bogota, Colombia



Figure 12. ticket gates at entrance of Transmilenio station.



Curitiba, Brazil



Brisbane, Australia



Sydney, Australia



Los Angeles, CA



3. : BRT Vehicles



-
- (CNG,)
- (/CNG)
- ()
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-
-
- System
- (2-3)
-
- LRT

Curitiba, Brazil : 2



Rouen, France



Figure 3. Interior of Civitys vehicle



Figure 2. Civitys vehicle.

Brisbane, Australia



Los Angeles, CA



Oakland & El Cerrito, CA

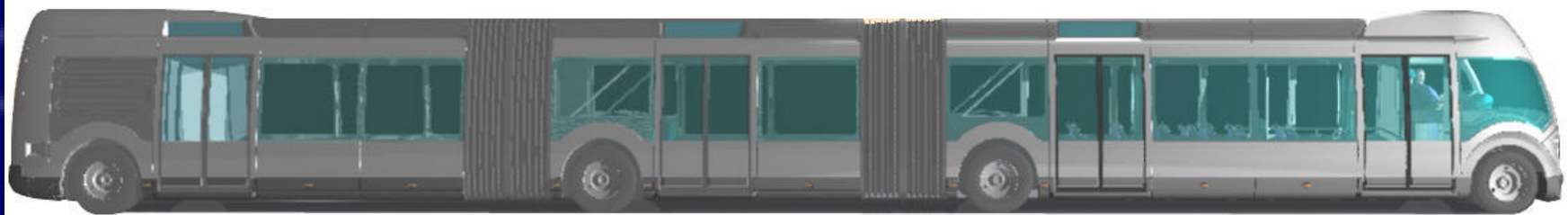
Phileas, Netherlands BRT



Phileas BRT



18m 105



23m 140



26m 155

4.

LRT

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(Skip stop) :

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(2,3)

TransMilenio BRT System Bogota, Colombia

- 600,000+ /

- 67,000 / 1

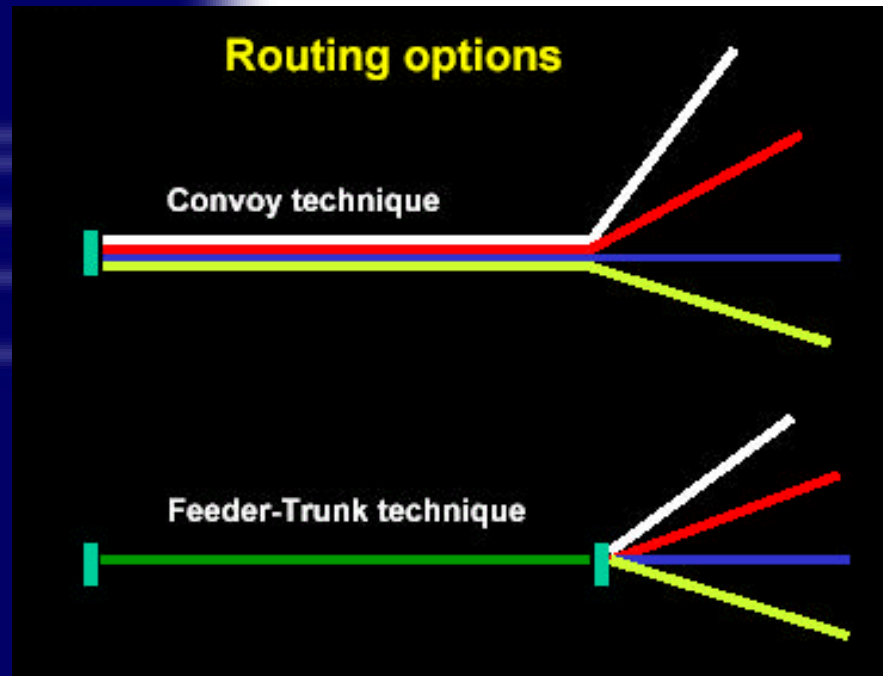
- 33,500 / /



Bogota, Colombia



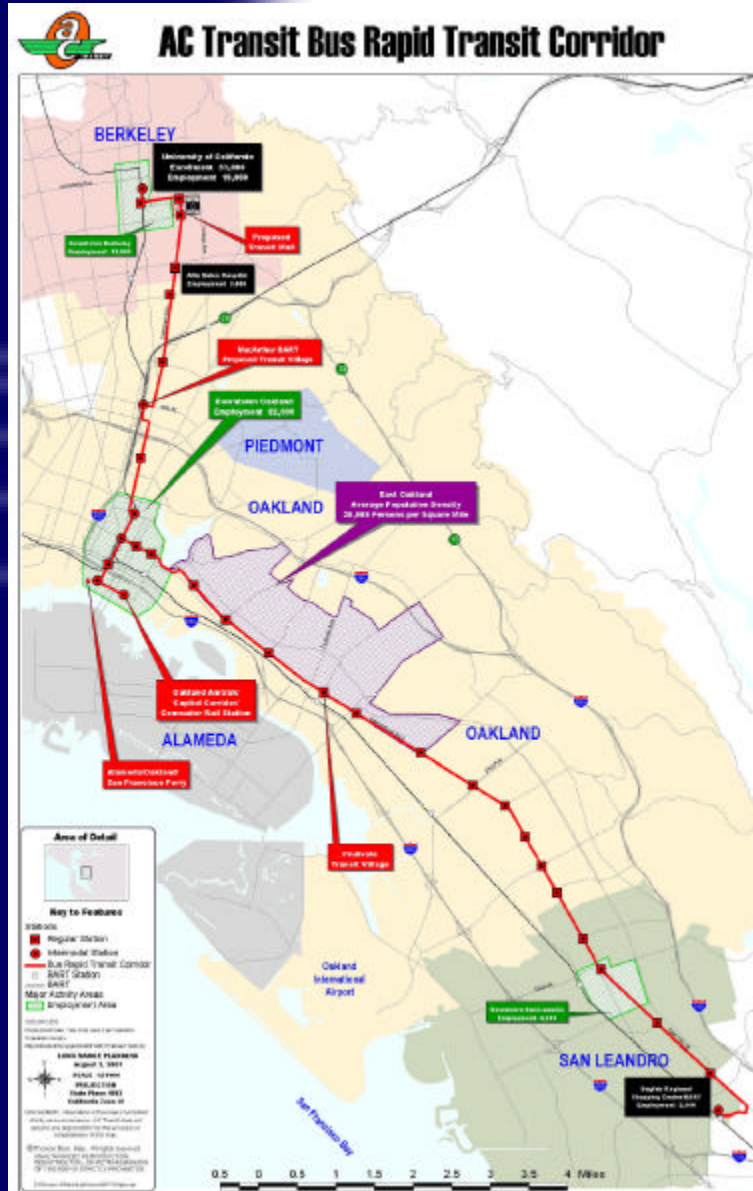
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- California, Bay Area
- BART + BRT

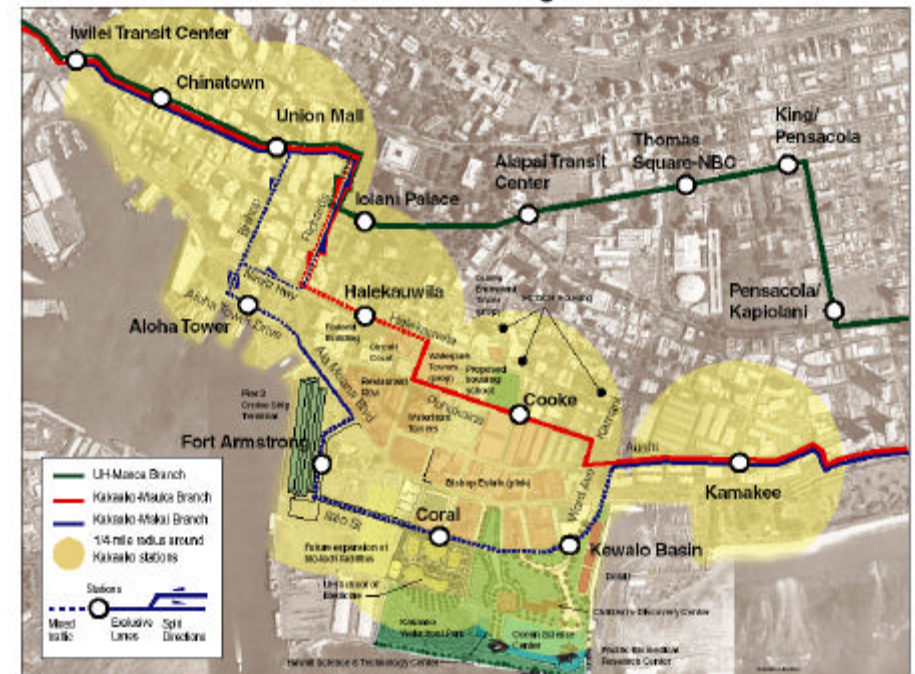


Honolulu, Hawaii



Region:
Primary Corridor

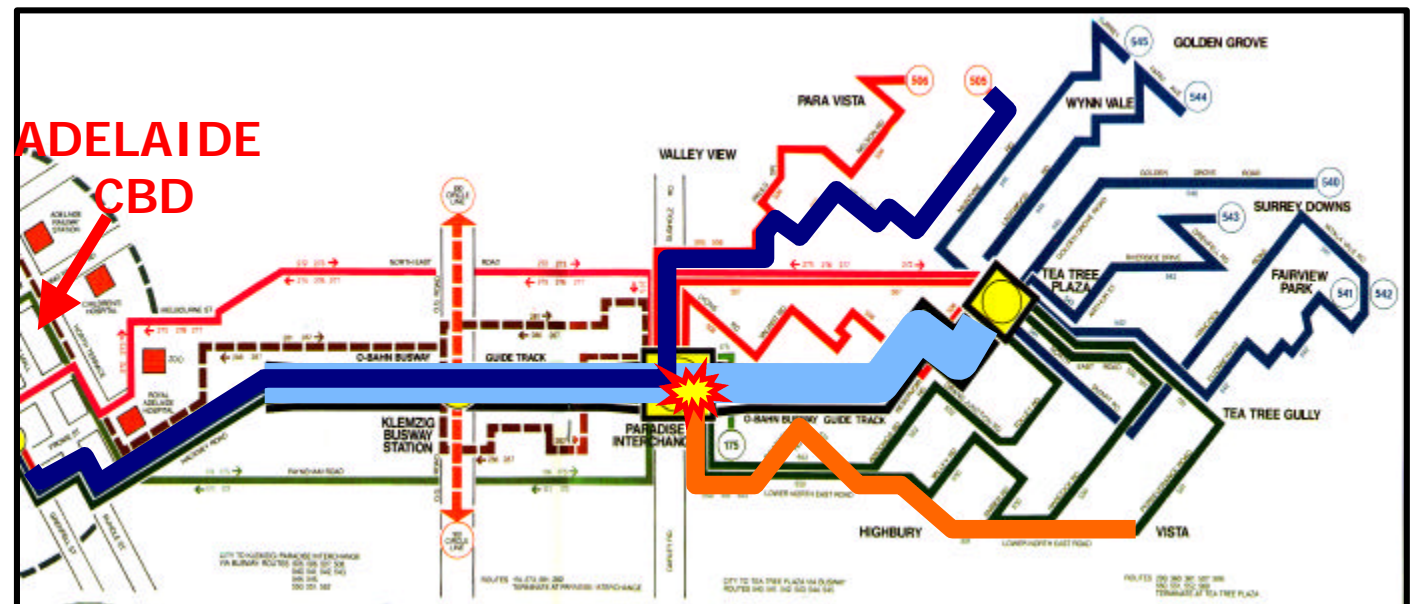
Mauka and Makai BRT branches through Kakaako



Honolulu, Hawaii



Adelaide, Australia



Paris & Il-de-France



Figure 10 Paris Mobilien Network

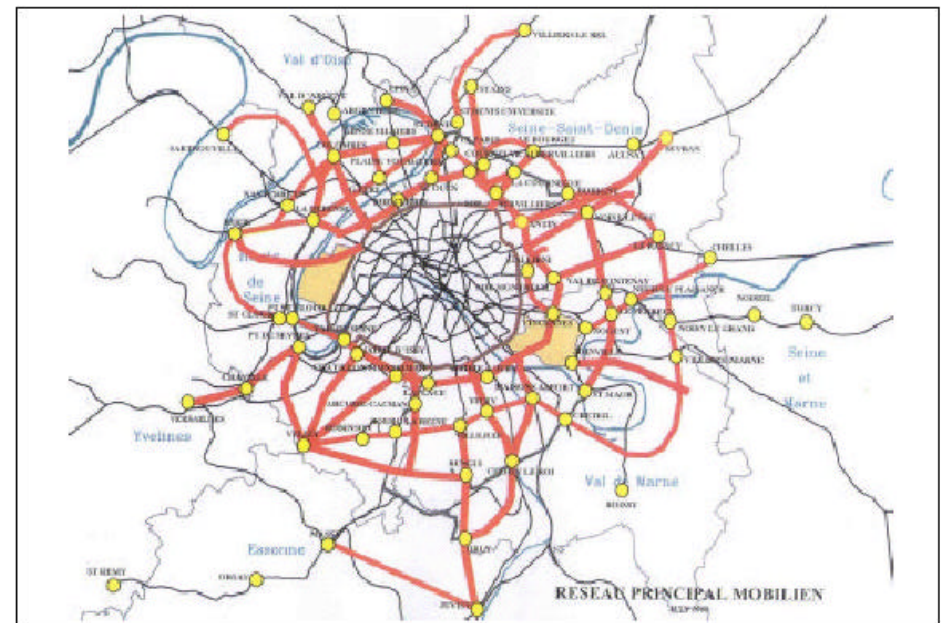


Figure 11 Paris Banlieue Mobilien Network in the Suburbs of Paris

6.



smart cards (multi-use)

7. ITS –



Los Angeles bus control centre



- Automated vehicle location

- Signal priority()

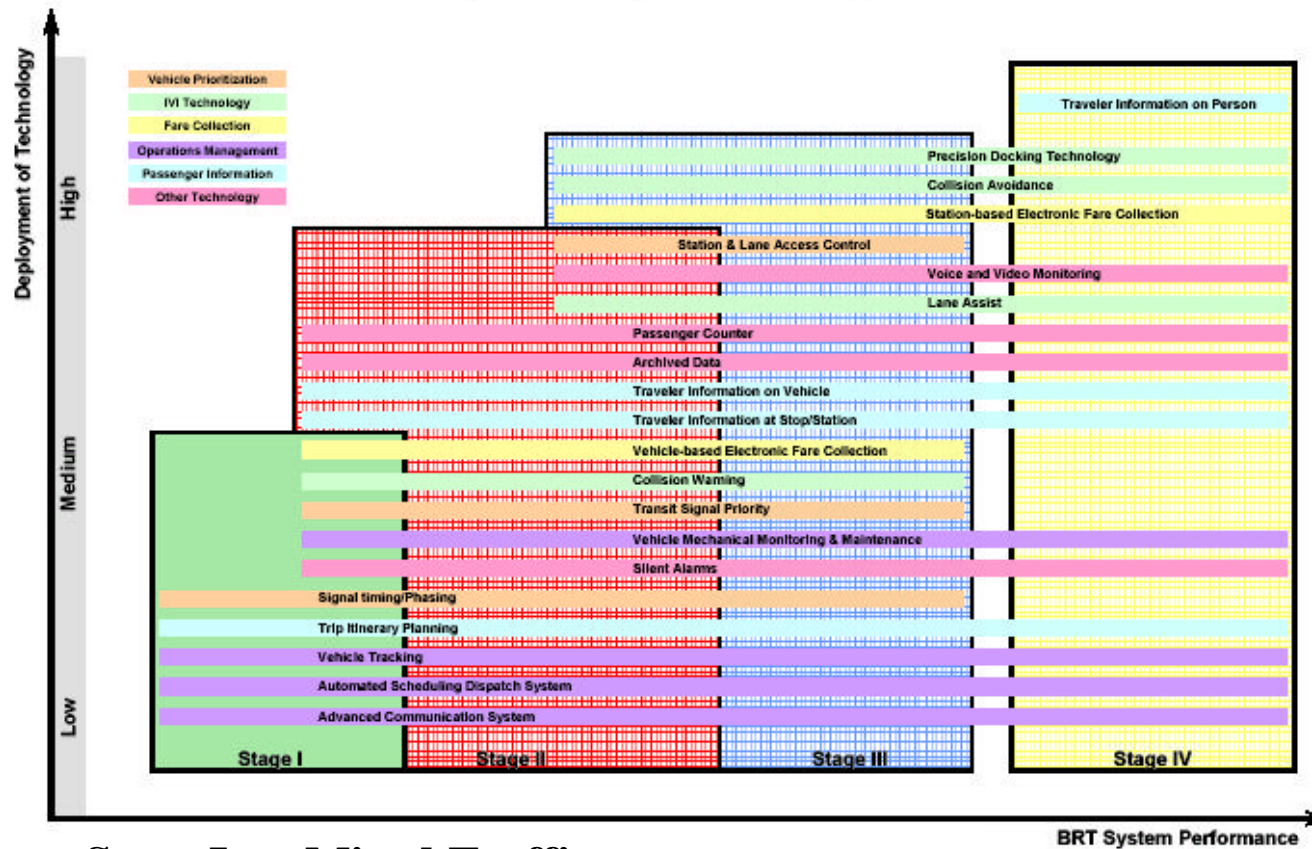
• BRT

(CCTV)



BRT – ITS TECHNOLOGY

Figure 3.2 Hierarchy of BRT-ITS Technologies



Stage I : Mixed Traffic

Stage II : Mixed Traffic on Expressway

Stage III : Semi-Dedicated Lanes

Stage IV : Dedicated Lanes

ITS Technologies and BRT User Benefits

P = Primary Benefit

S = Secondary Benefit

| ITS Technology | Services | Traveler | Driver | Operations | Overall | |
|-------------------------------|---|----------|--------|------------|---------|-----|
| Vehicle Prioritization | Signal Timing / Phasing | P | P | P | P | O |
| | Station and Lane Access Control | - | - | S | S | O |
| | Transit Signal Priority | P | P | P | P | O/X |
| IVI Technology | Collision Avoidance | S | P | S | S | X |
| | Collision Warning | S | P | S | S | X |
| | Lane Assist | S | P | S | S | X |
| | Precision Docking Technology | P | P | S | P | X |
| Fare Collection | Station-based Electronic Fare Payment | P | S | P | P | X |
| | Vehicle-based Electronic Fare Payment | P | S | P | P | O |
| Operations Management | Advanced Communication System | S | S | P | S | O |
| | Automated Scheduling Dispatch System | P | P | P | P | O/X |
| | Vehicle Mechanical Monitoring and Maintenance | - | - | P | S | X |
| | Vehicle Tracking | S | S | P | S | O |
| Passenger Information | Traveler Information at Station/Stop | P | - | - | S | O |
| | Traveler Information on Person | P | - | - | S | O |
| | Traveler Information on Vehicle | P | - | - | S | O |
| | Trip Itinerary Planning | P | - | S | S | O/X |
| Other Technology | Archived Data | - | - | P | S | O |
| | Passenger Counter | - | - | P | S | O |
| | Silent Alarms | S | P | P | P | O |
| | Voice and Video Monitoring | S | P | P | P | O/X |

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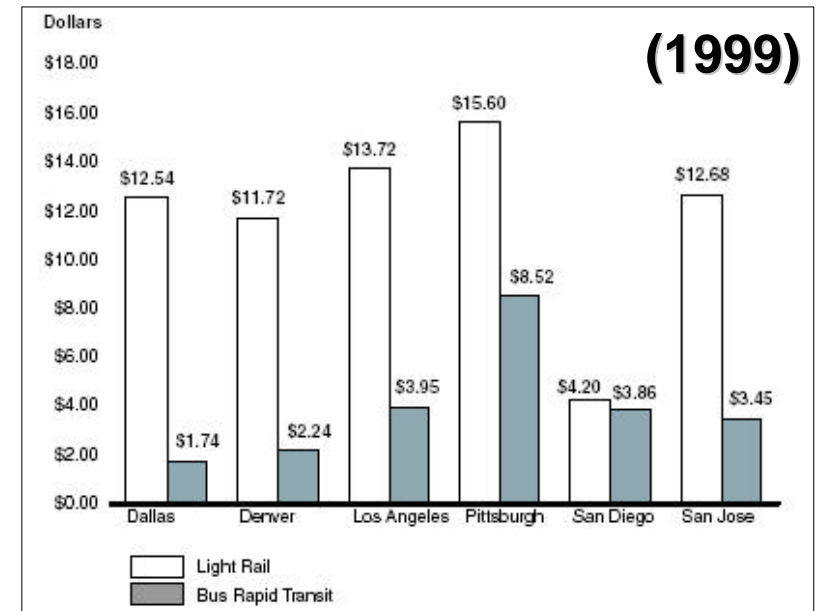
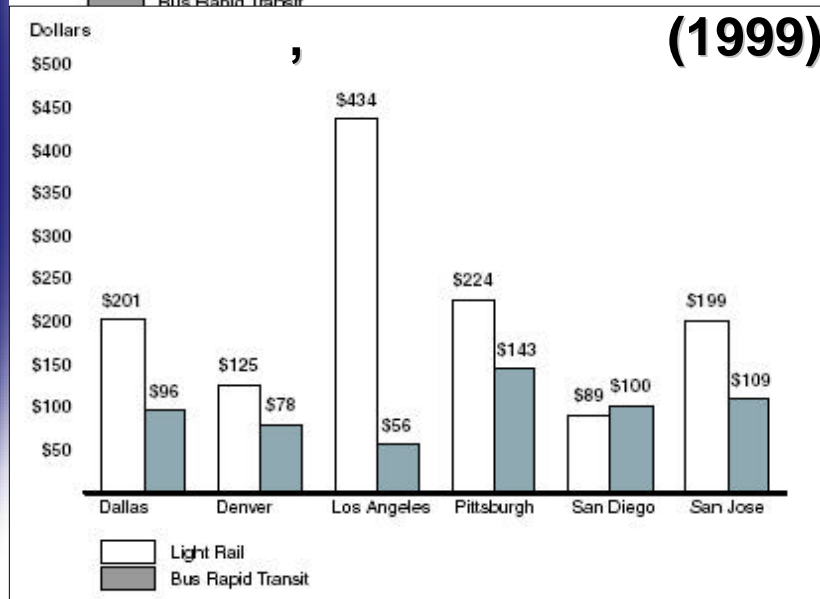
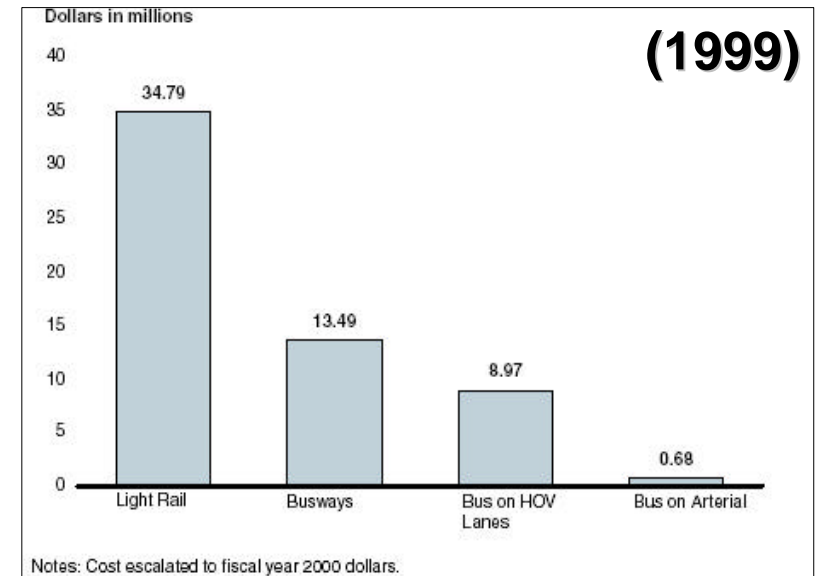
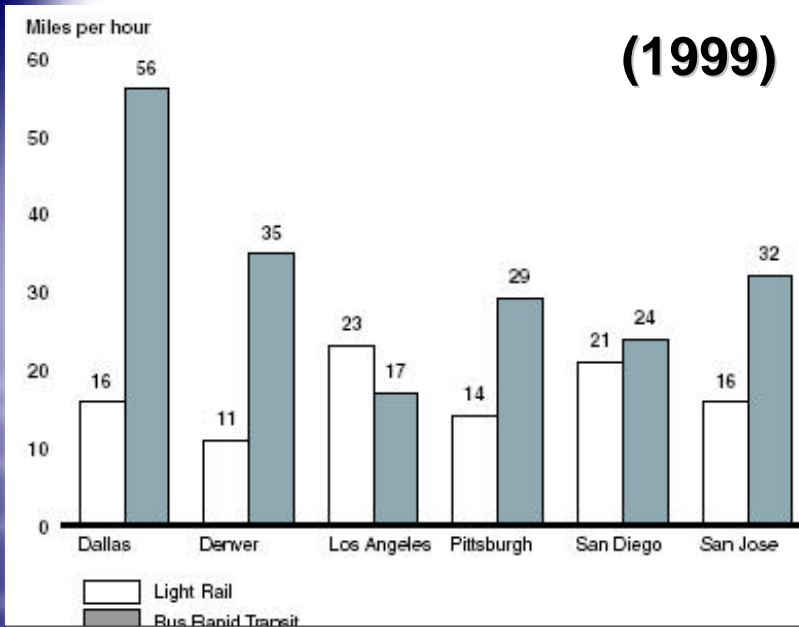
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BRT LRT



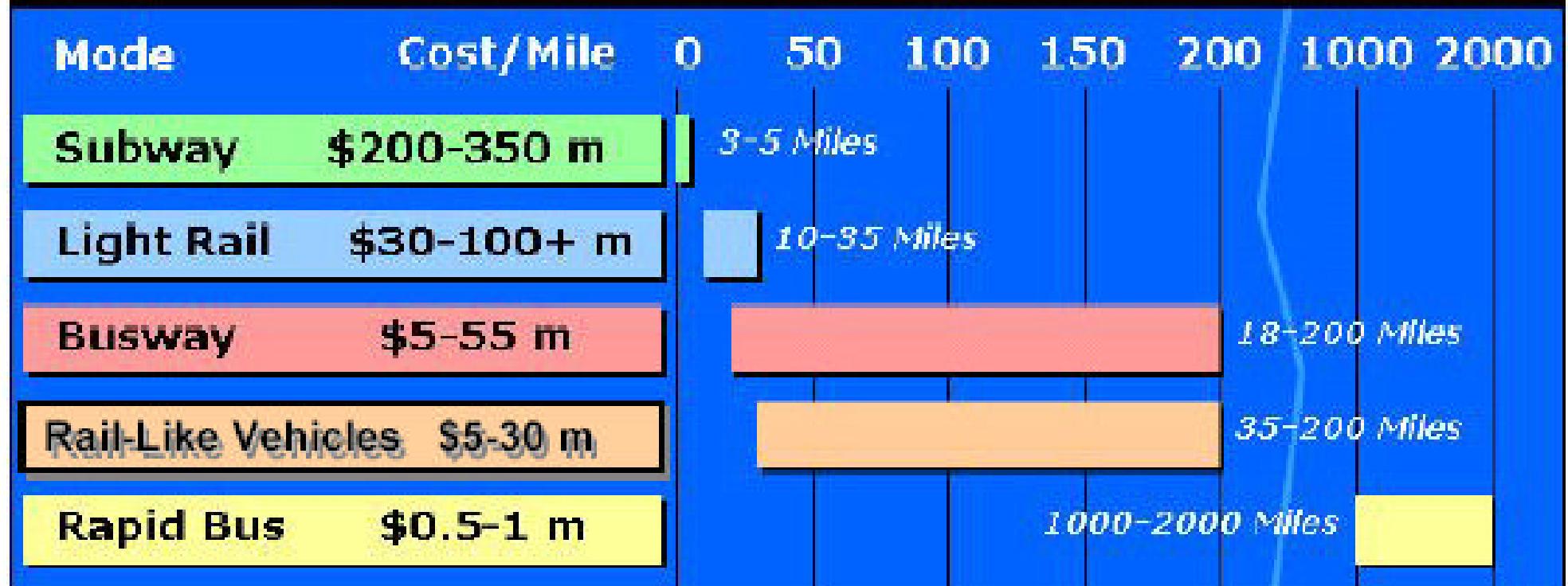
Source: General Accounting Office

BRT LRT

| | Rapid Transit Mode | |
|---------|--------------------|-------------------|
| | BRT | LRT |
| | | |
| | 1/4 - 1 Mile | 1/4 - 1 Mile |
| | 40 - 85 | 65 - 85 |
| | 15-30 mph | 15-30 mph |
| / / () | 30,000 | 30,000 |
| / / () | 10,000 | 10,000 |
| | \$0.2 - \$25 /Mile | \$20 - \$55 /Mile |
| | \$0.45 - \$1.5 | \$1.5 - \$3.5 |
| | \$65 to \$100 | \$150 to \$200 |

Source: SpeedLink- A Rapid Transit Option for Greater Detroit. June 2001.

How many miles of fixed transit can you build for \$1 Billion?



III. BRT Planning Process

Stage 1: Pre- Planning Analysis

Stage 2: BRT System Structure










Stage 3: Communications, Customer Service, and Marketing

Stage 4: Engineering and Design

Stage 5: Technology and Equipment

Stage 6: Modal Integration

Stage 7: Plans for Implementation.

| | Pre-project | Months 1-3 | Months 4-6 | Months 7-9 | Months 10-12 | Months 13-15 | Months 16-18 |
|----|---|---|---|---|---|---|--------------|
| S1 |  | | | | | | |
| S2 | |  | | | | | |
| S3 | |  | |  | |  | |
| S4 | | |  | | | | |
| S5 | | |  | | | | |
| S6 | | | | |  | | |
| S7 | | | | | |  | |

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1 : (가 , ,)
2 :
3 : (/ /)
4 : BRT
5 :
6 : LRT/MRT

• LRT- / vs BRT-
• LRT()- 3 vs BRT-
• + +

IV.

| | () | |
|--|-----------------|-----------------------------|
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| | - - - 4~6 | 2003 2002 12 2003 |
| | → | 2003 10 |



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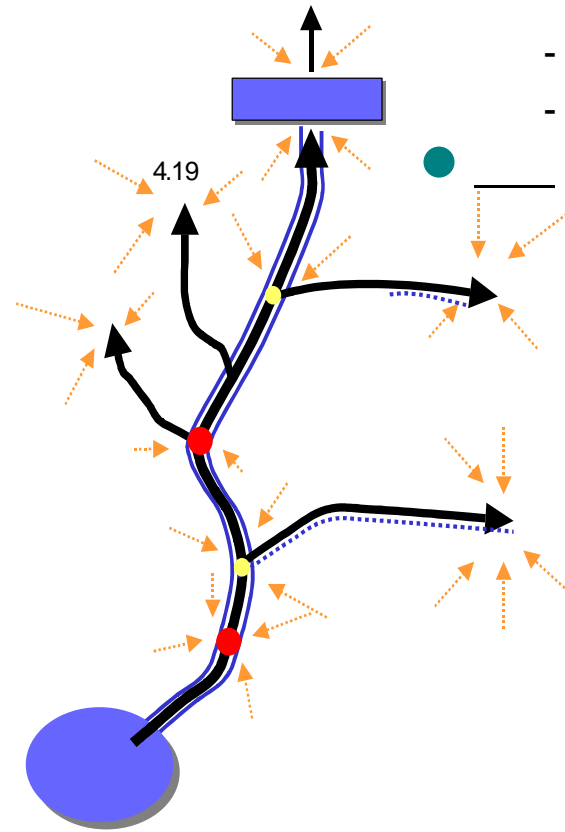


8~10 (2003)

(2002 12)

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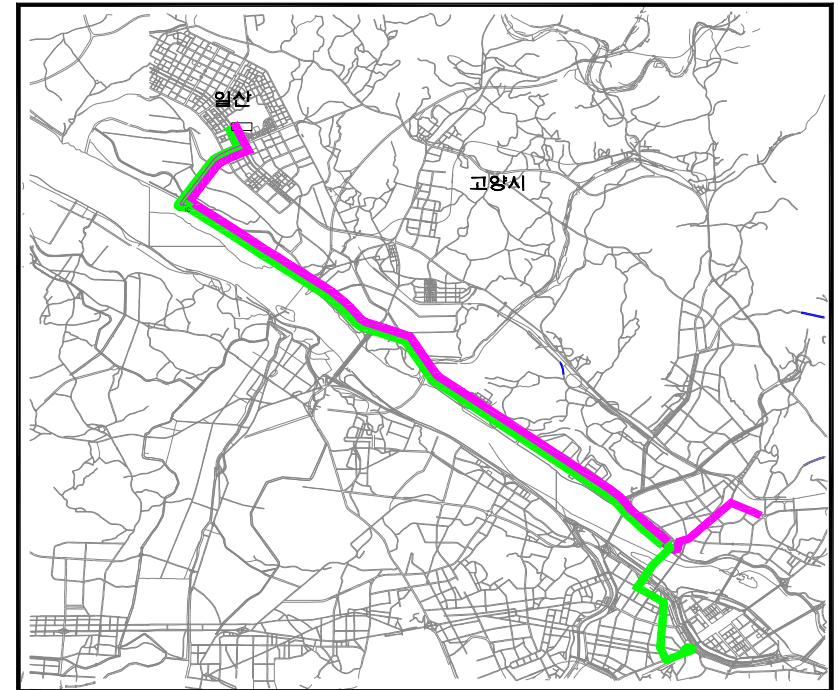
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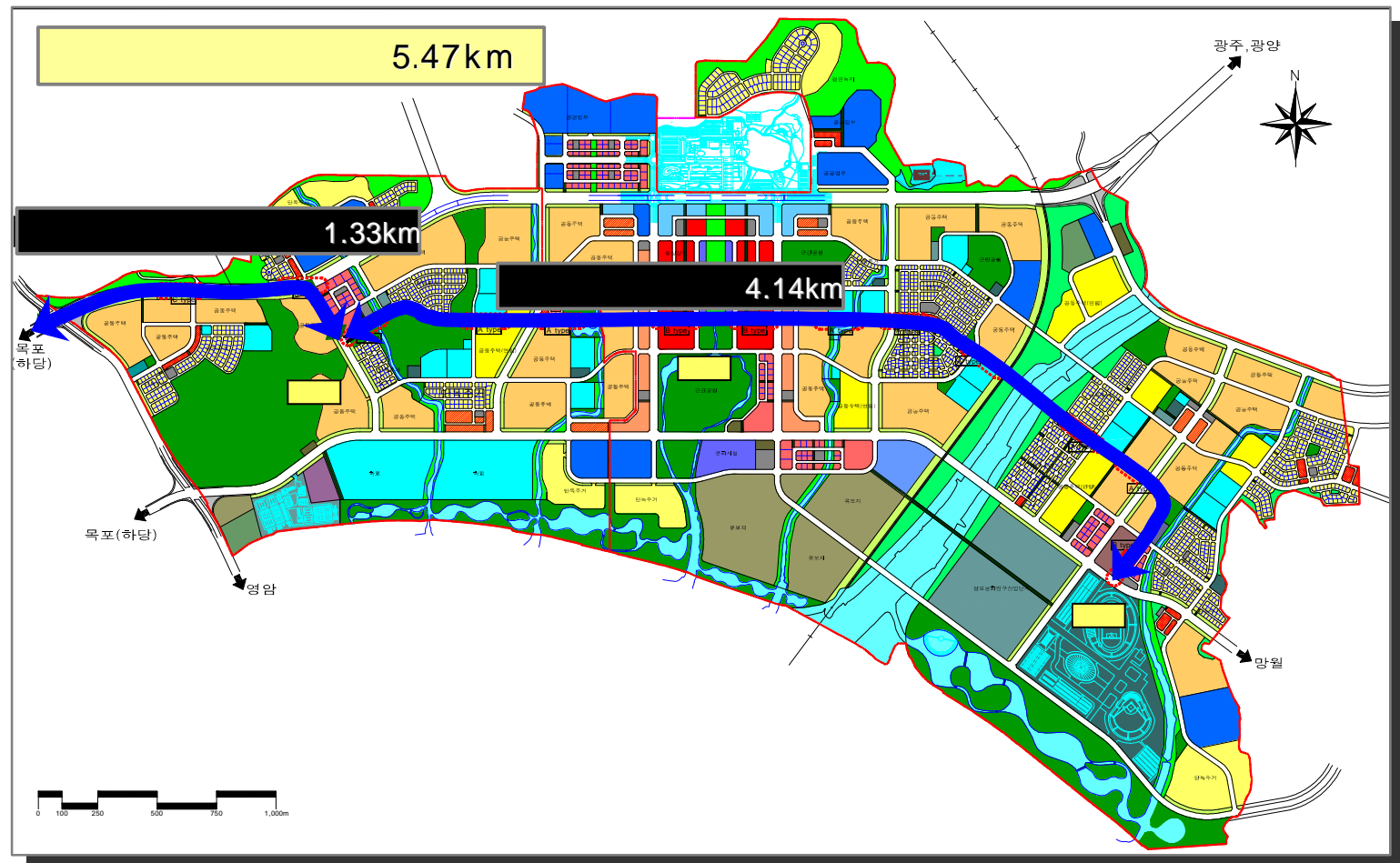
(TC2)



(TC3)



14.8km² (447)





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: 9,042,488m²

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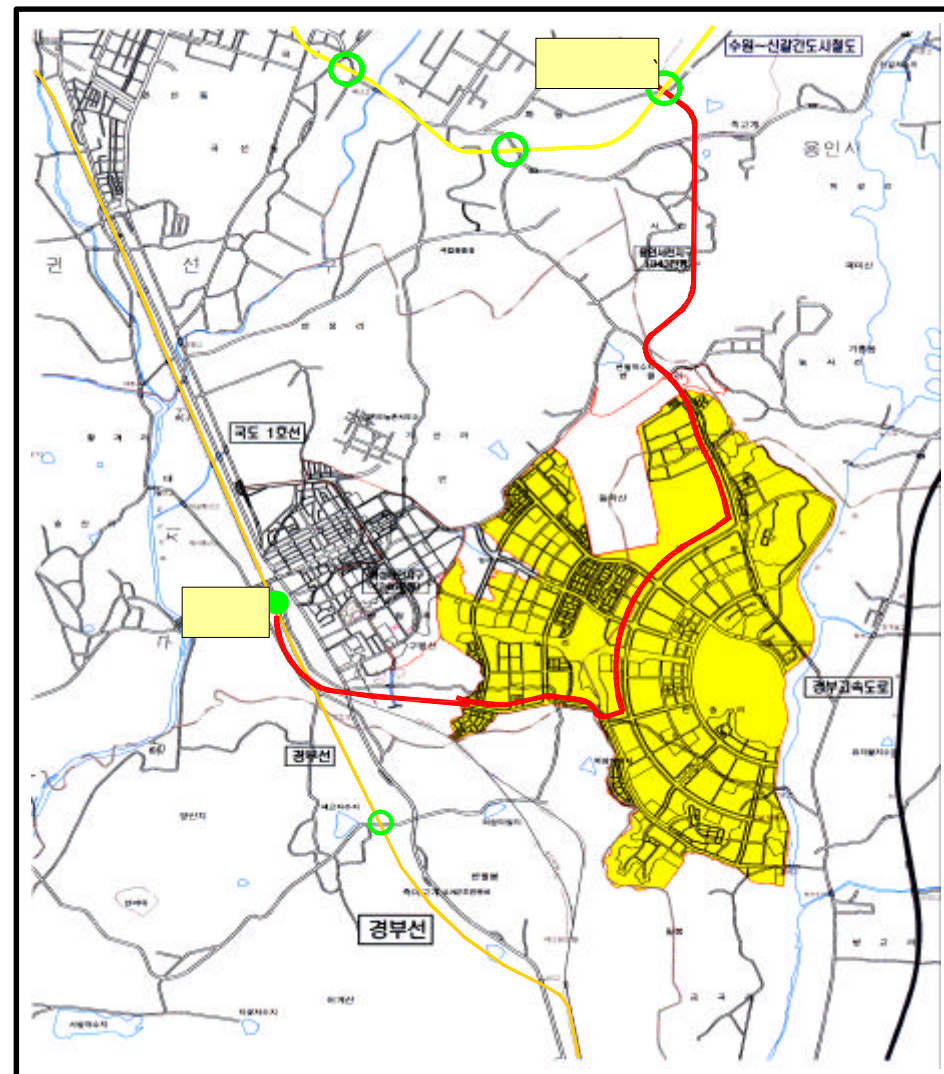
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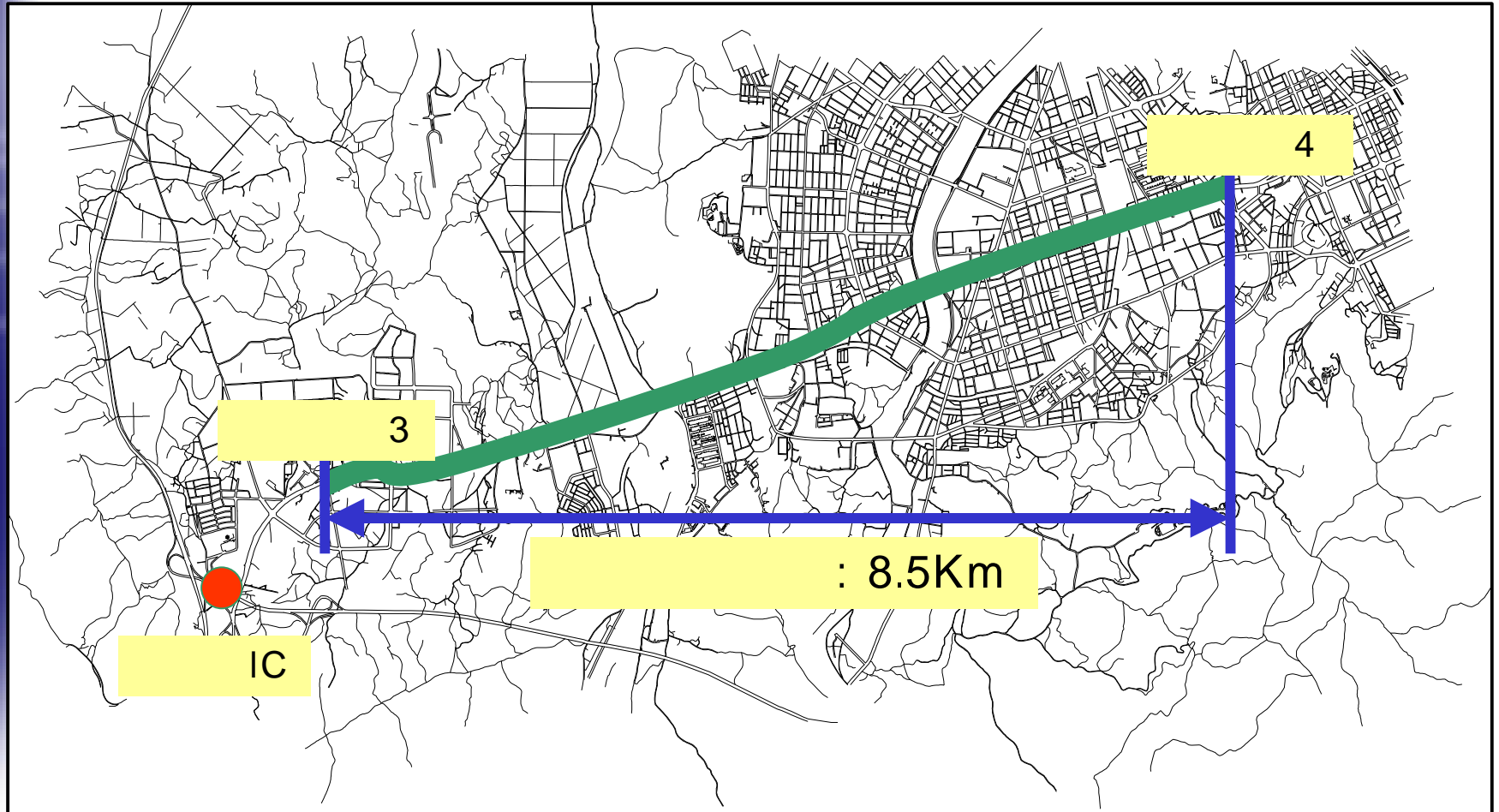
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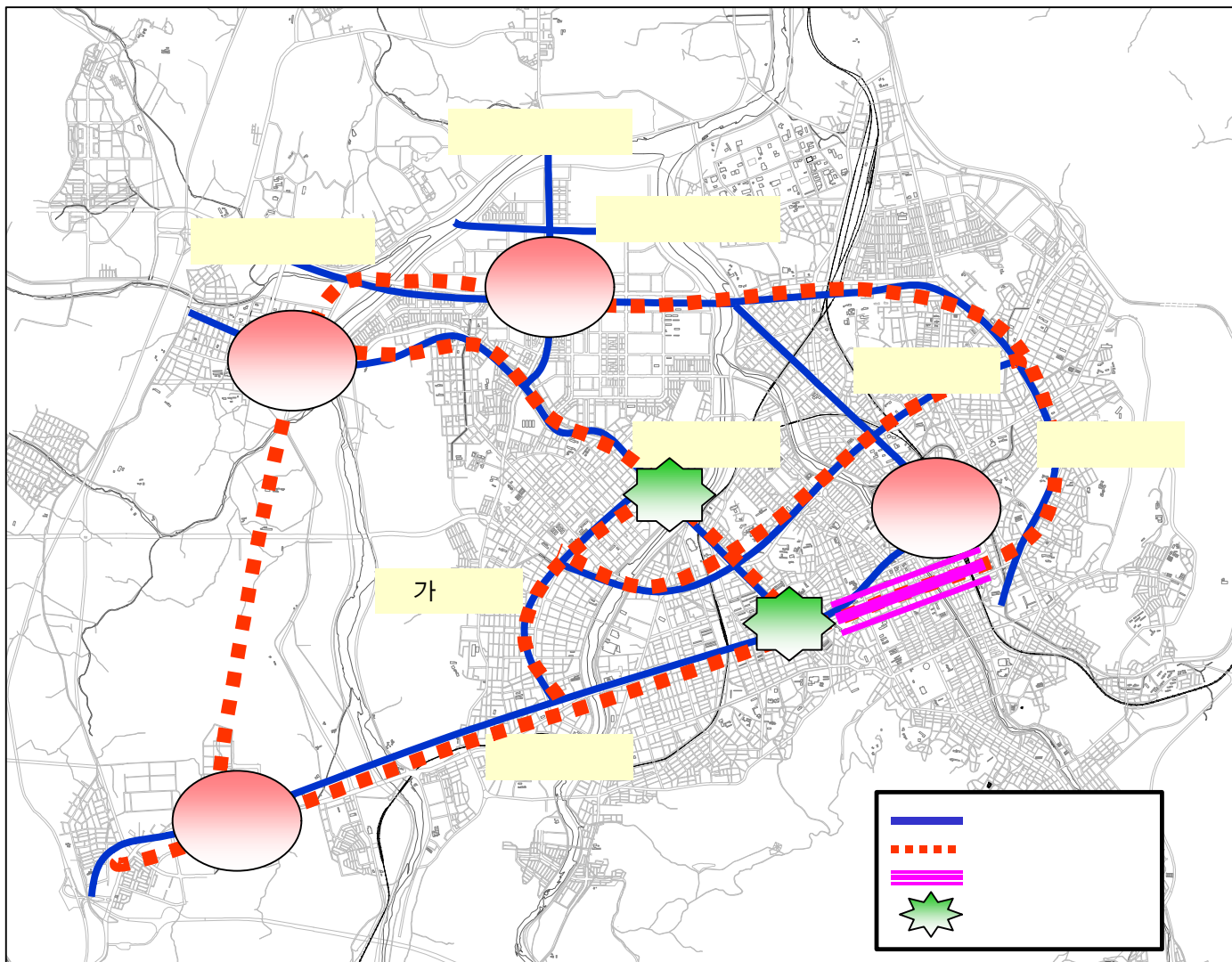
2.1Km

8.4km



: (~ 3가 8.5Km)







E-mail : KIJOONKIM@KOREA.COM