Toward the Realization of Sustainable Mobility

March 13, 2008

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Senior Technical Executive

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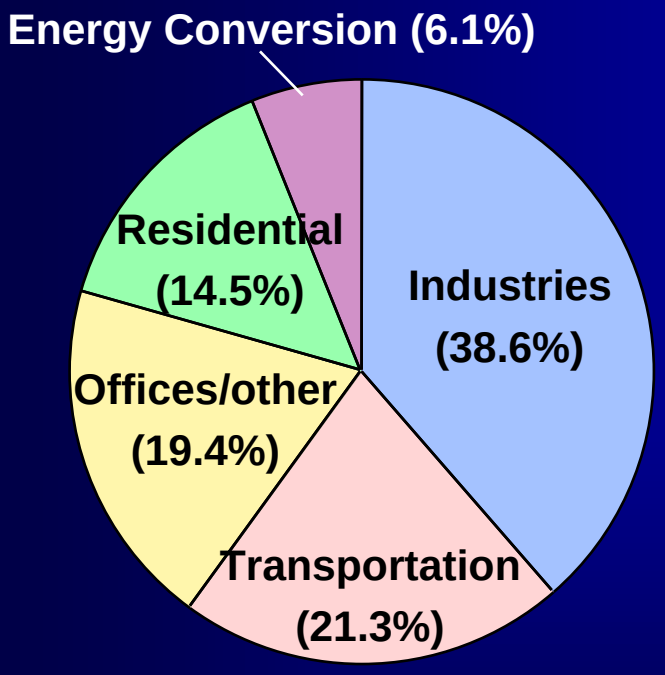
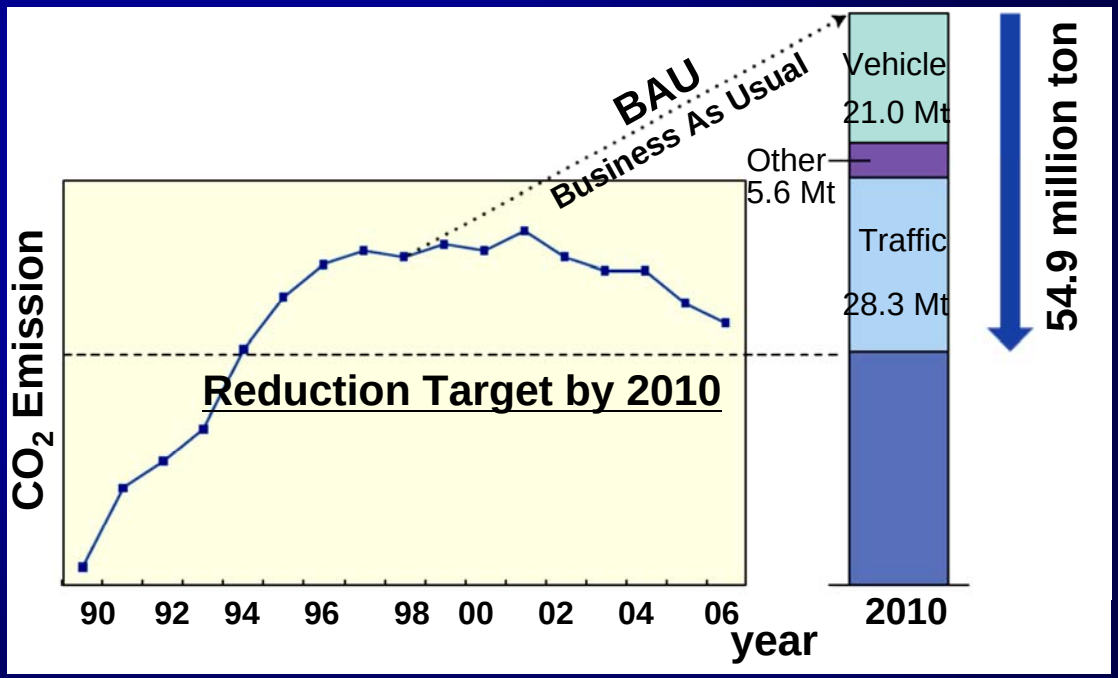
CO_2 Emission from Transportation Sector

Distribution by Sector (Japan, 2005)



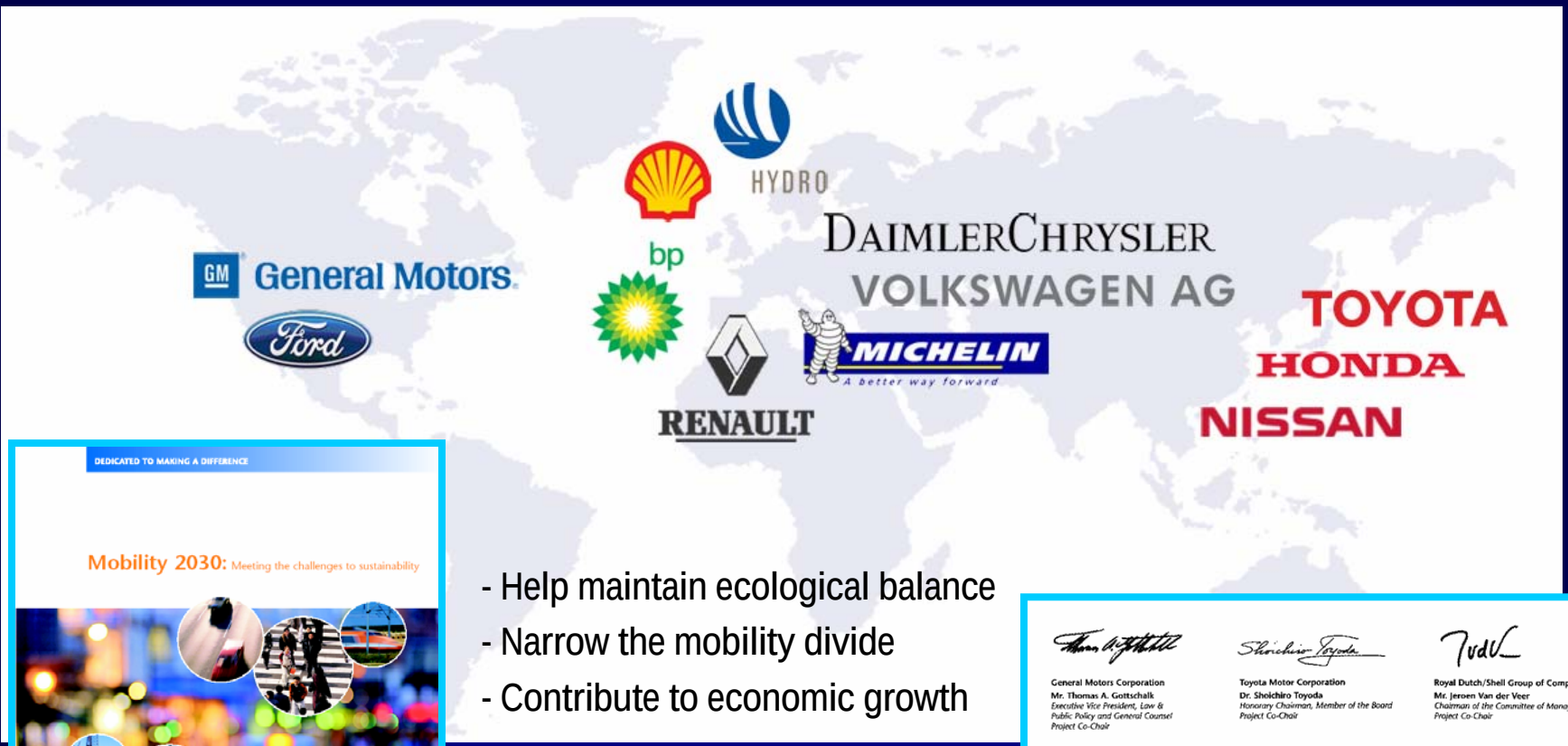
Source: Ministry of the Environment

CO_2 Emission from Transportation Sector and reduction efforts



Source: Japan Automobile Manufacturers Association

WBCSD: Mobility 2030



Mobility 2030: Meeting the Challenges to Sustainability, Released on July 5th, 2004

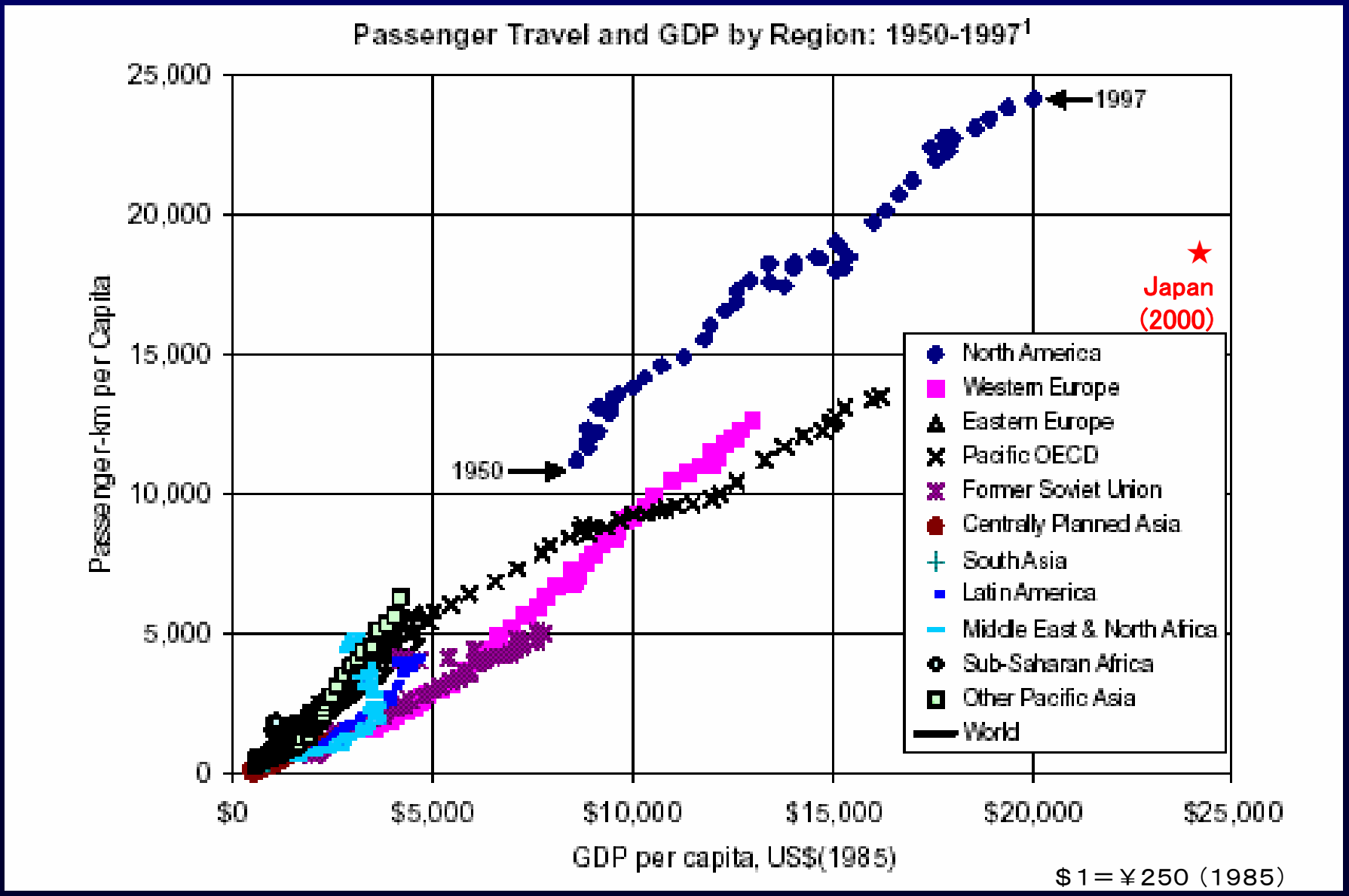
- Help maintain ecological balance
- Narrow the mobility divide
- Contribute to economic growth

SUSTAINABLE MOBILITY

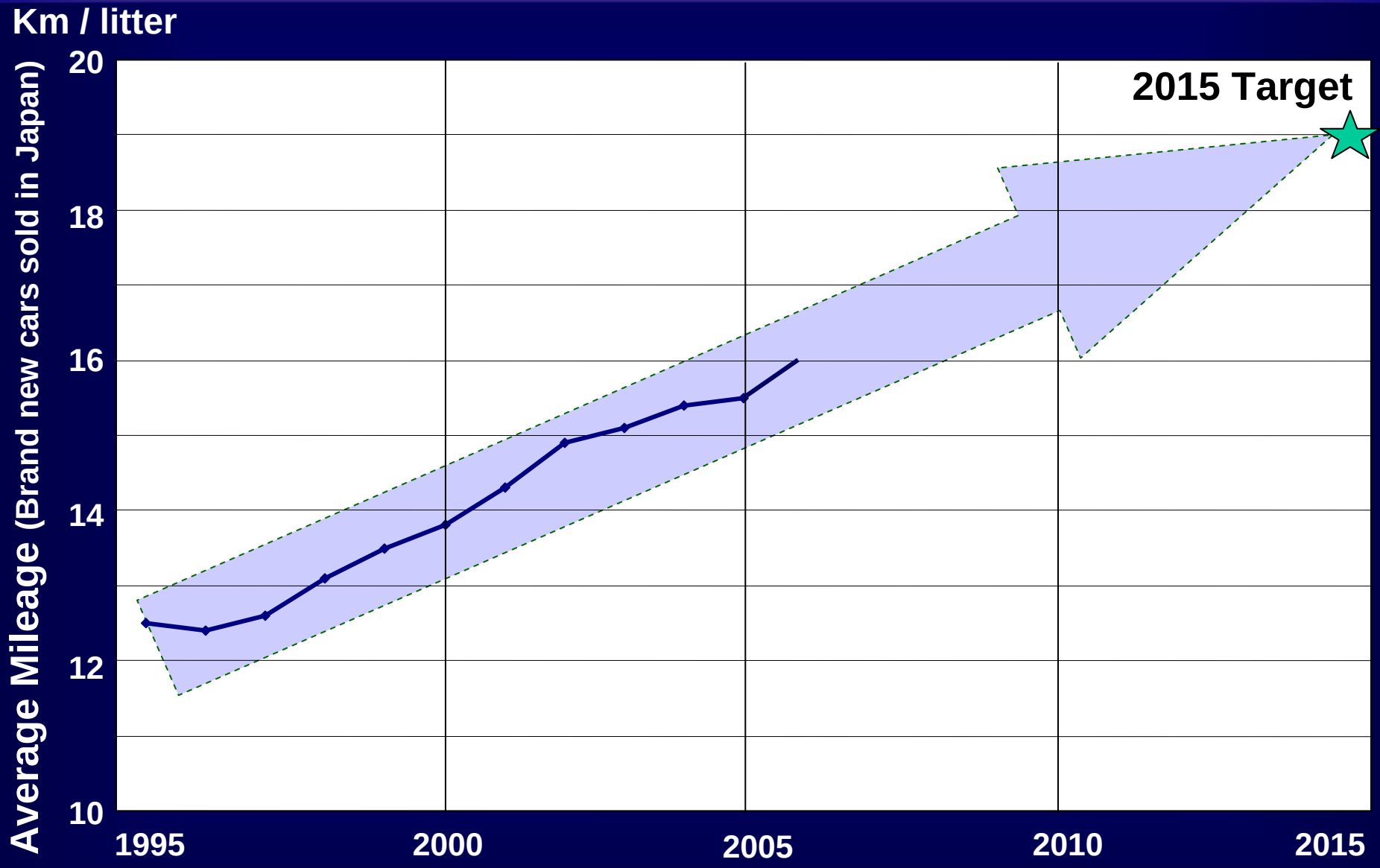
Mobility 2030 : Seven Goals

1. Reduction of conventional pollutants
2. Limit transport related GHG emissions to sustainable levels
3. Reduce the total number of road vehicle-related deaths and serious injuries
4. Reduce transport-related noise
5. Mitigate congestion
6. Narrow the “mobility opportunity divides”
7. Enhance mobility opportunities for the general population

Economic Growth and Mobility Demand



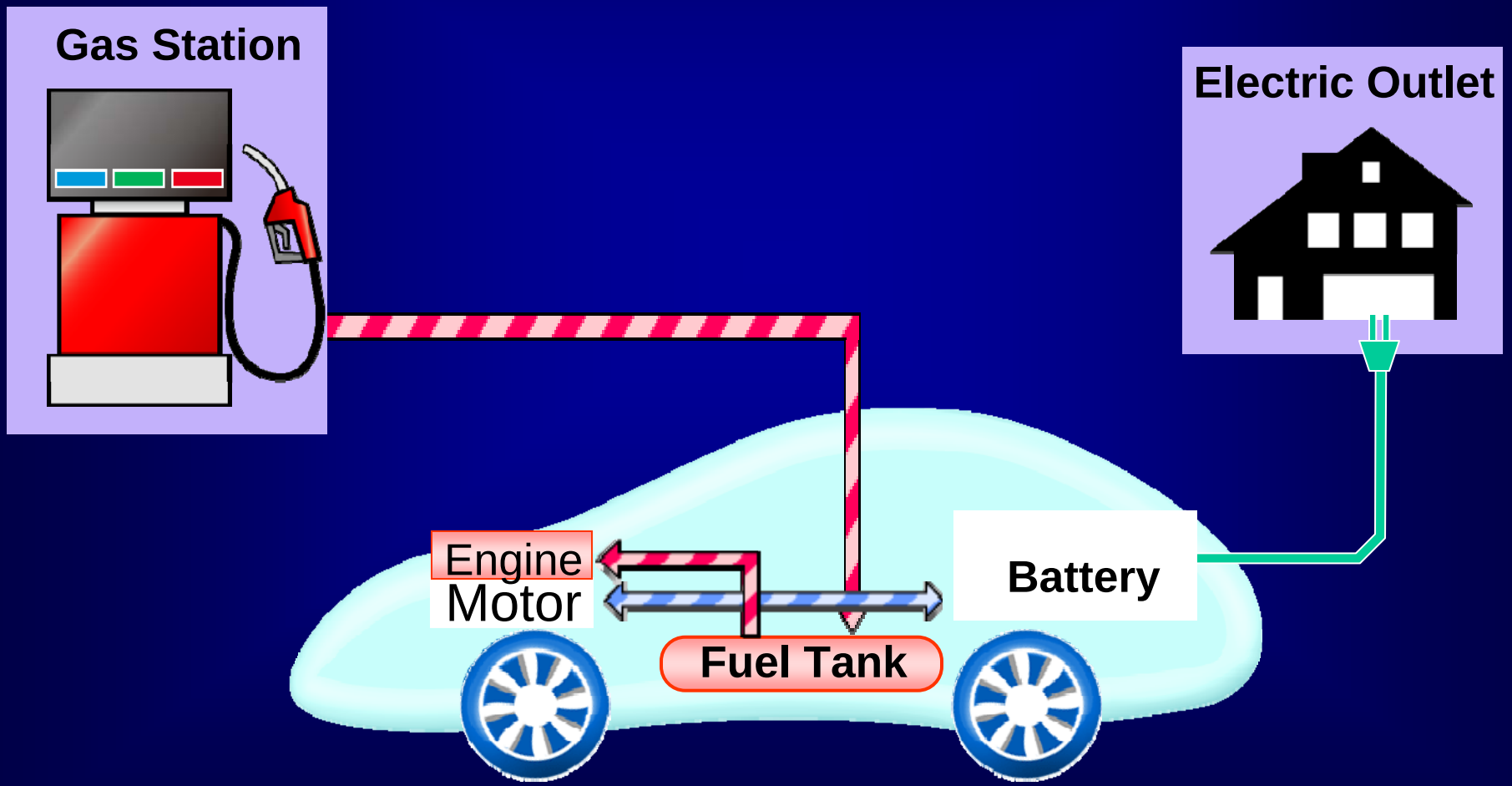
Improvement of Fuel Efficiency (Gasoline)



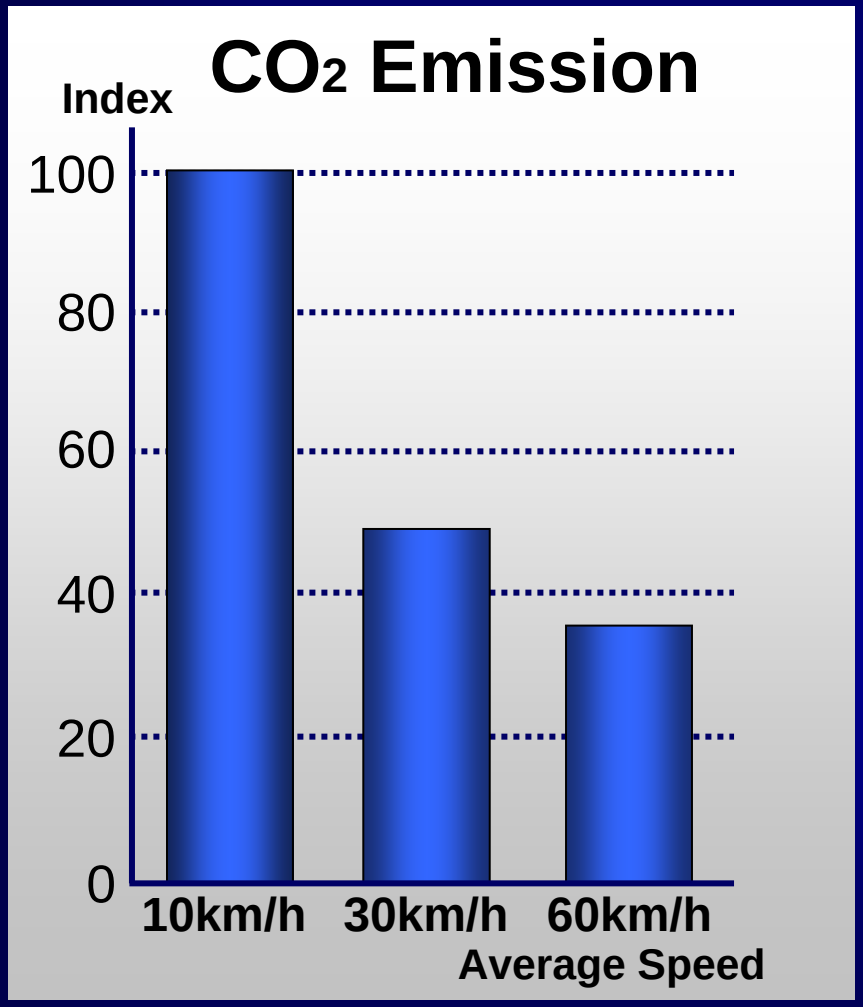
Source: Japan Automobile Manufacturers Association

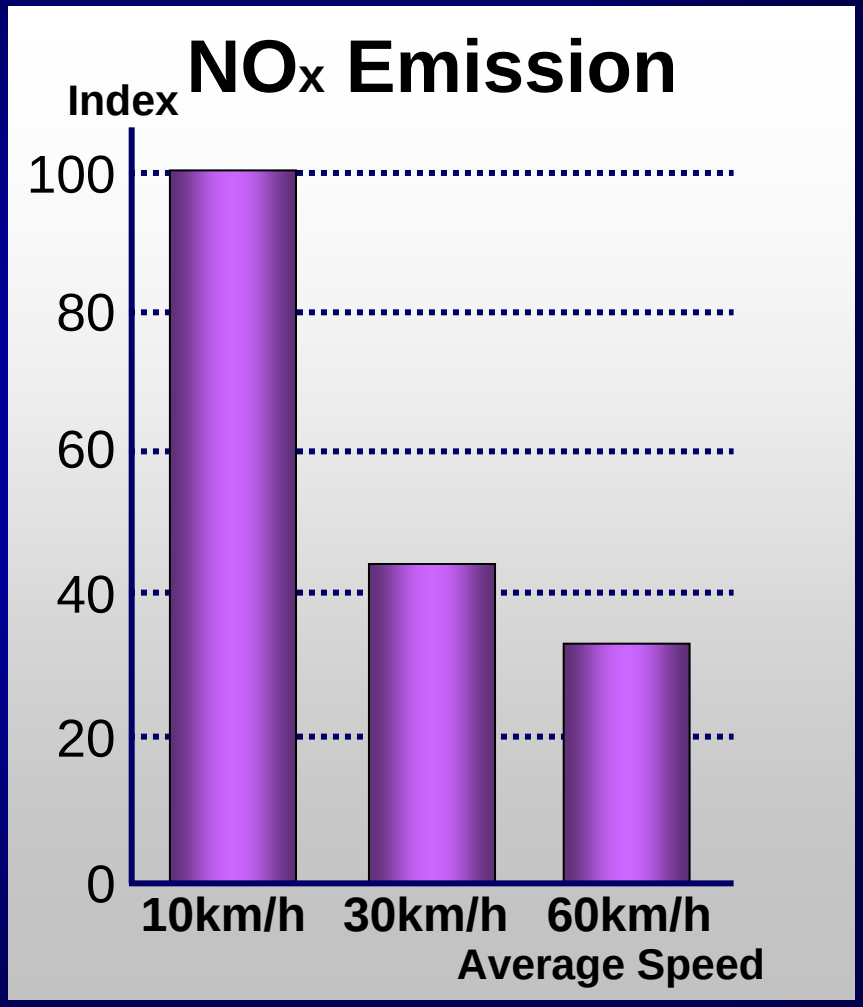
Low Emission Vehicle

Plug-in Hybrid Vehicle: Hybrid vehicle with charging function from external electric power sources



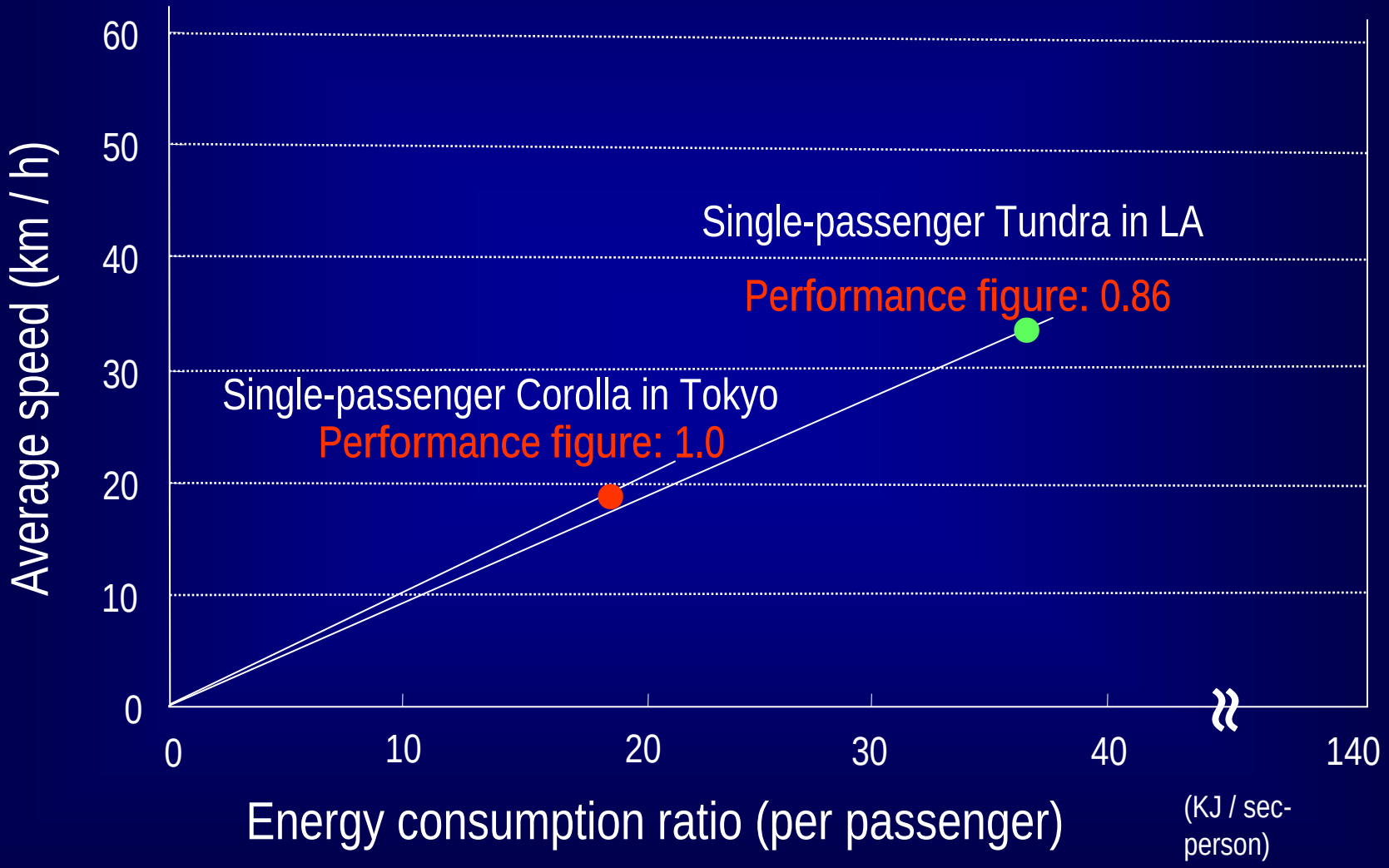
Driving Speed vs Emission



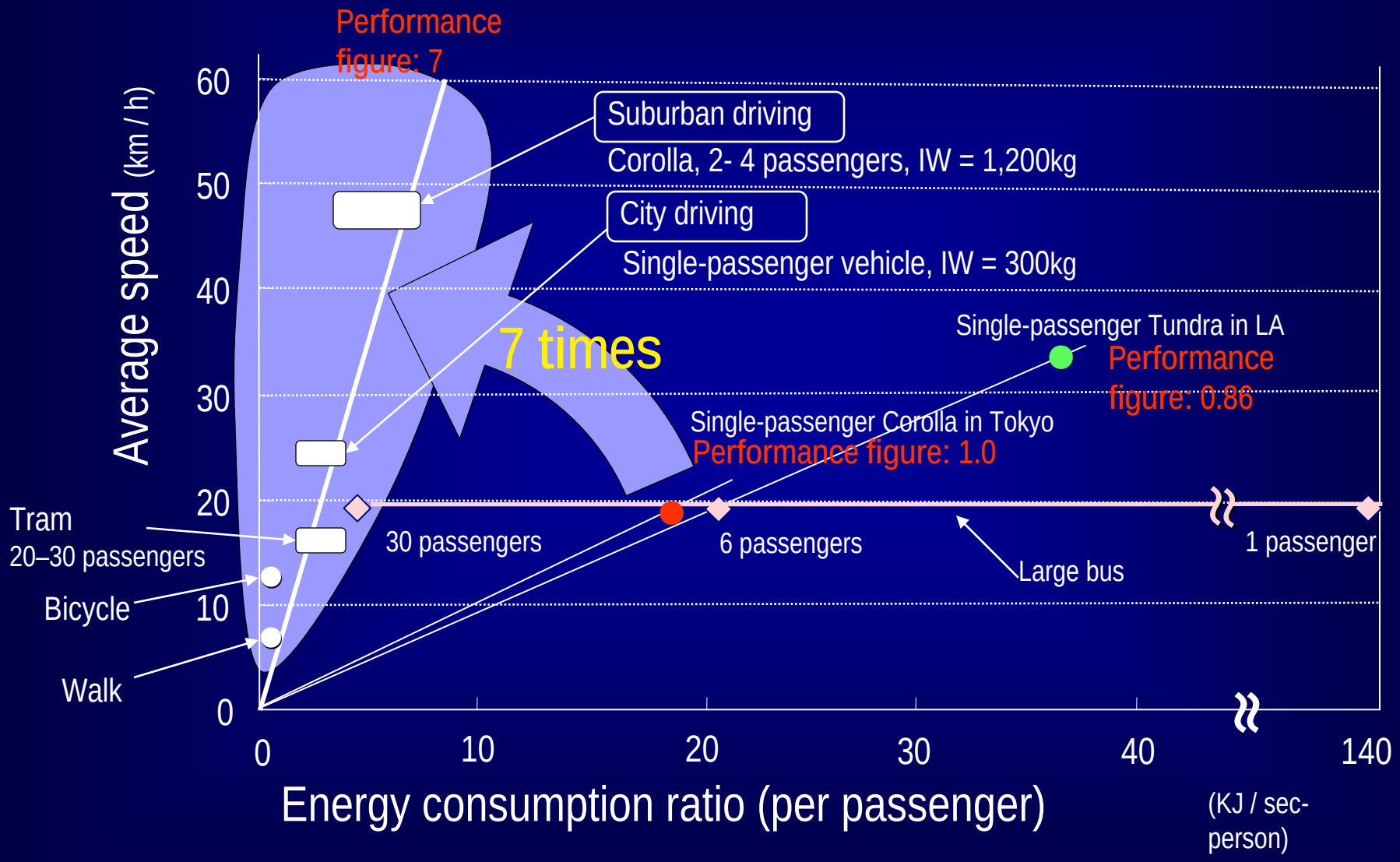


Source: Japan Automobile Research Institute

Mobility Performance: Reality

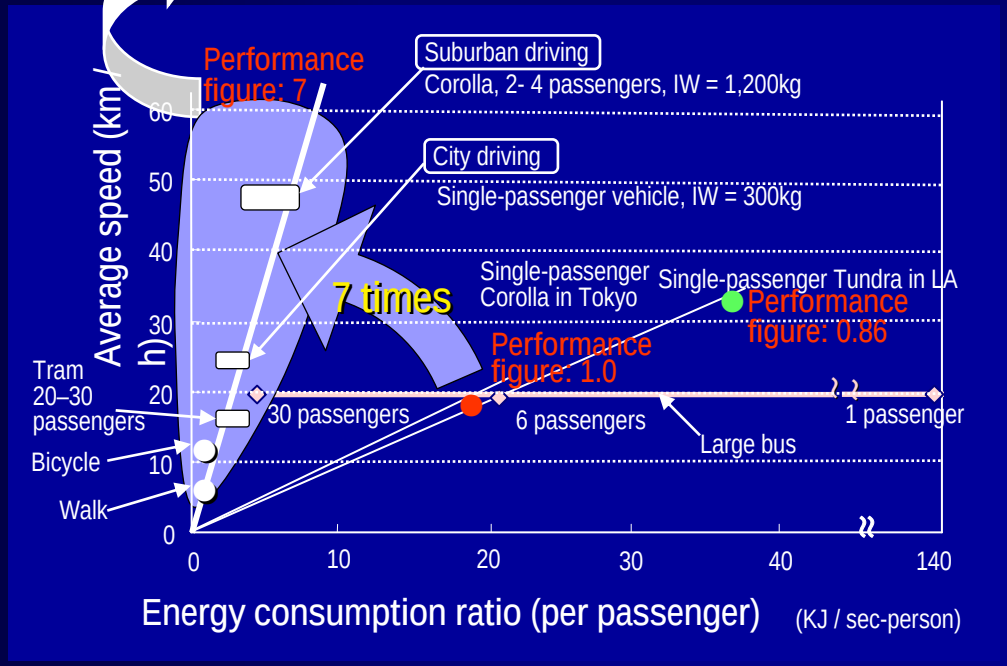


Mobility Performance: Improvement



Mobility Performance: Realization

Optimal combination of diverse transport modes



Smooth traffic flow

Reduction of energy consumption

Ubiquitous Technology

- Automated parking

Combining urban transit innovation with urban development

- Upgrading the urban and road infrastructure
- Introduction of ITS
- Transportation demand management (TDM)

Innovation of Mobile Units and Energy Conversion

- Reducing size and weight, automated driving, and automated platoon operation
- Plug-in hybrid vehicles, electric vehicles, fuel-cell vehicles

Transport Demand Management

[Behavioral Change of People]

- Modal shift
  (2,000 cars to public transport)
- Flexible working hours
- Park and ride

[Upgrade of Road Infrastructure]

- Additional lanes
- Dedicated lanes for turning

[New Technologies of ITS]

- Traffic Simulation
- Traffic Management System
  (MODERATO)

<Before upgrading road>

<After upgrading road>

Transport Demand Management

Free shuttle bus service for Commuters

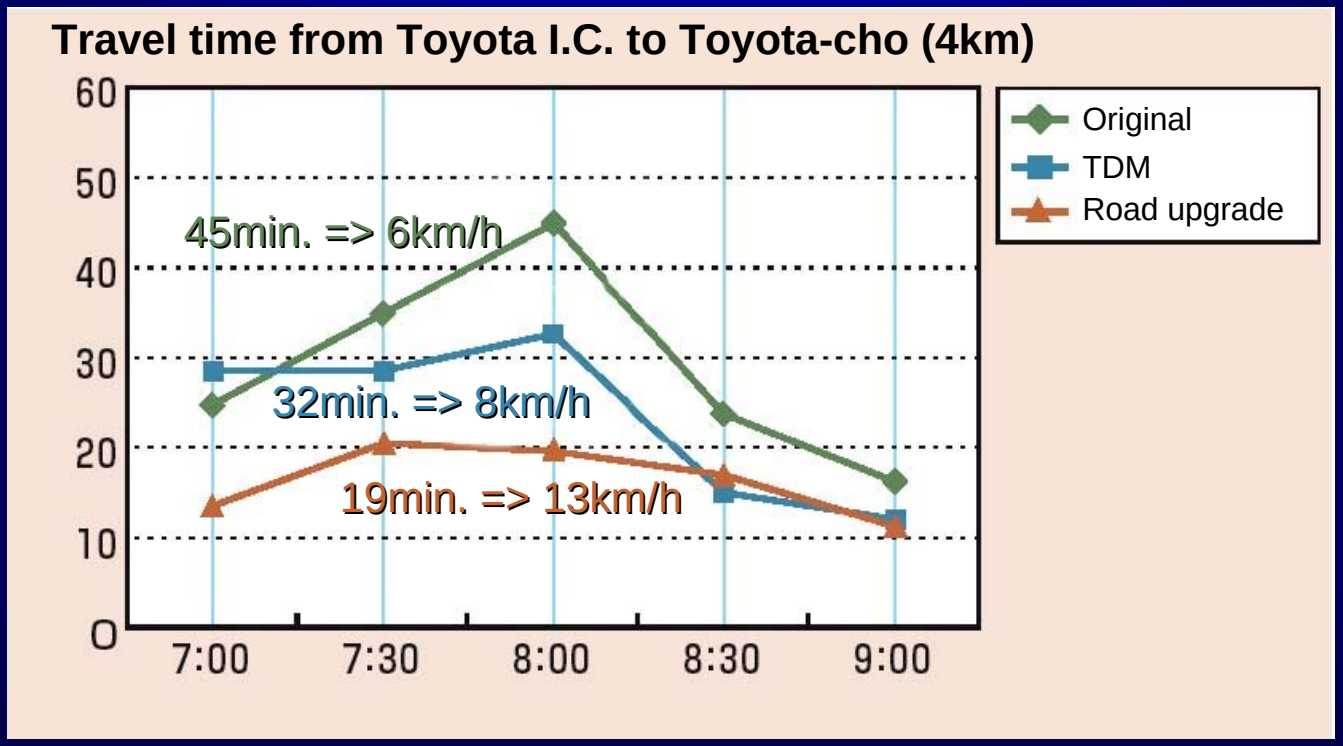
Transport Demand Management

CO_2 emission is reduced by higher travel speed
although traffic volume has increased.

Modal Shift Effect
Travel time: ↓ 30%
CO_2 emission: ↓ 14%

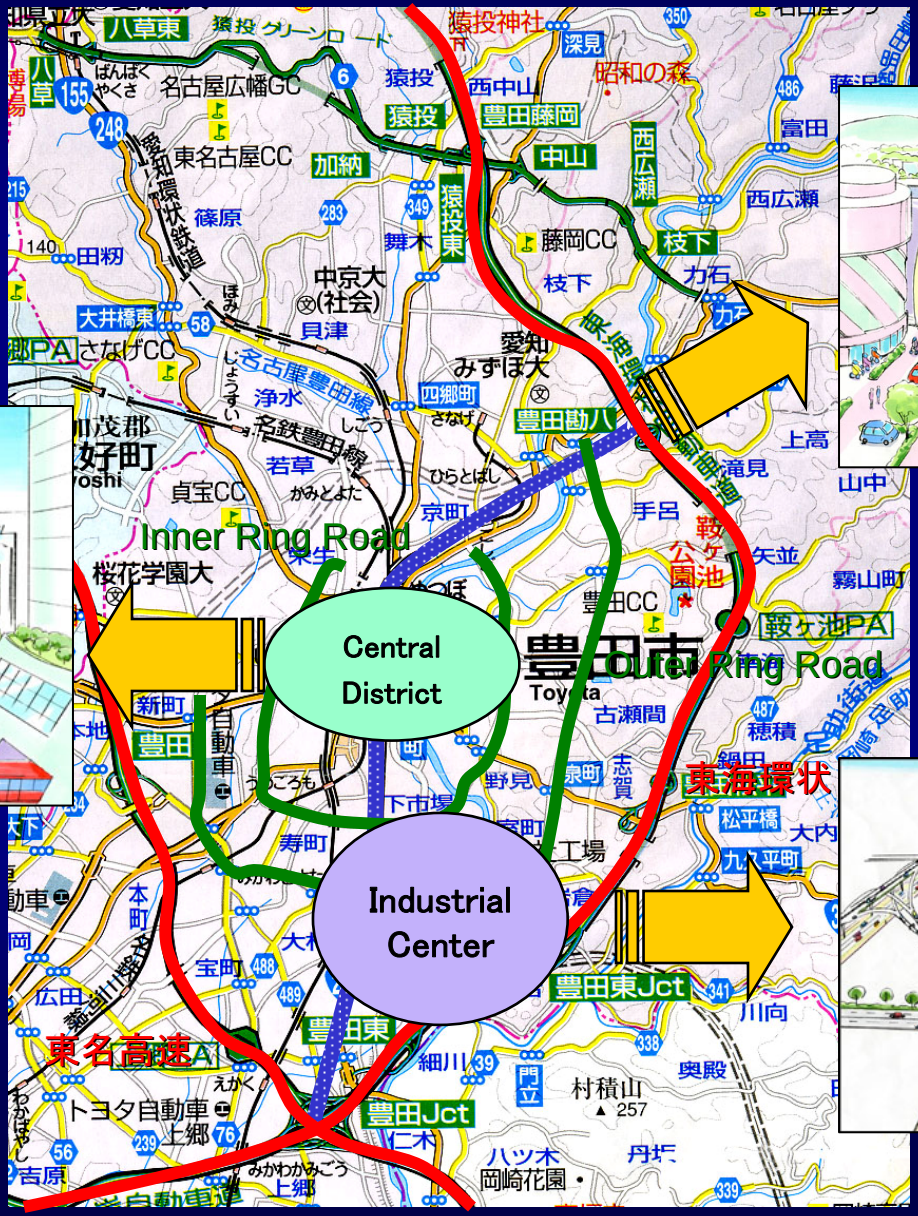
+

Road Upgrade Effect
Travel time: ↓ 60%
CO_2 emission: ↓ 17%

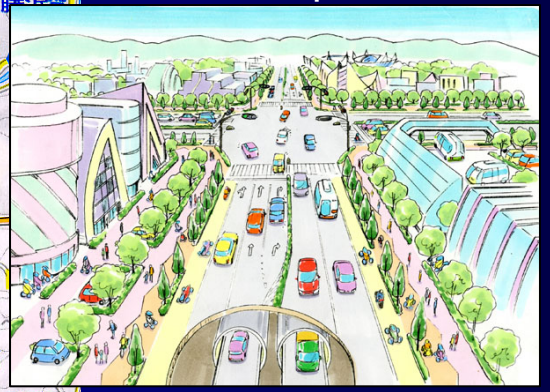


Road Infrastructure

Station Plaza



Underpass

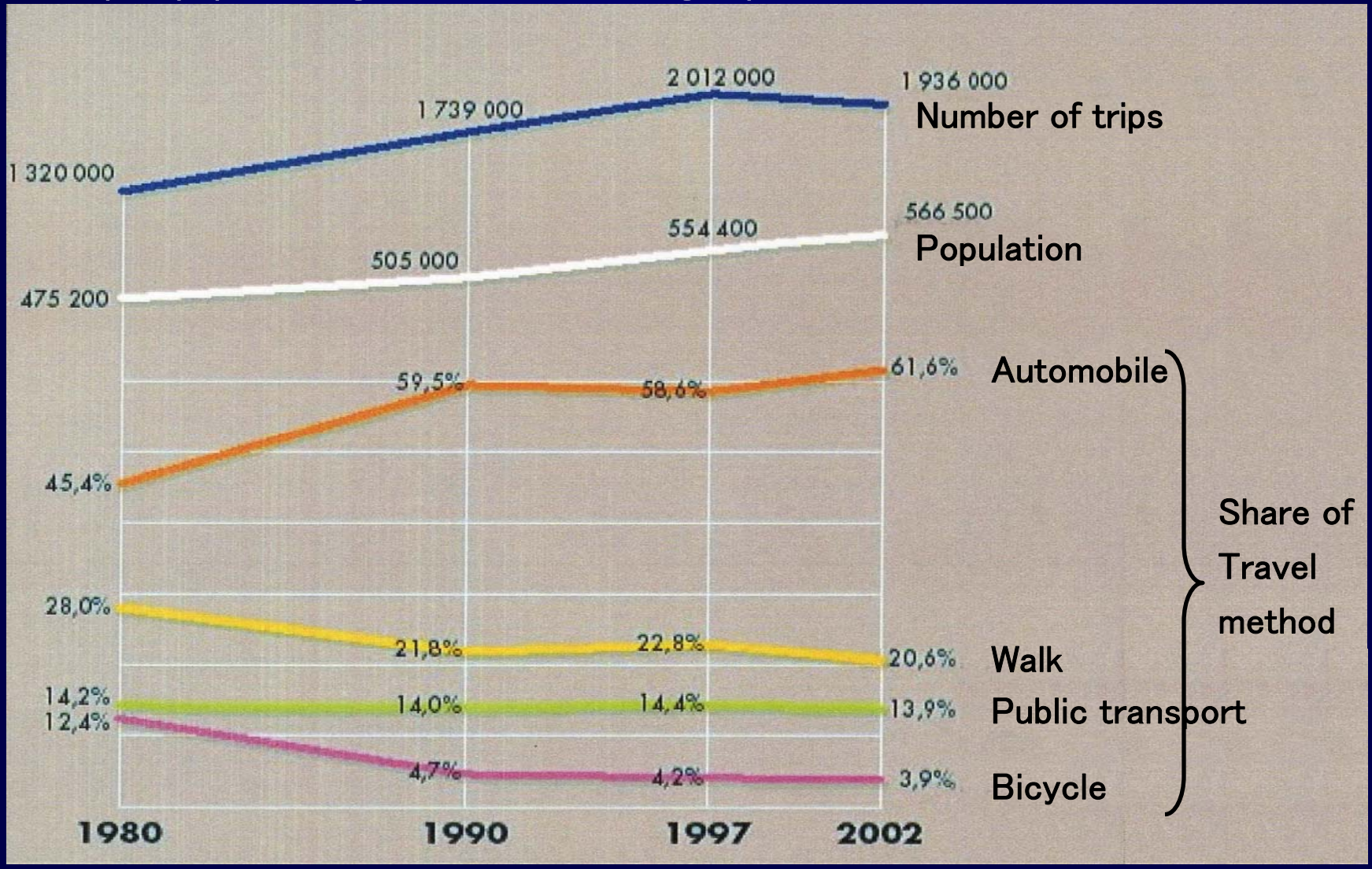


Underground Parking

Nantes, France

Mobility Demand and Change of Travel Method

Traffic became smooth due to park & ride,
despite population growth and increasing dependence on automobile.




ACCÈS CŒUR D'AGGLOMÉRATION
RENNES ST. MALO
Porte de Rennes
AUTOROUTE (Périphérique nord)
BREST VANNES ST. NAZAIRE LA BAULE
Porte d'Orvault
ANGERS LE MANS PARIS
Porte de Gesvres
Orvault Grand Val
Le Cardo
René Cassin
Porte de La Chapelle
Morlière-Paquelais
Recteur Schmitt
La Beaujoire
Porte de La Beaujoire
Gare de Couëron
Porte de Sautron
Morlière
Porte de Chézine
Sillon de Bretagne
Petit Port Facultés
Port Boyer
Haluchère
Porte de Carquefou
BREST VANNES ST. NAZAIRE LA BAULE
Porte d'Armor
Plaisance
François Mitterrand
Porte de Ste-Luce
BOULEVARDS
ANGERS LE MANS PARIS
Porte d'Atlantis
Frachon
Gare de Basse-Indre
Porte de St-Herblain
Centre-ville Voir au verso
Porte d'Anjou
Porte de l'Estuaire
Commerce
Place Foch
Gare
SNCF
LOIRE
Gare de Chantenay
PÉRIPHÉRIQUE OUEST
PÉRIPHÉRIQUE EST
Trentemoult-Roquios
Gare des Pas Enchantés
Trentemoult
Grèneraie
Chapeau Verni
Pirmil
Porte du Vignoble
Porte de Goulaine
POITIERS CHOLET
Neustrie
Pont-Rousseau
Bourdonnières
Porte de St. Sébastien
PORNIC NOIRMOUTIER
Porte de Bouguenais
8 Mai
Grande Ouche
Trocardière
Gare de Frêne Rond
Porte de Vertou
Gare de Vertou Nord
Porte de Grand-Lieu
Porte de Vertou
Gare de Bouaye
Gare de Vertou Sud
PÉRIPHÉRIQUE SUD
SÈVRE NANTAISE
Porte de Retz
Porte de Rezé
Porte des Sorinières
LA ROCHE / YON LA ROCHELLE NIORT BORDEAUX
LIGNE 1 FRANCOIS-MITTERRAND / COMMERCE / LA BEAUJOIRE
Du lundi au vendredi : 4h / 0h30 – Samedi : 4h / 2h30 – Dimanche 5h30 / 0h30
LIGNE 2 ORVAULT GRAND VAL / COMMERCE / NEUSTRIE
Du lundi au vendredi : 4h40 / 0h30 – Samedi : 4h20 / 2h30 – Dimanche 4h20 / 0h30
LIGNE 3 SILLON DE BRETAGNE / HÔTEL-DIEU
Du lundi au vendredi : 5h / 0h30 – Samedi : 5h / 2h30 – Dimanche 6h15 / 0h30
LIGNE 4 BUSWAY PLACE FOCH / PORTE DE VERTOU
Tous les jours de 5h à 0h30 – Le samedi jusqu'à 2h (Porte de Vertou) et 2h30 (Place Foch)

Proposal

Cutting congestion and CO_2 emission by half
Reducing traffic fatality to zero

Goals :

Rebirth of urban traffic systems

without congestion, CO_2 emission and accidents

New generation logistic systems

for timely delivery at competitive cost

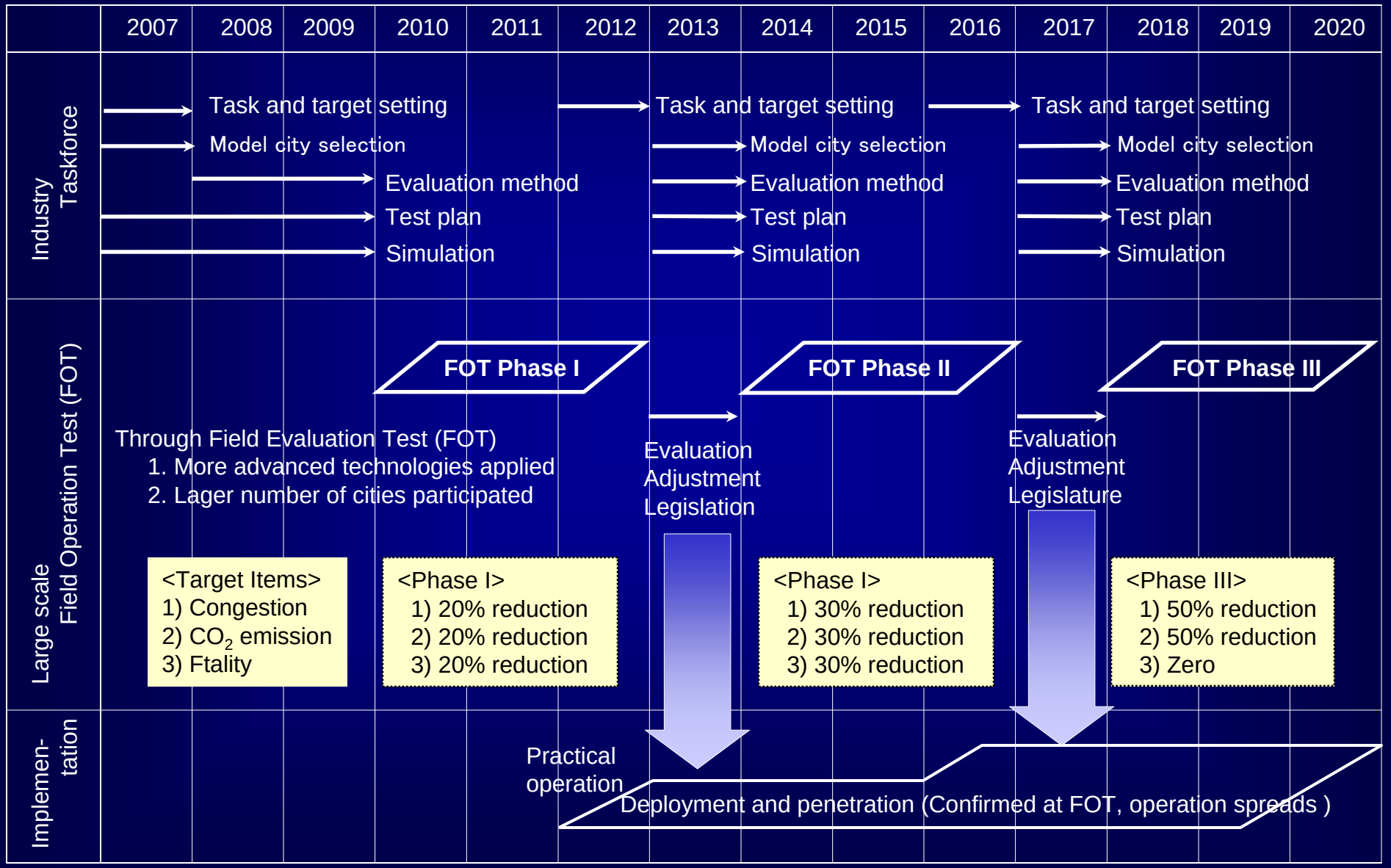
Actions :

Concurrent efforts from diverse perspectives

1) Effective deployment of transportation infrastructure
2) Active application of advanced IT and ITS technologies
3) Market penetration of new generation vehicles
4) Awareness and participation by citizens and industries
5) Strategic policy decision and its implementation

Transportation and Logistics Renaissance

Road Map



Project of Accelerating Reduction to the Society

Realizing Safe & Smooth Road Transport utilizing Information Technology

Plan: "The Project of Accelerating Reduction to the Society" aims to visualize for the citizen the outcome of large demonstration projects at a model city/line in a selected district, and to accelerate the application of successful practice on other areas. The special committee for new transportation & logistics in ITS Japan is taking initiatives in collaboration with industry, committed for realization with government.

Council on Competitiveness-Nippon
- –Make direction
- –Promote a plan

Proposal

Advice

Transport & Logistics Renaissance Project
- –Make a proposal
- –Launch the organization
- –Support promotion
- –Follow up outcome

General Science & Technology Conference
Project of accelerating reduction to the society

Road Transport System (ITS) Task Force

Policy-making, budget allocation, project promotion

Leader: Councilor Mr. Okumura

Member: Cabinet secretary, Police Agency
Ministry of Internal Affairs and Communication
Ministry of Economy, Trade, and Industry
Ministry of Land, Infrastructure, Transport and Tourism

Specialist: Intellectuals, ITS Japan

Academia

ITS Japan The special committee for new transport & logistics

Project proposal & promotion

Town revival WG
- Auto manufacturers
- Electronic manufacturers
- City developer
- Model city/local district
- etc.

Advanced logistics WG
- Auto manufacturers
- Electronic manufacturers
- Transport company
- Highway company
- Railway company etc.

City Planning with Innovative Transportation

City Planning with Innovative Transportation

City Planning with Innovative Transportation

- Address global warming
- Protect safety
- Vitalize a city/region
- Raise QOL of the citizen
- Enable response to disasters

Next Generation Logistics

Next Generation Logistics

- Address global warming
- Protect safety
- Improving international competitiveness for the cost of transport
- Provide reliability