

# Transforming Mobility in Kaohsiung

## How ITS are Revolutionising the City



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**01 ITS Development in Taiwan**

**02 Uncovering Kaohsiung & Kohn Kaen Cities**

**03 Kaohsiung's Transforming**

**04 ITS Transforms Kaohsiung's Mobility**

# ITS Development in Taiwan

2017-2020: US\$ 100M

2021-2024: US\$ 143 M

2024-2027: US\$ 180 M

**2017-2027 Total Budget: US\$ 423 M**

## Major Transport Challenges in Taiwan

### Road Traffic Injuries & Fatalities

Annual cost of US\$16 billion, about 3% of GDP. Significant impact on urban areas.



### Traffic Congestion

Limited corridors between regions, e.g., Taipei-Yilan in Northern Taiwan.



### Social Exclusion

Transport disadvantages leading to social inequality in certain areas.



## Taiwan's Smart Transportation Policy Goals

1

### Traffic Safety

Implementing advanced sensors and AI to protect pedestrians and reduce accidents.

2

### Seamless Convenience

Developing integrated multimodal transportation systems for efficient urban mobility.

3

### Environmental Sustainability

Promoting green technologies and practices to minimize the ecological footprint of transportation.

## Benefits of ITS Implementation

1

### Enhanced Mobility

Greater access to transport for all, including elderly and disabled individuals.

2

### Environmental Impact

Reduced emissions and improved compatibility with environmental goals.

3

### Safety Improvements

Fewer traffic-related deaths and injuries through smart systems.

4

### Economic Efficiency

Better-managed transport system leading to reduced travel costs and uncertainty.

## Implementation Strategies

### Central Government

Spearheading cutting-edge research and policy formulation for smart transportation initiatives.

### Local Governments

Executing and expanding smart transportation projects tailored to regional needs and characteristics.

### Collaborative Approach

Fostering partnerships between public and private sectors to accelerate innovation and implementation.

*02*

*Uncovering  
Kaohsiung &  
Kohn Kaen City*



# Kaohsiung City

Population  
**2.72** million

Area  
**2,952** km<sup>2</sup>

Population density  
**924** per km<sup>2</sup>

Public Transit & Shared-Mobility

**HSR, TRA, Metro, light rail, city buses, Ferry, Taxis, Public bike (youbike), Shared-motorbike**

The largest city in southern Taiwan, Kaohsiung has both sea and air ports



# Kohn Kaen City

Population  
**130,000**

Area  
**46** km<sup>2</sup>

Population density  
**2,700** per km<sup>2</sup>

Public Transit & Shared-Mobility

**Khon Kaen Transit System (KKTS): BRT (Bus Rapid Transit) system, City buses, Tuk-tuks, Taxis.**



**03**

***Kaohsiung's  
Transforming***



# Kaohsiung City is transforming from an Industrial City to a Smart & Sustainable City



# Semiconductor Manufacture Corridors in South Taiwan

from design,  
manufacturing, to  
packaging and testing  
form a complete  
semiconductor chain



Kaohsiung Science Park

Qiaotou Science Park

Nanzih Technology Park

Kaohsiung Bay  
Technology Innovation Park



# Promoting the Simultaneous Development of 4 MRT lines

Since Mayor Chen inaugurated (Aug. 2020)

New Metro & LRT station: **20 sta.**

**114** stations by **2030**

2020 : 51km 、 52 sta.

**4 lines simultaneous development**

2021 : 55km 、 60 sta.

2022 : 59km 、 65 sta.

2024 : 64km 、 72 sta.

2030 : 112km 、 114 sta.



**04**

# ITS Transforms Kaohsiung's Mobility



# MaaS MeNGo Mobility as a Service Platform

- ✓ First in Asia promote MaaS
- ✓ Public Transportation All-in-one
- ✓ Registered Members and AI-based Consumption patterns Analysis



此處請勿站立

下車鈴



# Rural Shared Mobility



Local NGO, drivers & vehicles serve local residents

Government helps to bridge demand & supply and develop matching platform

First & last mile of community shuttle service

Increase public transport accessibility from 43% to over 90%

Shared use of limited transport resource, at least two passengers per vehicle being dispatched

Service satisfaction rate over 90%

Introduced in 5 remote districts and will extend to other 4 districts by 2026



# Smart Transportation Real-Time Integration Improving Kaohsiung's Traffic

- ✓ Develop **ITS** (Intelligent Transport Systems) and Service Platforms
- ✓ **IOT** Real-time Data Collection
- ✓ **GUI** Intelligent Dashboard for Data Monitoring and Management
- ✓ **AI** for Road Network Signal Control and Event Response Decision



# Large-scale event Real-time evacuation

## Mass Crowd Event Transportation Time

In 2021 **2.5** hour  
**45K** audience

➔ In 2023 **1** hour  
**90K** audience

Time shortened  
**60%**



# AI Traffic Signals Control

- + Congestion alarm function
- + Alternate path suggestion
- + Improving the corridor performance

## 前鎮漁港動態監控

即時資訊 參數設定 記錄查詢

### 整體路網監控

路段監控  
動態控制

### [+]漁港路群組

3 個路口

- 漁港路/德昌路
- 漁港路/臨加東路
- 漁港路/和誠街

### [+]新生路群組

8 個路口

- 新生路/漁港路
- 新生路/漁港北一路
- 新生路/漁港東一路
- 新生路/實業路
- 新生路/佛德街
- 新生路/漁港東三路
- 新生路/漁港南一路
- 新生路/后平路

### [+]佛德街群組

2 個路口

- 佛德街/草衙二路
- 佛德街/佛佑路

單一群組監控

### 新生路/漁港路

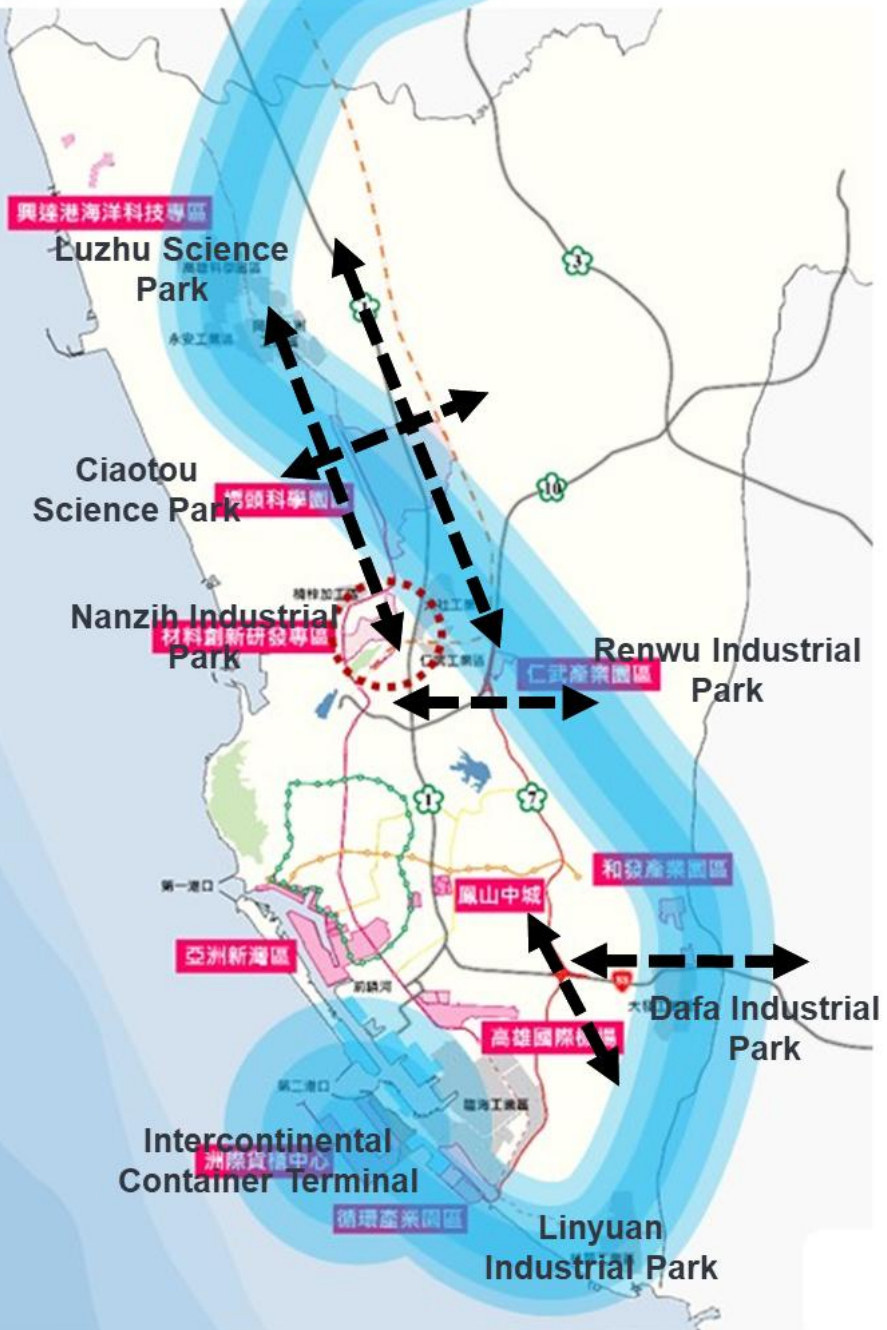


### 路口時制

路口	週期	...	...	...	...	...	...
新生路/漁港北一路	120	0	5	48	55	18	32
新生路/漁港北一路	120	20	5	0	80	40	-
新生路/漁港北一路	120	0	5	0	80	40	-
新生路/漁港北一路	120	0	5	48	55	15	35



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# Smart Transportation Corridor

## Intelligent Road Network

- Constructing an Intelligent Road Network
- Smart Integrated Management of Industrial Corridors
- Digital Management of Road Assets
- Establishing a Digital Twin Platform

## S Science Park Corridor

- Luzhu Science Park
- Nanzih Industrial Park
- Ciaotou Science Park
- Renwu Industrial Park
- Dafa Industrial Park
- Intercontinental Container Terminal
- Linyuan Industrial Park

# Introduction of Smart Parking Systems



embedded type



smart parking bollard



high position photography



- installed on sidewalks, planting strips, street light poles, and signal light poles
- automatic number plate recognition
- automated billing (no parking bill papers)

# ITS World Congress 2029 in Taiwan



# Thank you for your attention



## *Go smart & Go green*

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