

2

3



交通部高速公路局 簡介

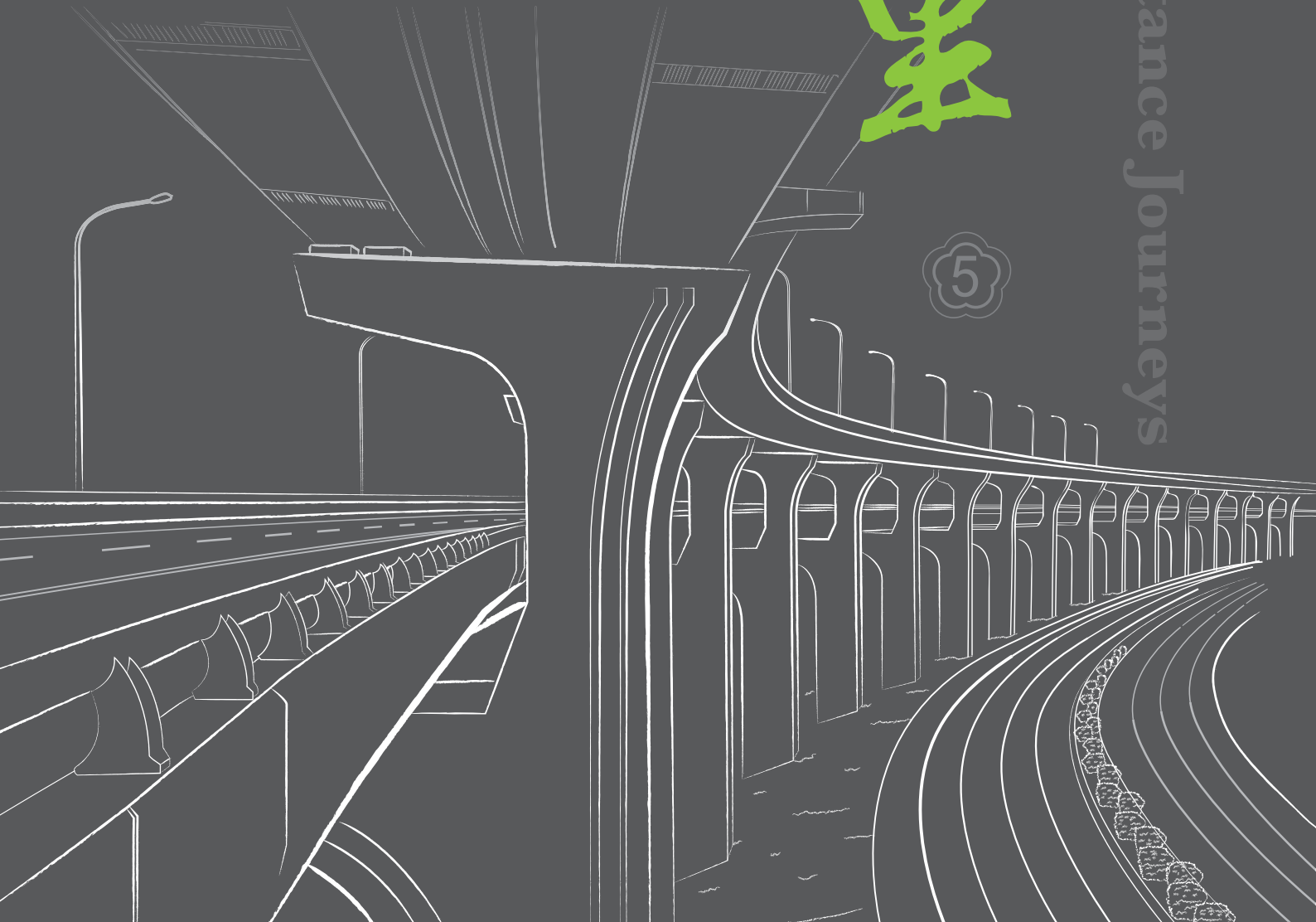
INTRODUCTION TO THE FREEWAY BUREAU, MOTC

1

樂行千里

Happy Long-Distance Journeys

5





樂行千里 築夢踏實

A LONG AND JOYFUL ROAD OF DREAMS REALIZED

國道路網是維繫臺灣活動力的泉源，
交織綿密、快捷便利，
重新定義時空距離、無限溫暖世間人情，
成功帶動整體經濟成長、促進區域發展。

交通部高速公路局

遵循「以顧客為導向，以品質為依歸」的核心價值，秉持著建設管理及營運養護各項專業，
為用路人提供安全、舒適及便捷的優質國道服務。

融合環境生態與人文關懷，
經營智慧運輸及綠色永續的國家交通大業，
高速公路局一直為國人鋪陳光明與希望的坦途，
奔向臺灣的未來，也通往幸福的夢想。

Taiwan's network of national freeways is a wellspring of great vitality,
It's a dense network that is fast and convenient.
It has redefined distance by keeping loved ones close,
Successfully spurred economic growth, and promoted regional development.

The Freeway Bureau of the Ministry of Transportation and Communications.
has core values informed by an ethos that is customer-directed and quality-based.
It upholds professionalism in construction management, operations and maintenance.
Providing road users with safe, convenient and high-speed roads.
Combining a concern for the environment and humanity.
It operates the freeways in accord with principles of smart transportation and sustainability.
The Bureau is paving the way toward a hopeful and enlightened future,
Rushing Taiwan toward realizing its dreams.

INTRODUCTION TO
THE FREEWAY BUREAU, MOTC



利交通 繁榮臺灣 | 04

HAPPY TRANSPORTATION
A PROSPEROUS TAIWAN

穿越時光的迴廊 06

THROUGH THE CORRIDOR OF TIME

鞏固交通的磐基 10

STRENGTHENING THE FOUNDATIONS
OF TRANSPORTATION



旅暢通 便捷家園 | 12

CONGESTION-FREE TRAVEL

布設城際的大道 14

DESIGNING AN
INTER-CITY HIGHWAY SYSTEM

夯實經貿的網絡 20

BUILDING A NETWORK
SUPPORTING ECONOMIC GROWTH

守護逐夢的里程 26

MILESTONES IN MAINTENANCE



鍾百鍊 智慧運輸 | 36

DILIGENTLY DEVELOPED
INTELLIGENT TRANSPORTATION

串織旅運的貫通 38

MAKING CONNECTIONS AND
SMOOTHING THE PASSAGE

便捷車流的來往 44

SUPPORTING FREE FLOWING TRAFFIC



仁為美 永續幸福 | 48

BENEVOLENCE AND
SUSTAINABILITY

連結生態的風華 50

CONNECTING TO ECOLOGICAL SPLENDOR

傳遞驛站的溫馨 56

SERVICE AREA THAT CONVEY WARMTH

永續國道的耕耘 60

DEDICATING TO SUSTAINABLE FREEWAY







HAPPY TRANSPORTATION

利交通 繁榮臺灣

A PROSPEROUS TAIWAN



1

平鎮系統交流道

Pingzhen System Interchange



從筆路藍縷到路網成形，經過數十年的興築管理，臺灣的國道系統逐漸由線匯集成面，串連起南北西東，為交通運輸及城鄉發展大開方便之門；四通八達的國道，是臺灣公路系統的主動脈，傳遞著幸福與溫情，並載滿希望的行囊，引領著四方絡繹行旅，奔馳向夢想的前方。

Wresting a network of roadways from wilderness over the course of many decades of construction and management, Taiwan has created a national freeways system that connects north, south, east and west, and facilitates transport and urban and rural development. The extensive national roadway network is something akin to the island's circulatory system, conveying joy and warmth, carrying hope, and inviting travelers from every corner of the island to rush toward their dreams.

THROUGH THE 穿越時光的迴廊 CORRIDOR OF TIME

歷史沿革

60 年代，臺灣為基礎建設而大興土木，為專責辦理十大建設之首的中山高速公路，民國 59 年 6 月 8 日正式設立「交通部高速公路工程局」，並於 67 年 10 月 31 日完成國道 1 號中山高速公路北起基隆、南迄高雄的通車使命。

基於中山高速公路通車以後的營運管理需求，高速公路工程局遂於 67 年 12 月 1 日改制為「交通部臺灣區國道高速公路局」（簡稱高公局），業務範圍從興建轉變為管理，職司高速公路的養護拓建、交通管理、收費及行旅服務等工作。

伴隨臺灣經濟快速發展，中山高速公路的交通運輸量日趨飽和，北部第二高速公路的籌建計畫順勢而生，並於 76 年 3 月 5 日成立「交通部北部第二高速公路工程處」；另為紓解臺北都會區人口壓力，加速東部地區開發，於 78 年 4 月 17 日設立「交通部南宜快速公路工程籌備處」，主辦南港至宜蘭間快速公路的規劃與興建事宜。



五楊高架路段—雙層橋

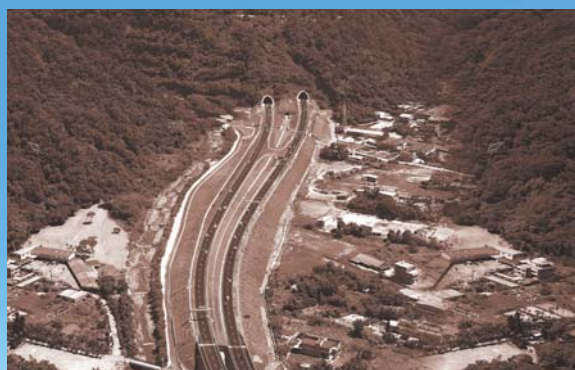
Double-Deck Wugu-Yangmei Elevated Road

A Historical Evolution

In the 1970s, Taiwan embarked on major basic infrastructure projects. The Freeway Construction Bureau was formally established on June 8, 1970 to handle the Sun Yat-sen National Freeway project. This freeway, also known as National Freeway No. 1, was the top priority of Taiwan's Ten Major Construction Projects. Stretching from Keelung in the north to Kaohsiung in the south, the freeway was opened to traffic on October 31, 1978.

Based on operational needs after the opening of the Sun Yat-sen National Freeway, the Freeway Construction Bureau was reconfigured as the Taiwan Area National Freeway Bureau (TANFB) on December 1, 1978. Its focus shifted from construction to management, and it was given responsibility over freeway-related maintenance, expansion, traffic management, tolls, traveler services, and so forth.

With rapid economic growth in Taiwan and traffic saturation on the Sun Yat-sen National Freeway, plans were made for the Second Northern Freeway (the northern section of National Freeway No. 3). On March 5, 1987, an Engineering Office for the Second Northern Freeway was established. What's more, to relieve population pressures in metropolitan Taipei and to speed up the development of eastern Taiwan, the Preparatory Office of the Nanyi Expressway Engineering Project was established on April 17, 1989, to handle the planning and construction of an expressway between Nangang and Ilan.



為了統一國道建設事權，北部第二高速公路工程處與南宜快速公路工程籌備處於 79 年 1 月 5 日合併成立「交通部臺灣區國道新建工程局」（簡稱國工局），負責全臺灣高速公路路網的整體規劃、設計與興建。

配合行政院自 101 年起推行組織改造，打造一個「精簡、彈性、效能的政府」，以大幅提升國家的競爭力，乃進一步整併高公局與國工局的業務與組織系統，至此，全方位統籌辦理國道一切事務的「交通部高速公路局」於焉誕生。

40 多年來，高速公路里程已從國道 1 號的 373 公里，拓展為超過 1,000 公里的優質國道路網，未來更亦在全新的「高速公路局」努力下，持續提升行車安全、強化運輸效能及服務品質，提供民眾舒適便捷的國道行旅體驗。





In order to unify authority over the construction of national freeways, the Northern Engineering Office for the Second Northern Freeway and the Preparatory Office of the Nanyi Expressway Engineering Project were merged into the new Taiwan Area National Expressway Engineering Bureau, which was responsible for the overall planning, design and construction of Taiwan's freeway network.

With the goal of creating a “streamlined, flexible and efficient” government in order to bolster national competitiveness, the Executive Yuan embarked on efforts to reorganize its structure in 2012. As part of this effort, the Taiwan Area National Freeway Bureau and the Taiwan Area National Expressway Engineering Bureau was merged to create one agency responsible for the national freeways: the Freeway Bureau, Ministry of Transportation and Communications.

Over the course of 40 years, Taiwan's freeways have grown from the 373 kilometers of National Freeway No. 1 to a network of high-quality national freeways exceeding 1000 kilometers in total length. In the future, with the hard work of the new Freeway Bureau, there will be continued efforts to raise safety, strengthen efficiency and service quality and to provide the public with comfortable and convenient experiences when traveling on national freeways.

STRENGTHENING THE FOUNDATIONS 鞏固交通的磐基 OF TRANSPORTATION

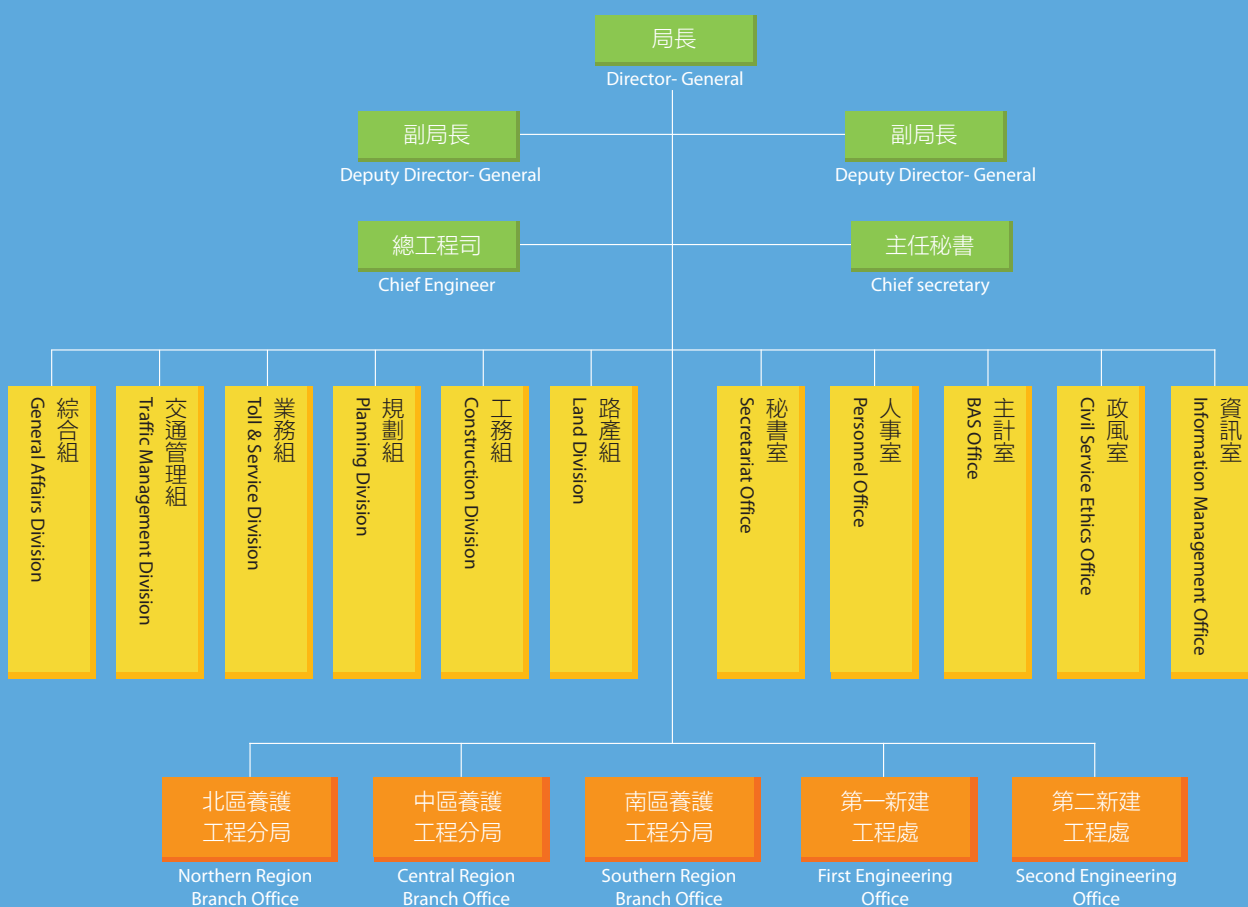


交通部高速公路局
The Freeway Bureau, MOTC

業務職掌

高速公路局主要的任務，在於掌管國道路網的建設及營運事宜，涵蓋高速公路新建工程、拓建改善、公路養護、交通管理、收費業務及行旅服務等，除匯集工程及管理各領域的專業菁英，並秉持「效率」與「紀律」的一貫理念，在團隊分工的運作模式下，為所有用路人提供安全且便捷舒適的高速公路行旅服務。

高速公路局的組織成員包括 6 組（綜合、交通管理、業務、規劃、工務、路產）、5 室（秘書、人事、主計、政風、資訊），另設置北區、中區與南區養護工程分局，以及第一、第二新建工程處等單位。



Professional Duties

The Freeway Bureau's main duty is to handle matters related to the construction and operations of the national freeways, including new construction, expansion, improvements, maintenance, traffic management, toll collection, travel services and so forth. With "efficiency" and "discipline" as its guiding principles, the Bureau has assembled a team of elite professionals in various fields of engineering and management to provide a safe, convenient and comfortable freeway experience for all road users.

The Bureau has 6 divisions (General Affairs, Traffic Management, Toll and Service, Planning, Construction, and Land), 5 offices (Secretariat, Personnel, BAS, Civil Service Ethics, and Information Management), 3 regional branches in charge of maintenance (Northern, Central and Southern), and 2 engineering offices for new construction (First and Second).





CONGESTION-FREE 旅暢通 便捷家園 TRAVEL

縱橫千里，快速便捷的國道路網，為優質生活家園提供最可靠的動能，在其背後是無數工程菁英與技術團隊默默付出的成果；從工程建設的計畫醞釀、規劃設計、施工興築到公路養護，無一不匯集龐大資源與人力，才能促成今日這幅便捷行旅馳騁在陽關大道的美麗風情畫。

The fast and convenient network of national freeways provides a basis for reliable transportation, which is an essential component of high quality of life. This achievement is only possible because of the efforts of numerous outstanding engineering and technology teams who quietly perform their duties. From planning, design, and construction, to roadway maintenance, every stage of the life cycle of these engineering projects requires massive quantities of financial and human resources. It is only with them that today's beautiful scenes of fast and convenient travel on broad roadways are possible.





③ 木柵交流道
Muzha Interchange

DESIGNING AN 布設城際的大道 INTER-CITY HIGHWAY SYSTEM



國道規設

國道建設程序分為可行性研究、規劃、設計、用地取得及施工等階段，每一階段皆須秉持專業嚴謹精神，逐步向前推進，並主動依交通需求積極辦理新建、拓建或改善，提供用路人可長可久、永續使用的高速公路路網。

規劃設計力求嚴謹並導入永續思維

國道建設計畫經費需求龐大，且必須層層把關，每一計畫都經過相當嚴謹之審核程序，確定計畫公益性及必要性，且必須先進行可行性研究，評估工程技術、經濟效益及財務來源等，研擬各種可行方案進行工程研究，再依成本及效益分析結果，提出最適宜的方案。

可行性研究審核確定通過後，則進入規劃設計階段，依據可行性研究結果，選定最適方案進行工程規劃，並辦理環境影響評估，在計畫經行政院核定及通過環評後，辦理工程設計，進行路線、設施及結構細部設計、研訂工期、編擬工程預算及發包文件等作業。

近年來，國道建設更積極導入「全生命週期」理念與管理系統，從規設階段即將未來的維護成本及效率列入考量，透過各項監測及管理技術，建立符合成本效益的管理模式，以前瞻性的風險管理，使國道能夠更加安全、延長使用壽命，提供用路人永續服務。

Planning the Nation's Highways

The national freeway infrastructure can be divided into various stages: feasibility studies, planning, design, land acquisition and construction. Each stage requires strict adherence to professionalism. Over time, active attempts need to be made to assess transportation demand and carry out constructions, expansions or improvements accordingly, providing road users with a long-lasting and sustainable freeway network.

Rigorous Planning and Design under an Ethos of Sustainability

Because national freeway construction projects require enormous amounts of financing, checks and vigilance are needed at every stage. Each project is subject to rigorous review procedures to ensure its public benefit and necessity. The projects and plans must undergo feasibility studies, as well as assessments of engineering technology, economic efficiency and funding, with research carried out on the merits of various courses of action. Only then can the most suitable highway plan be proposed based on the results of proper cost-benefit analysis.

After the feasibility studies are reviewed and approved, the projects enter the planning stage. Based on the results of feasibility studies, the most suitable engineering plans are developed, and an environment impact assessment(EIA) procedure is carried out. After a plan obtains the necessary environmental impact assessments and gets approval from the Executive Yuan, then comes the stage of engineering design, which involves such aspects as route selecting, facilities and structural details, the construction timelines, the budget, the tender documentation, and so forth.

In recent years, the Bureau has introduced life-cycle concepts and management systems for freeway projects. Beginning at the planning stage, future maintenance costs and efficiencies are carefully considered. Making use of various forms of monitoring and management techniques, a cost-effective management model has been established. With fore-sighted risk management, national freeways are now safer and last longer, thus providing road users with sustainable service.



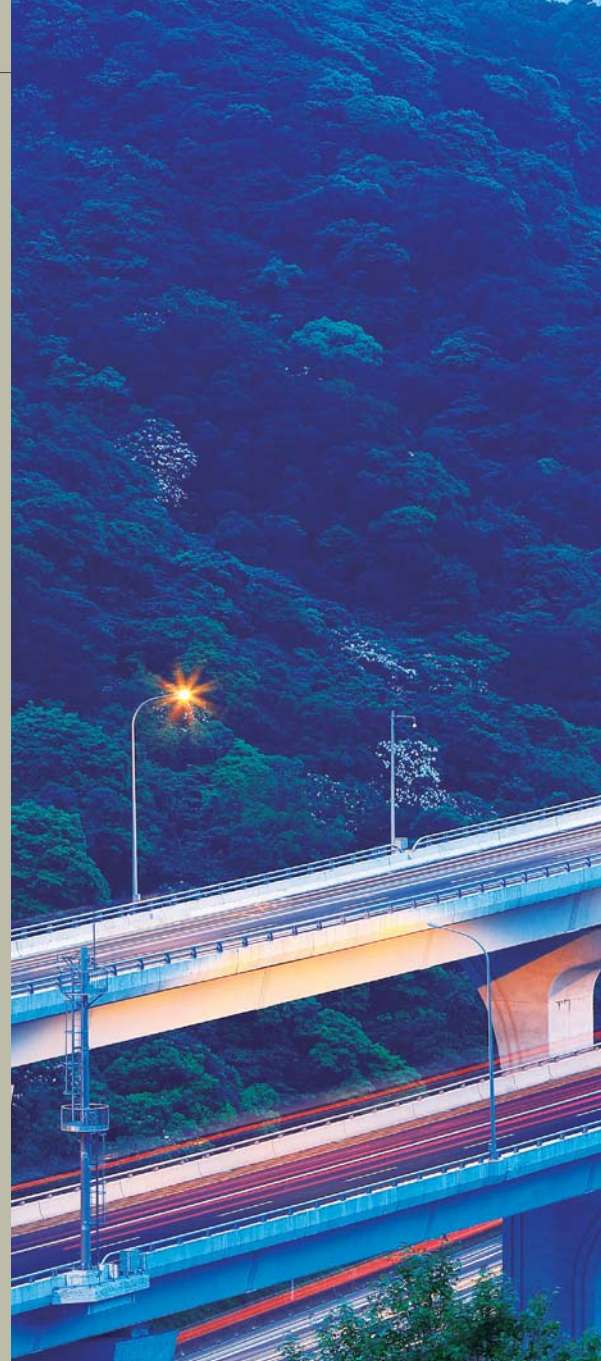
5 頭城交流道改善示意圖
Toucheng Interchange improve engineering

依據運量需求辦理拓寬及改善

當區域人口因交通便捷後快速發展，運輸需求亦隨之成長，一旦交通量大於道路容量便會造成交通壅塞，除了開放路肩、增闢輔助車道等短期交通管理措施外，長期之道則有賴道路拓寬工程來改善。

國道拓寬一般可分成 2 種類型，第一種為平面向外側增建車道；第二種為興建高架道路，如國道 1 號汐止楊梅段。由於拓寬工程通常在已通車的國道旁施工，必須同時兼顧車輛通行與施工安全，對施工團隊的工程技術與困難度都是一大挑戰。

另外，考量地區整體需求及建構更完善的交通路網，以因應交通現況與未來旅運需求，須於適當地點增設交流道，或改善既有交流道，例如國道 1 號臺南交流道改善工程及國道 3 號增設南雲交流道工程等。





五楊高架路段—雙層橋
Double-Deck
Wugu–Yangmei Elevated Road

Expanding and Improving Freeways as Needed

When the population of an area grows quickly as a result of convenient transportation, then traffic demand will likewise grow. Once that demand exceeds roadway capacity, resulting in frequent congestion, then aside from short-term measures such as opening shoulders and auxiliary lanes provided the only long-term solution is road widening.

There are two basic types of national highway widening projects: The first involves adding new lanes to the original roadway. The second involves building viaducts, such as the Xizhi-Yangmei Elevated on National Freeway No. 1. Because these expansion projects commonly proceed next to moving traffic, it is necessary to protect both the passing vehicles and the construction workers. These twin needs pose big technical challenges to construction teams.

What's more, both in consideration of a location's overall needs and in consideration of the desirability of increasing the general roadway network and its interconnectivity so as to meet current or future travel needs, interchanges often must be added or improved. Take, for instance, the projects to improve the Tainan interchange of National Freeway No. 1 or the project to add the Nanyun Interchange of National Freeway No. 3.



用地取得追求政府與民間雙贏

在國道興建過程中，「用地取得」是重要的先驅工作。由於高速公路用地往往牽涉到許多個人產權，必須專業詳實、依法辦理以保障民眾權益，除了路權測量、都市計畫變更、公共管線遷移之外，還包括土地徵收、公地撥用、地上物拆遷等工作，不僅必須與路線經過地區的縣市政府充分配合，對於私有土地的地主，也應採取合理的徵收補償措施。

Win-Win for Government and Citizens

In the process of the national freeway construction, land acquisition constitutes an important preliminary task. Because acquisition of land for national freeways inevitably involves the property rights of many people, the process must be carried out in a professional, accurate and legal manner that protects people's rights. In addition to right-of-way surveys, planning designation changes, and public pipeline relocations, the process also involves private land acquisition, public land appropriation, and building demolitions. It requires collaborating with the relevant county and municipal governments, and paying reasonable compensation to private landowners.



BUILDING A NETWORK

夯實經貿的網絡

SUPPORTING ECONOMIC GROWTH

國道工程

高速公路為我國最高等級的公路系統，在建設過程中無論是橋梁、隧道及路面等各項硬體工程，皆採用最高規格標準及優質工法技術，並落實工程品質的嚴格把關，精塑出安全穩固的交通建設工程。

橋梁集技術與藝術之美於一身

橋梁能使國道順利跨越河川或特殊地形，且隨著橋梁工程技術的成熟，其在國道工程的重要性日益提升。

為落實節能減碳及綠建築理念，近年來國道橋梁多採輕量化與大跨徑配置，並以創新精神引用許多新材料、新工法及新技術，在設計與施工各方面皆更為細膩與進步，使國道橋梁儼然是一件件精心打造的工程藝術作品。



National Freeway Projects

Freeways are the highest level of roadway in Taiwan. All components of their construction—whether bridges, tunnels or road surfaces—are made to the highest standards and with the best construction methods and technologies. Every measure is taken to ensure engineering quality that will result in safe and stable transportation infrastructure.

Bridges: Technological and Aesthetic Wonders

Bridges allow national freeways to traverse rivers or unusual geographical features. With the maturation of bridge engineering, their importance to national freeway construction is only increasing.

In keeping with carbon-emissions-reduction and green architecture principles, most recently built freeway bridges have lightweight long spans. In a spirit of innovation, many new materials, construction methods, and technologies have been adopted. Both the design and constructions have advanced, with more meticulous attention given to their details, bridges on national freeways have become splendidly rendered works of art.



高屏溪斜張橋

Gaoping River Cable-Stayed Bridge



隧道工程施工技術日新月異

臺灣屬於多山地形，國道工程常須開鑿隧道以通達山脈彼端，以往多採鑽炸法或機械進行山岳隧道的挖掘作業，經過數十年的技術提升，國內隧道施工技術已有長足發展，例如國道 3 號就開始全面採用「新奧工法」，利用岩體本身的荷重自持能力，以噴凝土、岩栓及支保等支撐構件達到應力平衡，使開挖後的隧道穩定、安全。

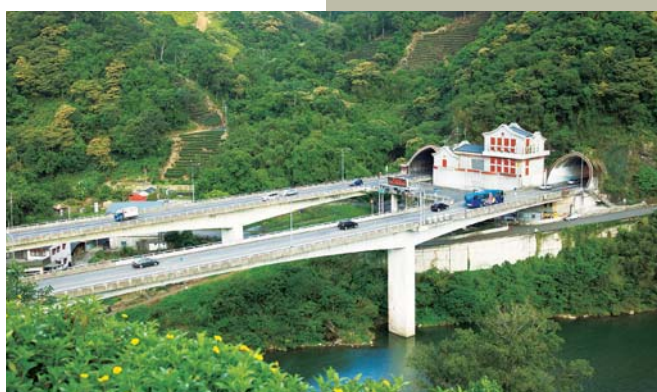
國道 5 號雪山隧道長達 12.9 公里，為縮短工期及減少環境干擾，首度引進「全斷面鑽掘機（TBM）」施工，但因雪隧沿線的地質破碎且複雜，遭遇到的四稜砂岩硬度更甚於鋼鐵，歷時 15 年才完成，工程萬分艱鉅，民國 95 年通車時為亞洲最長之公路隧道。

Advancements in Tunnel Technologies

Taiwan has a mountainous topography, and when building national freeways it's often necessary to traverse mountains via tunnels. In years past, the drill-and-blast method was typically used for tunnel excavations. After many decades of improvements, great strides have been made in advancing tunnel boring methods in Taiwan. Beginning with the National Freeway No. 3, the New Austrian Tunneling Method (NATM) has been used for all new tunnel constructions. The method leverages the inherent strength of the surrounding rock mass to support the tunnel. Shotcrete, rock bolts and supports are used to support the tunnel ceiling and achieve a stress balance. After excavation, these tunnels are stable and safe.

The Hsuehshan Tunnel on National Freeway No. 5 is 12.9 kilometers long. In order to shorten the construction period and reduce environmental disturbances, a tunnel boring machine (TBM) was employed for the first time in Taiwan. However, aside from difficulties created by the fractured and complex geology of the work site, the Szeleng sandstone that the excavation team ran into was harder than steel. This extremely challenging project took 15 years to finish. When it was opened to traffic in 2006, it was the longest highway tunnel in Asia.

5 雪山隧道坪林端
Hsuehshan Tunnel-Pinglin



鋪面工程考量臺灣氣候條件

鋪面工程在國道興建過程中，是用路人最能直接感受道路品質之處，無論路面是否平坦、有無積水、環境噪音及車輛輪胎損耗等，在在影響著行車的舒適度與安全性。

國道的鋪面主要分為以瀝青為材料的柔性路面，以及以水泥為材料的剛性路面；由於臺灣氣候多雨潮濕，必須考量能夠迅速排除路面積水，並減少水霧以免影響行車視線，近年開始採用「多孔隙瀝青混凝土（PAC）」材料，以提升國道雨天行車的抗滑性能。



Pavement Engineering Suited to Taiwan's Climatic Conditions

Of all that goes into building national freeways, pavement engineering is what most directly impacts road users' experience of road quality. Pavement engineering affects whether the road is level, collects water, is noisy, or creates tire wear. All of these factors have a big impact on how comfortable and safe a highway is for users.

Paving Taiwan's national freeways typically involves covering with asphalt for a softer surface or concrete for a harder surface. Because of Taiwan's wet and humid climate, it is essential for the road surface to have good drainage, so as to keep spraying to a minimum and improve visibility during rains. In recent years, there has been a move toward using porous asphalt concrete (PAC) in order to prevent hydroplaning.



3 中港系統交流道 (夜景)
Zhonggang System Interchange (Night)

MILESTONES IN
守護逐夢的里程
MAINTENANCE

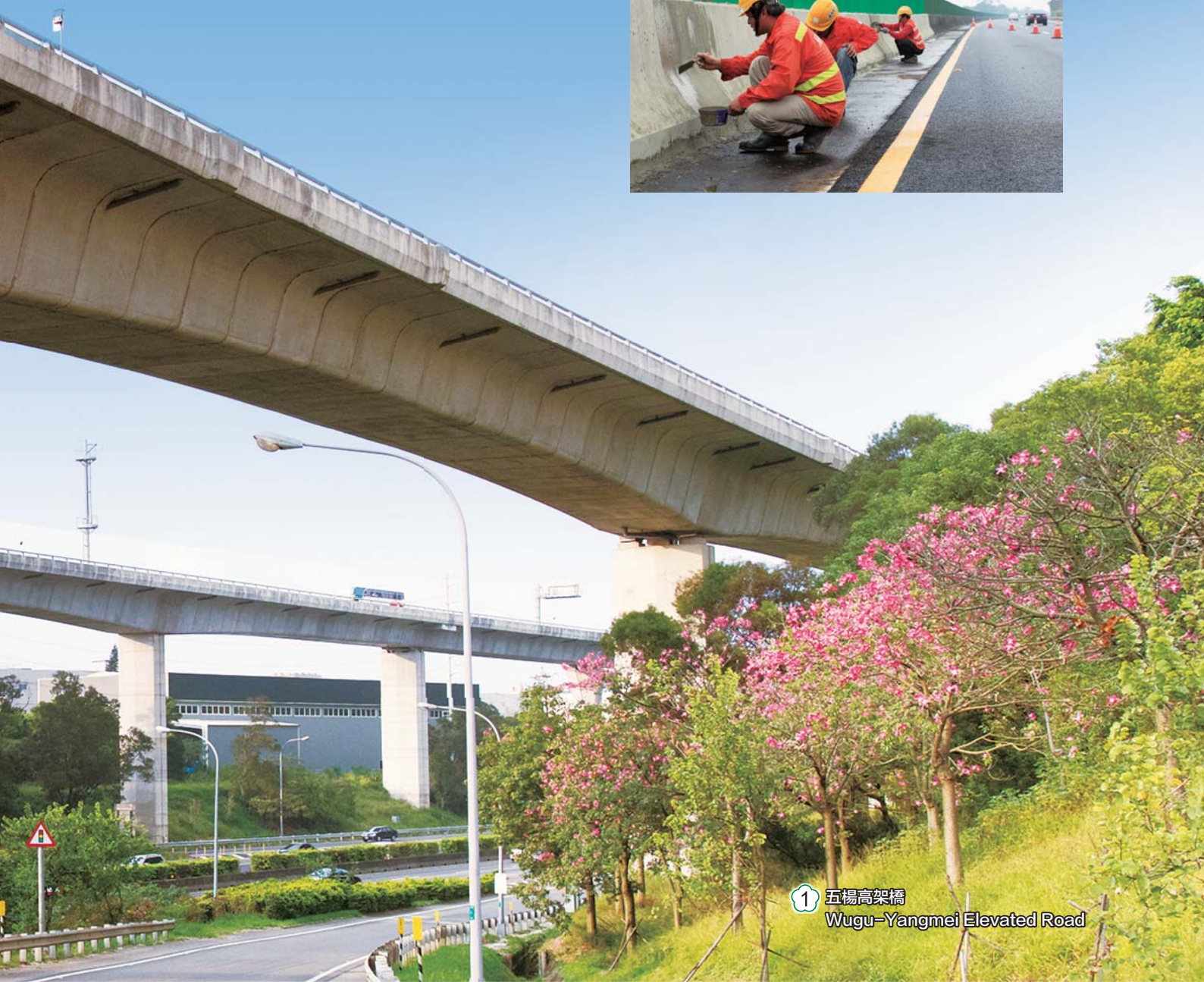


道路養護

國道興建完成後須仰賴持續不斷的養護工作，以提供國道行車的安全與舒適，養護重點包括國道路基、路面整修，沿線邊坡、橋梁、隧道管理維護、排水設施、路容景觀、交通安全設施等，在全生命週期管理概念下，為國道行旅的永續服務，提供更為強固的保障。

Freeway Maintenance

After the national freeways are completed, there is need for continual maintenance to keep road users safe and comfortable. Important focuses of maintenance include repair, renovation, and maintenance of the road bed, pavement, shoulder slopes, bridges, tunnels, drainage facilities, landscaping, and traffic safety features. Under a conception of life cycle management, the Bureau aims to provide sustainable service and greater safeguards to travelers on Taiwan's national freeways.



① 五楊高架橋
Wugu-Yangmei Elevated Road

國道養護首在定期巡查維修

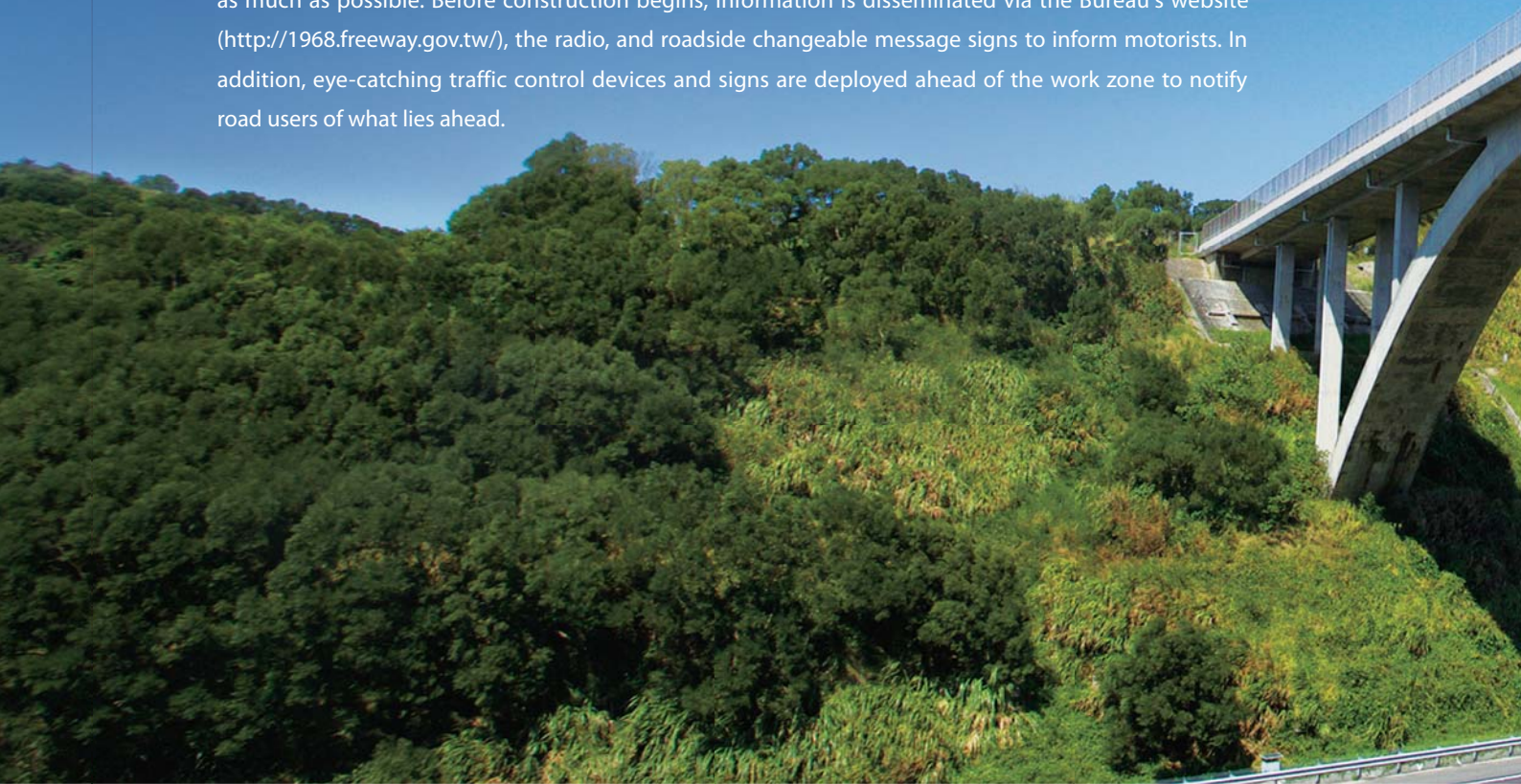
國道每一個轄區路段均配置有各類養護專業人員，進行例行及定期巡查工作，並利用智慧型手機及平板電腦進行缺失拍照、定位及記錄，即時回傳後端管理系統，以採取適當養護措施，如為了維護國道良好的鋪面品質，必須每日派員巡查檢視，遇有鋪面損壞狀況便隨時修護，並定期實施平坦、抗滑及撓度檢測，以增進國道鋪面結構穩定，確保用路人的行車安全。若遇公路遭受阻斷或有危及安全的風險，也會立即通報並予以搶修排除障礙。一有暴雨、颱風、地震、事故後須立即辦理特別巡查、通報與修復，以提供國人安全之用路環境。

為了不影響交通，國道養護工作儘可能避開日間尖峰時段，於車流量較少的夜間或離峰時段施工，施工前除了透過國道資訊網站、廣播電台及路上的資訊可變標誌，提醒用路人施工訊息，也在施工路段前設置醒目的管制設施和標誌，預先告知前方路況，以提醒用路人及早因應。

Regularly Scheduled Inspections and Repairs

Every section of a national freeway is assigned its own maintenance personnel, who perform regular inspections. These professionals use smart phones and tablets to document any issues via photographs, location positioning and notes. The documentation is then sent to a back-end management system immediately to determine the appropriate maintenance measures to take. For example, to maintain excellent pavement quality on national freeways, inspections are conducted daily, and repairs are carried out immediately. Moreover, pavement levelness, skid resistance, and deflection are regularly tested and measured to ensure the integrity of the pavement and protect the safety of road users. When there are roadway obstructions or threats to safety, reports are made in real time to facilitate emergency repairs. After downpours, typhoons, earthquakes or accidents, there must be immediate inspections, reports and repairs, so as to provide our citizens with a safe roadway environment.

So as to minimize its impact on traffic, maintenance work is restricted to off-peak and nighttime hours as much as possible. Before construction begins, information is disseminated via the Bureau's website (<http://1968.freeway.gov.tw/>), the radio, and roadside changeable message signs to inform motorists. In addition, eye-catching traffic control devices and signs are deployed ahead of the work zone to notify road users of what lies ahead.





③ 通霄 1 號跨越橋
Tongxiao No.1 Overpass Bridge



橋梁補強是國道延壽的重要工作

臺灣位於亞熱帶氣候及環太平洋地震帶，不僅處於高濕度及高腐蝕環境，且颱風、豪雨頻繁，因此橋梁檢測、維修及補強，一直是國道養護工作的重點項目。

為強化橋梁安全，自民國 80 年初即率先引進橋梁檢測車，並建立資訊化的橋梁管理系統；90 年之後隨著橋梁數量倍增，持續投入更多經費及人力設備，除傳統工程手段外，更結合最新科技，建立橋梁健康診斷系統，以即時全程監控橋梁狀況。

因應極端氣候的挑戰，921 地震後即積極推動橋梁耐震補強工作，全面提升國道橋梁耐震標準，以更高的抗震性能確保國道成為救災生命道路，同時，橋梁維護或補強等各項管理作為皆邁入全生命週期管理模式，以詳細完整的紀錄、預防性的維護及科學化的管理，保障橋梁安全並提升強度與壽命。



Extending Freeway Service Life with Bridge Reinforcements

Taiwan is located in the subtropical climate and in the area of the Pacific Rim seismic zone, with high humidity and highly corrosive environments, and typhoons, heavy rains frequently. Accordingly, bridge inspection, maintenance and reinforcement project have been the focus of national freeway maintenance work.

In order to strengthen bridge safety, the Bureau started to introduce the bridge inspection vehicles in 1991 and subsequently established a bridge management system. With the number of bridges multiplying after the beginning of this century, the Bureau continue to invest more funds and manpower equipment in bridge inspection and maintenance. Apart from traditional engineering measures, the latest technologies have been employed to create a bridge health diagnosis system to thoroughly monitor the conditions of bridges in real time.

After the Chichi earthquake on September 21, 1999, the Bureau actively took bridge seismic retrofit program. To enhance the national freeway bridge seismic capability for all national freeway bridges to ensure that national freeways remain lifelines when disaster strikes. Meanwhile, the Bureau employs the life-cycle management model to manage its bridge maintenance and reinforcement work, using detailed and comprehensive records, preventative maintenance and scientific management to ensure the safety of bridges, as well as increase their strength and service life.



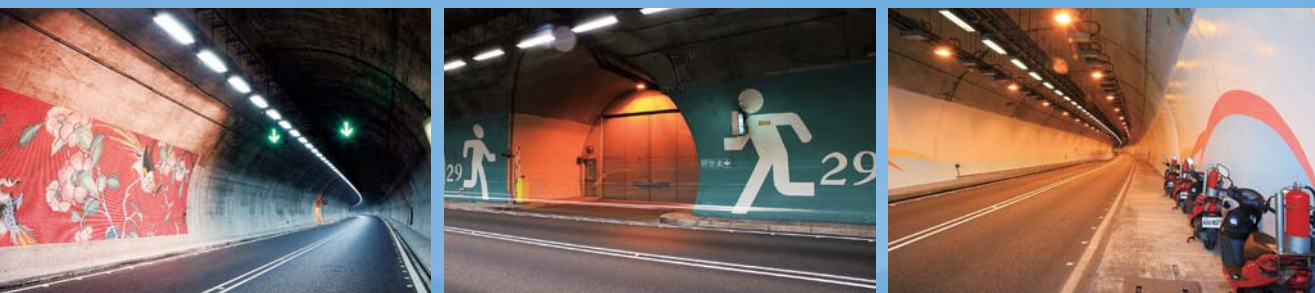
脊背橋

Extradosed Bridge

落實隧道安全防救災工作

國道隧道設置通風、消防及照明等自動監測設備，各區交通控制中心亦設有交通監控系統，即時掌握隧道區內所有路況，遇有事故可自動反應，接獲事件時也能夠即時處理排除。隧道養護作業除了固定巡查及清洗襯砌之外，隧道及機房內部各項機電設備、交控設施等，都按照週期執行養護，使設備保持良好狀態。

國道 5 號雪山隧道通車時為全世界第 4 長的公路隧道，為了使防救災工作順利推動，除進行雪山隧道總體檢外，亦依檢查結果辦理各項系統設備提升，建置先進的影像式事件自動偵測系統，並訂定相關防救災應變計畫，每季均設計不同情境辦理演練，以加速事故處理效率，確保隧道行車安全。



Firmly Implementing Tunnel Safety and Fire Protection Work

The tunnels on national freeways are equipped with a variety of sensors to detect fires and monitor ventilation and illumination for safety. Each regional traffic control center is outfitted with a traffic surveillance and control system that enables the center to gain an understanding of road conditions in real time. The monitoring system also triggers certain automatic responses when incidents occur. Furthermore, these centers also make every effort to clear roadways as soon as they receive reports of obstructions. In terms of tunnel maintenance, apart from regular inspections and cleaning of the tunnel lining, the electromechanical equipment in the tunnel and the machinery room, the traffic control devices, and so forth are subject to periodic maintenance to keep them in tip-top condition.

The Hsuehshan Tunnel on National Freeway No. 5 is the world's fourth-longest road tunnel when opened. In order to ensure that disaster relief operations will run smoothly should incidents happen, a total check-up of the tunnel was carried out, and various upgrades were made based on the results. An advanced video-based automatic incident detection system was installed, and related fire response plans were drawn up. Every season drills are performed based on varying scenarios, so as to speed up accident response times and ensure the safety of vehicular movement through the tunnel.



邊坡定期巡查與監測以策安全

由於臺灣屬多丘陵地形，國道路線難以避開邊坡開挖路段，加上時有地震或暴雨等天然災害，因此必須針對國道邊坡，進行定期性監測及檢測作業，並運用全生命週期的維護管理概念，建立完整的邊坡檔案，再依安全評估結果擬訂最適宜的維修管理方案。

根據統計，目前國道邊坡約 900 餘處，皆已全面完成地錨檢測、邊坡安全評估分級、補強設計及補強工程，以確保國道邊坡安全無虞，後續仍將持續實施邊坡定期巡查及監檢測作業，以提供用路人安全的行車環境。



①

五楊高架路段—泰山跨越橋
Wugu-Yangmei Elevated Road-Taishan
Overpass Bridge



Regular Inspection of Slopes to Ensure Roadway Safety

Because Taiwan has a largely mountainous and hilly topography, stretches of national freeways are inevitably built on steep slopes, which may then be subjected to earthquakes, torrential rains or other natural disasters. Consequently, regular monitoring and inspections of freeway slopes is necessary. Under principles of life-cycle management, comprehensive databases have been established, and the results of safety assessments are reviewed with an eye toward drawing up the most suitable plans for repairing and managing those slopes.

Currently, ground anchor inspections, safety assessments and ratings, reinforcement designs and engineering have been performed on around 900 freeway slopes, so as to ensure the safety and stability of those slopes. In the future, the Bureau will continue to perform regular inspections and testing to provide road users with a safe vehicular environment.





DILIGENTLY DEVELOPED **鍾百鍊 智慧運輸** INTELLIGENT TRANSPORTATION



10 鼎金系統交流道
Dingjin System Interchange



馳騁高速公路，逍遙享受便捷與舒適之旅，除了奠基於國道工程的建設及養護，另一功臣就是多管齊下的各種交通管理措施；資訊顯示及交通管制有效掌握路況、引導車流，計程電子收費節能減碳、提升效率，促成「綠色為本、智慧為用」的幸福交通運輸環境。

Fast-moving on freeways provide an unfettered, speedy and comfortable travel experience. Apart from the basic work of constructing and maintaining the national freeways, the Bureau also has responsibility over various traffic control measures. Information displays and traffic controls are employed to effectively gain a handle on roadway situations and guide traffic flows. A distance-based ETC system is employed to reduce carbon emissions and raise efficiency, facilitating a happy transportation environment that is "green in its basic character and intelligent in its applications."

MAKING CONNECTIONS AND 串織旅運的貫通 SMOOTHING THE PASSAGE

交通管理

各國道建設完成之後，隨著社會發展及用路需求成長，部分路段陸續出現壅塞情形，短期間難以拓建道路增加道路容量，必須運用交通管理手段降低壅塞並提升用路效率，此乃交通管理的重要課題。

多元化交通管理措施以應萬變

為了有效疏導國道車流、降低壅塞，主要運用的交通管理措施包括：

- 降低需求：高乘載管制、入口匝道封閉、匝道儀控、大客車優先措施等；
- 增加供給：尖峰時段於特定路段開放路肩、闕設輔助車道等；
- 時間分散：匝道儀控、高乘載管制、暫停收費、差別費率等；
- 空間分散：路況資訊提供、利用替代道路等。

在高速公路上，無時無刻都有客貨行旅往來穿梭，交通控制中心的運作也全年日夜無休提供路況服務，每逢連續假期，國道車流量總是比平時高出許多甚至加倍，為維持服務品質，除依各假期特性規劃交通疏導措施及協調相關單位執行外，交通控制中心更必須全體動員，犧牲假期來因應各種狀況，以使假期疏運更為順利。



五楊高架路段

Wugu-Yangmei Elevated Section



Traffic Management

After the completion of each of our national freeways, with subsequent development and growing road use, sections of the freeway inevitably begin to suffer congestion. Considering how highway widening projects cannot be achieved overnight, it is necessary to employ traffic operation measures to decrease congestion and increase roadway efficiency. This is an important topic for traffic management.

Dynamic Traffic Management Measures

In order to effectively ease traffic flows and lower congestion, important traffic management measures include the following:

- 1.Reducing demand: HOV control, on-ramp closures, ramp metering, bus priority, etc.
- 2.Increasing supply: opening shoulders during peak hours, auxiliary lanes, etc.
- 3.Time spreading: ramp metering, HOV control, suspending tolls, toll rate discrimination, etc.
- 4.Space spreading: traffic information provision, alternate routes, etc.

On the freeways, there is traffic coming and going at all times. Likewise, the traffic control centers operate day and night. During successive holidays, freeway traffic volume increases significantly, at times even doubling. In order to maintain service quality, apart from putting into place traffic control measures in accordance with the special characteristics of the holidays and collaborating with other relevant agencies, traffic control centers must fully mobilize its staff, who must sacrifice their own holidays in order to respond to any situation that may arise so as to keep holiday traffic flowing smoothly.



導入智慧型運輸系統與時俱進

隨著科技逐步發展，高速公路自 73 年起開始建置交通控制系統，是國道交通管理邁入智慧化時代的先趨。

藉由自動化交通資訊蒐集及運算，交通控制中心可全天候監視路況及提供交通資訊，更將資訊、通信、電子、控制與管理技術加以整合導入智慧型運輸系統（ITS），提供用路人更多元、正確且即時的路況，例如前方路段施工、濃霧、事故，或者壅塞車多情形等，並提供用路人預估旅行時間。

如果發生國道緊急狀況，交通控制中心透過資訊收集系統的監控，也能立即聯絡相關單位進行處理，並可利用交通控制系統，執行開放路肩或匝道儀控等交通管理措施，讓高速公路更為安全、更有效率。

Introduction of Intelligent Transportation Systems

In step with technological advancements, Taiwan first established traffic control systems on its national freeways in 1984. That represented the first step toward an era of intelligent transportation.

Through automatic traffic information collection and processing, the traffic control centers are able to monitor roadway situations and provide traffic information to the public 24 hours a day. Furthermore, the integration of various advanced communications technologies into the intelligent transportation system connects road users to accurate real-time traffic information through multiple channels, such as advance warnings about work zones, fog, traffic accidents or congestion. These centers also provide motorists with estimates of travel times.

When an emergency situation occurs on the national freeways, the traffic control center in charge. By monitoring the data gathering system, it can immediately notify the appropriate government agencies to respond. Furthermore, the center can use the traffic control system to take such measures as opening up shoulders to traffic or ramp metering, making the freeways safer and more efficient.



北區交通控制中心
Northern Region Traffic Control Center



交通路況資訊開放便利查詢

配合網路及智慧型手機的快速發展，交通資訊亦與時俱進透過各種管道提供，使得用路人可以取得的行車資訊，內容越來越豐富，查詢也更為便利。

101 年開始，「高速公路 1968 便民服務系統」整合了即時路況網站、免付費客服專線及手機 App，提供路況查詢、通報、道路救援、行程規劃及 24 小時免付費客服等多元服務，成為新世代國道 VIP 服務的最佳典範。

此外，隨著高速公路啟用計程電子收費，現在已可隨時掌握以往人工收費方式難以收集的用路人旅次起迄資料，透過即時與歷史資料的收集、交叉分析，建構出新世代的先進交通管理系統（ATMS）與先進交通資訊服務（ATIS），可以依據不同事件採取更精準的交通管制措施與交通預報，方便用路人選擇路線與時段，大幅提升運輸效率。



Easy-to-Check Traffic Situation Information

With the rapid development of the Internet and smart phones, traffic information today can reach road users via multiple channels. These data are growing more content rich and more accessible.

In 2012, the Bureau's "1968 Service System For Road Users" has integrated real-time traffic condition websites (<http://1968.freeway.gov.tw/>), toll-free customer service hotline and App to provide a wide array of services. These include responding to traffic information inquiries, issuing traffic reports, providing roadside assistance, and offering trip planning and 24-hour customer service, thereby creating a model of freeway VIP services for the new age.

What's more, with the freeways beginning to adopt distance-based electronic tolling, it is now possible to gather data about the origin and destination points of any given trip. Via the collection and cross analysis of current and historical data, an Advanced Traffic Management System and Advanced Traffic Information System were constructed. These systems lend themselves to more precise traffic control measures and traffic forecasts, based on different scenarios, making it easy for road users to select routes and times of travel. They can help to greatly raise efficiency.



SUPPORTING FREE FLOWING 便捷車流的來往 TRAFFIC

電子收費

民國 102 年 12 月 30 日臺灣是全世界第一個實施全面高速公路計程電子收費的國家，透過兩交流道間設置的感應門架，用路人不須停車繳費，即可偵測車輛行駛里程，自動計費扣款，使車流通行順暢，兼具節能減碳及公平收費效益。

運用基金制度健全國道營運

基於「使用者付費」原則，臺灣高速公路一直是屬於收費公路，依法向行駛高速公路車輛收取通行費，並於 83 年成立了「國道公路建設管理基金」，納入基金統籌管理，並採專款專用模式，推動國道興建、營運及維護管理作業，以落實高速公路永續經營目標，提供用路人良好的服務品質。





Electronic Toll Collection

On December 30, 2013, Taiwan became the world's first country to implement distance-based all electronic toll collection on all of its freeways. Via a toll gantry installed between two interchanges, motorists, without having to stop to pay the toll, are charged automatically for the distance traveled. Electronic toll collection system reduces congestion, saves energy, cuts down on carbon emissions, and charges fairly.

Applying Fund System for The Sustainable Operation of National Freeway

Based on user-pays principle, Taiwan's national freeways. In 1994 the National Freeway Construction and Operation Fund was established, putting funds from toll collection under the management of a single fund, to be distributed exclusively to build, operate and maintain the national freeways, so as to achieve the goal of sustainable management and provide road users with high-quality services.





計程電子收費落實公平理念

高速公路自 63 年開始採取主線柵欄式人工收費，為了加快繳費過站速度，於 72 年設置不找零車道，並於 85 年開辦小型車回數票專用車道。

雖然國道收費效率逐年明顯提升，但採取人工收費方式時車輛須排隊繳費導致減速駕駛以及回數票的印製使用，皆不符合節能省碳與綠色環保理念，另各收費站間距不同，以及未經過收費站者不須付費之爭議，使「走多少、付多少」的計費制度，也成為社會的共同期望。

隨著科技日趨成熟，國道電子收費採取 2 階段方式成功轉換為「國道計程電子收費」。首先高速公路收費站於 95 年設置計次電子收費系統（ETC 車道），並隨著 ETC 利用率之提升，逐步將部分人工收費車道改為電子收費車道，以提升收費效率。第 2 階段則是於 102 年 12 月 30 日正式將計次收費全面改為計程電子收費，並配合將原計次收費站拆除，改由橫跨主線上方的計程收費門架偵測收費，車輛不必停車過站，計費方式也從計次收費改為按行駛里程計費，實現公平收費的新紀元。

現階段使用 ETC 的車輛數已超過 650 萬輛，占全國車輛數 80% 以上，通行國道比率更高達 94%，從臺北開車到高雄全年節省旅行時間 1,300 萬小時（價值約新台幣 20 億元），且每年創造節能減碳效益達 24 億元，節省印製回數票數量相當於 122 棟 101 大樓的高度。

實施計程電子收費，不僅一次滿足用路人對於「公平」與「快速」的期望，更象徵國道智慧運輸向前邁進一大步。臺灣也是全世界第一個由人工計次收費成功轉換為計程全電子收費的國家，並將這些經驗有系統地行銷全世界。



- ① 楊梅收費站 ① 重置後 Yangmei Toll Station-After
 ② 重置前 Yangmei Toll Station-Before
 ③ 重置中 Yangmei Toll Station-Progress

Distance-Based ETC for Equality

Since 1974 the freeways began to use mainline barrier-controlled toll plazas to collect tolls manually. In 1983, in order to improve toll, no-change lanes for motorists were added. In 1996, lanes for small car motorists with toll tickets were opened.

Although the efficiency of toll collection has been gradually rising, manual toll collection has caused drivers to reduce speeds, and it has also created the necessity of printing toll tickets. Both of those expanded carbon footprints and were not environmental friendly. Furthermore, the distances between tollbooths varied, and drivers who drove on freeways without passing a tollbooth never had to pay any toll at all. These inequities created controversy and caused a collective wish in society to create a system that would charge based on actual distance traveled.

As technology advances, a two-stage migration is implemented to successfully turning into the distance-based electronic toll collection system we have today. The first flat rate ETC (electronic toll collection) lane went into operation in 2006, and over time as those using ETC OBU grew, more manually operated toll lanes were replaced with ETC lanes, raising the efficiency of toll collection. The second stage began on December 30, 2013, when the flat-rate system was formally replaced with a distance-based system. As part of this migration, the toll plazas were torn down and gantries that span across the mainline were installed. Vehicles no longer have to stop at tool booths and pricing has changed from having flat rates to being based on actual distance travelled, thus realizing a new era of equal tolls.

Today there are more than 6.5 million vehicles—more than 80% of Taiwan's registered vehicles equipped with eTag. The ETC utilization rate is higher than 94%. In a typical year the system saves more than 13 million hours among vehicles traveling between Taipei and Kaohsiung, at an economic valuation of NT\$ 2 billion. What's more, it annually creates NT\$2.4 billion of carbon-footprint-shrinking energy savings, and eliminates the need to print toll tickets that would, if piled in a single stack, reach the height of 122 Taipei 101.

The implementation of the distance-based electronic toll collection system has not only satisfied road users' desires for equality and speed, but it also represents a big step turning Taiwan's national freeways into intelligent highways. Taiwan is the first country to successfully move from manual flat-rate toll collection to a distance-based ETC system for its entire freeway network. Taiwan now markets its experiences systematically to the world.



BENEVOLENCE AND **仁為美 永續幸福** SUSTAINABILITY





國道穿越山川地理之遙，連結城鄉之間繽紛的故事，讓每一趟出外或回家的行旅，滿是幸福綿綿的喜悅；映入眼簾的是一幕幕與自然環境和諧的生命動脈，見證著土地永續發展的軌跡，還有一處處洋溢地方特色的溫馨小站，為疲憊的旅人蓄積快樂再出發的能量。

Traversing rivers and mountains, connecting cities and rural villages, the national freeways make every journey, whether leaving or returning home, a joyful experience. The roadways blend in harmoniously with nature and demonstrate a commitment to sustainability. Furthermore, along the freeways, there are many heart-warming service areas overflowing with local charm, allowing tired travelers to recharge their batteries before they get back on the road again.

CONNECTING TO 連結生態的風華 ECOLOGICAL SPLENDOR

路容景觀

隨著臺灣整體公共服務水準與交通文化的提升，國道建設不斷與時俱進，從第一代強調實用功能、第二代加入景觀綠美化元素，演變到第三代則融入生態與美學，而今更是兼容並蓄、全方位落實，以永續發展的思維出發，達到建設與環境共存共榮的理念與目標。

形塑生態與景觀的國道

國道沿線的植栽，具有降低空氣污染、減少噪音等功效，也能為用路人紓解視覺疲勞及放鬆壓力，並有引導視線、緩衝遮蔽等多元機能。國道工程施工後，均即進行植草穩固邊坡，並依其所在不同地理環境種植適宜該路段生長的多樣性樹種，儘速恢復自然環境樣貌。

為營造優美的國道景觀，必須在規設施工階段即納入生態及景觀的考量，營運階段則要定期辦理路容清潔、割草與植栽養護等工作，部分路段更配合生態環境，積極復育具觀賞性的原生植栽，如臺灣百合、白及等，讓這些美麗的花朵在高速公路邊坡迎賓綻放。



Landscape

Along with promotion public service standards and transportation culture in Taiwan, the national freeways have been continually progressing, from emphasizing functionality in the first, second to add landscaping and beautification, and finally blends in concepts of ecology and aesthetics. Today, with sustainable development as its guiding principle, the national freeways have integrated all of these aspects to achieve the goal of allowing national infrastructure and the natural environment to thrive together.

Scenery and Ecology Landscaping

Planting along freeways serves to reduce air pollution and noise, relieve drivers' visual fatigue and stress, direct drivers' eyesight and absorbing the impact, masking bad scene. After embankment of freeways were completed, all of them had grassed to stabilize slopes. Different varieties of trees were planted according to geographical environment of the section of freeway, helping the freeway corridors to restore a nature environment as soon as possible.

In order to create beautiful national landscape, it is necessary to consider ecological and scenic aspects during the planning and construction stage. Once in operation, work to keep the roadway clean, the grass mown and the plants pruned must be regularly scheduled. Along certain section, steps are taken to restore ornamental native plants of the region by showcasing beautiful native flowers such as Taiwan Lily and Yunnan Bletilla.



師法自然建立友善國道

本於尊重生態及友善環境的理念，近年來國道新建工程在規劃設計階段，即依照「迴避」、「縮小」、「減輕」、「補償」的原則，盡量使路線避開環境及生態敏感區域。

為增加生物多樣性，國道建設也積極採取大面積邊坡綠化、設置生態池及生物廊道等措施，進行生態復育及棲地補償，提供動植物的生存空間，例如國道 1 號高科交流道、國道 6 號的東草屯交流道與愛蘭交流道的生態池，營造出兼具滯洪與生態的濕地環境；國道 3 甲緊鄰臺北市富陽自然生態公園的邊坡，以棲地重塑概念營造淺水濕地環境，成功復育為臺北樹蛙的棲地。

實施多年的「國道讓蝶道」已發揮顯著防護成效。每年清明前後，紫斑蝶大量移徙飛越國道 3 號林內段，為了降低車流對紫斑蝶的影響，特別設置防護網並種植植栽，以協助其飛越國道；在紫斑蝶遷徙尖峰期（蝶流量每分鐘超過 300 隻），更封閉北上外側車道，使影響減至最低，歷年調查顯示，紫斑蝶致死率已由 96 年實施前的 3-4%，大幅降至 0.2-0.3%。這是高公局重視生態的具體作為，也被國際媒體大幅報導與讚揚。

此外，國道 1 號臺中交流道因鄰近溪流成為白鷺鷥棲地，繁殖期間特別於護欄下方設置防護網，以免亞成鳥誤闖車道；國道 3 號通霄、白河路段路側亦設置動物防護網，以動物通道或跨越橋連結道路兩側棲地，為動物保留生機，凡此種種皆顯見高速公路局用心保護土地與生命的積極作為。



① 機場系統交流道（生態池）
Airport System Interchange (Mesocosm)

Friendly Freeways that Learn from Nature

Striving to be more ecologically and environmentally friendly, recent new projects of national freeway at the planning stage have looked to avoid environmentally and ecologically sensitive areas under the principles of avoidance, reduction, mitigation and compensation.

For increasing biodiversity along national freeways, large areas of slopes have been planted with green vegetation and ecological ponds, and wildlife corridors have been established to restore local ecology and compensate for habitat loss. Take, for instance, the ecological ponds (which serve as flood detention pools and support wetlands ecologies) near Kaohsiung Science Interchange on National Freeway No. 1 and the East Caotun and Ailan interchanges on National Freeway No. 6. Meanwhile, Taipei City's Fuyang Eco Park near National Freeway No. 3 has made use of a shallow wetland environment under the concept of habitat restoration, successfully creating a habitat that supports native Taipei tree frogs.

The Bureau's "national freeway giving way to butterflies" initiative has been in place for years and has already borne fruit. Every year around the Tomb Sweeping Festival, purple crow butterflies migrate en masse across the Linnei section of National Freeway No. 3. In order to reduce the impact of traffic on the butterflies, the Bureau has installed protective net and planted trees to raise the tree canopy above the screens so as to help the butterflies fly over the freeway. At the peak of the migration (when more than 300 butterflies move across the freeway per minute), the outside northbound lane of the freeway is closed, so as to minimize the freeway's impact on the migration. Data collected over the years show that rate of butterfly deaths during the passage has declined dramatically—from 3-4% in 2007 before the initiative to only 0.2-0.3% after. This is a concrete demonstration of the Bureau's attention to ecological preservation, which has been much reported on and praised in the national media.

What's more, because the river near the Taichung Interchange of National Freeway No. 1 is a habitat for egrets, protective net are erected on the freeway during the breeding season to prevent young birds from flying into moving traffic. Meanwhile, along the Tongxiao and Baihe sections of National Freeway No. 3, animal corridor screen has also been erected, and wildlife corridors and overpasses have been build to reconnect habitats divided by road. All of these efforts demonstrate the Bureau's commitment to protect the land and conserve wildlife.



融入美學於工程之中

自國道 3 號開始，國道工程規劃加入了美學思考，多樣化的景觀設施及裝置藝術，為剛硬的工程建設，注入了柔軟的元素。無論從橋梁、橋墩的形式設計，服務區的地方特色或建築美學展現，甚至是隔音牆的造型與色彩等，處處都可以見到將景觀藝術與道路工程融合的用心。

隨著時代不斷進步的國道建設，不僅有堅固的工程基底，更成為藝術美學與地方文化的載體。目前國道沿線的服務區、交流道、跨越橋或隧道壁面等處，往往都是公共藝術作品的展示區間，有些充滿意象概念，有些則是在地風情展現，成功打造出不同的空間體驗與驚喜。





3 清水服務區——歷史之眼
Qingshui Service Area—Historie

Bringing Beauty to Engineering

Beginning with National Freeway No. 3, national freeway planning has taken into consideration aesthetic issues, including a variety of scenic facilities and art installations to soften hard engineered infrastructure. Whether in terms of the designs of bridges and bridge piers, the special local character given to service areas, the aesthetic awareness displayed in the architecture, or even in the design and coloration of freeway sound barrier walls, there has been a visual commitment to merge the beautiful and scenic with freeway infrastructure.

With advancements over time, today's national freeway projects, apart from being built upon a solid foundation of engineering, have all become vehicles for the arts and local culture. Currently, national freeway service areas, interchanges, overpasses and tunnel walls have often become spaces for public art. Some of these artworks are conceptual and abstract. Others are displays of local flavor. All successfully deliver different experiences and unexpected joys.

SERVICE AREA

傳遞驛站的溫馨

THAT CONVEY WARMTH



行旅服務

國道服務區的設置，提供因長途旅行而疲累的用路人一個適當休息空間，對於增進行車安全有莫大的助益，近年來在引入民間廠商經營之後，更讓服務區充滿活力與創意，各具特色，不論是多樣化的庶民餐飲，或是精心打造的人文風景，在在成為國道行旅中令人耳目一新的休憩焦點。

不斷提升服務區站的服務品質

為提供國道行旅更貼心的服務，目前國道1號、國道3號及國道5號共設置14處服務區、3處休息站。近年來，全面針對區站的服務設施進行改善與創新，例如友善的公廁、溫馨的哺（集）乳室、夜間婦女專用停車位以及紓緩疲勞的駕駛人休息室等。

此外，隨著時代環境的改變，主動積極從用路人的角度端思索提供各項新的行旅服務，例如免費的手機充電、便利的無線上網等，透過諸多貼心服務措施，讓用路人的滿意度呈現大幅提升。

Services for Travelers

Freeway service areas provide travelers who are fatigued from their long journeys with a place to rest for the promotion of road safety has a great helpful. In recent years, after the introduction of private operating companies, leaving the service areas full of vitality, creativity and distinctive. Whether through the diverse by Civilian Tastes or the meticulously created by Cultural landscape, it is becoming the focus on national freeway of rest in refreshing.

Constantly Raising Quality at Service Areas

To provide more intimate service, there are 14 service areas and 3 rest stops in the national freeways No. 1, 3, and 5 at present. In recent years, the service areas have undergone renovations. For instance there are friendly public restrooms, Breastfeeding rooms, Night Parking Lot for Lady Only, and Driver's Lounge for relieve fatigue.

Moreover, the Bureau proactively to provide the new requirements from people perspective as times change. Such as Free cell-phone charging stations, convenient Wi-Fi and so forth are considerate measures that have greatly raised traveler satisfaction.

督導民間廠商營造服務區特色

國道服務區的經營，在「庶民餐飲」、「人文關懷」、「鄉土融合」、「社會回饋」等 4 大理念下，充分結合生態、環保、教育、觀光等元素，不斷提出各項嶄新作為，並透過服務區考評及滿意度調查等措施，持續督導經營廠商的運作，以提供用路人更好的服務。

服務區除了邀請知名品牌廠商進駐，也提供多項安心衛生、健康美味的銅板美食；區站更規劃富有教育意義的生態景觀，靜態的藝文展覽，以及動態的街頭藝人演出，還有傳遞和分享好書的「漂書站」，給予用路人豐富的心靈饗宴。





Creating a Service Areas Distinctive Flair

With four concepts of Civilian Tastes, Humanistic Caring, Integrating with Local Characteristics and Community Feedback. Service areas are operated in a manner to integrate eco-friendly, educational and sightseeing to constantly presented as the new. By Service Area Evaluations and Satisfaction Surveys measures, the Bureau has continued to inspect private operating companies that provide the better services.

In addition to inviting famous brands to stationed and to provide safe, sanitary, healthy, inexpensive and delicious food, the service areas also offer educational ecological landscape, art installations and exhibits, performances by street entertainers, and BookCrossing stops that promote the sharing of good books. In summary, these services give travelers a feast for their bellies, minds and spirits.



DEDICATING TO
永續國道的耕耘
SUSTAINABLE FREEWAY



未來願景

高速公路是國家重要的交通基礎建設，擔負運輸發展與生命線道路的使命，也遞送著人民的幸福與溫情。

數十年來，國道發展在工程建設與維護管理的持續精進下，已經建構出堅固的交通磐石及優異的服務品質，無論工程技術或服務內涵皆不斷創新與提升，使國道路網充分發揮最大的運輸效益。

Vision of the Future

Freeways comprise an important part of a nation's basic transportation infrastructure. They facilitate transportation, provide lifeline routes, and deliver happiness and warmth to people's lives.

For several decades, with steady advancements in matters related to construction and maintenance, the Bureau has created a strong freeway network that offers high-quality service. There have been considerable innovations and improvements in construction technology and service content, which have allowed the national freeway network to achieve great transportation efficiency.

國道是現代生活不可或缺的一環，高公局對於生態環境的維護更有責無旁貸的義務，無論在規劃設計、施工及養護各階段，皆須盡力尋求與環境之間的平衡，並以國道全生命週期管理的方式，使經費發揮最大的投資報酬率，各項設施獲得妥適管理維護，提供用路人安全、安心的行車環境，達成國道永續經營的願景。

展望綠色交通的未來，在智慧化運輸管理技術愈益成熟的同時，高速公路局將有效結合電子收費資料，透過先進科技與巨量資料的應用，研發新一代交管措施與精準路況資訊，提供用路人更豐富完整的訊息，使國道路網成為交通服務的標竿，讓每一位用路人的旅途，都能更加平安、順暢。



The national freeways are an essential part of modern life, and the Freeway Bureau is committed to protecting the environment. Whether in the planning, construction or maintenance phases, the Bureau strives to find a balance between the need for infrastructure and the environment. Furthermore, under the principles of life-cycle management, money is spent to achieve the biggest bang for the buck with facilities receiving appropriate maintenance so as to provide a safe and relaxed vehicular environment that achieves the national vision of sustainability.

In looking toward the future of green transportation, at a time when intelligent transportation management technologies are quickly maturing, the Freeway Bureau will throw itself into developing a new generation of traffic control measures and into providing precise traffic information. By utilizing ETC data, advanced technology and big data applications, it will provide road users with more abundant and complete information to make the national freeway system a model for transportation services and allow every road user's journey to be a safe and smooth one.



6 愛蘭交流道 (生態池)
Ailan Interchange (Mesocosm)



Happy Long-Distance
Journeys

交通部高速公路局 簡介

INTRODUCTION TO THE FREEWAY BUREAU, MOTC

出版機關	交通部高速公路局
Published By	Freeway Bureau, MOTC
發行人	趙興華
Publisher	Shing Hau Jaw
地址	24303 新北市泰山區黎明里半山雅 70 號
Address	NO. 70, Banshanya, Liming Village, Taishan District, New Taipei City, Taiwan 24303, R.O.C.
電話	02-2909-6141 (代表號)
Phone	+886-2-2909-6141
網址	http://www.freeway.gov.tw
Website	http://www.freeway.gov.tw

總編輯 吳木富
Edition-in-chief WU, MU-FU

審議小組 史朝財、呂文玉、紀惟澤、徐明金、許鈺漳、陳宏仁、陳國隆、陳煜熏、
傅桂枝、廖肇昌、劉雅玲、劉逢良、謝心強 (依姓名筆劃)

工作小組 李華祝、高嘉彬、張文將、張雪君、許羽婷、陳可知、陳添宇、曾玉霞、
曾曉瑜、曾家祥、黃文祥、黃楷祺、黃裕文、楊鎮遠、葉彩冬、廖素霞、
蔡明伸、閻姬秀 (依姓名筆劃)

出版日期：中華民國 107 年 5 月初版一刷

First Edition: May, 2018

定價：新台幣 200 元

Price: NT\$200

GPN 1010700522

ISBN 978-986-05-5850-0

展售處 Book retail Store:

國家書店松江門市

地址：10485 臺北市松江路 209 號 1 樓
電話 02-2518-0207
網址：www.govbooks.com.tw

Government Publications Bookstore

Address: 1F, No 209, Songjiang Rd, Zhongshan Dist., Taipei City 10485 (R.O.C)
TEL: +886-2-2518-0207
Website: www.govbooks.gov.tw

五南文化廣場

地址：40042 臺中市中山路 6 號
電話：02-2226-0330
網址：www.wunna.com.tw

Wu-Nan Book Lnc.

Address: No6, Zhongshan Rd, Central Dist., Taihung City 40042, Taiwan (R.O.C)
TEL: +886-2-2226-0330
Website: www.wunna.com.tw

版權歸屬：交通部高速公路局

授權聯絡人：交通部高速公路局秘書室

電話：02-2909-6141 分機 2916

Copyright © 2018 Freeway Bureau, MOTC

Contact Unit: The Secretariat, Freeway Bureau, MOTC

TEL: +886-2-2909-6141 ext 2916



編製機構 集思創意顧問股份有限公司
地 址 11493 臺北市堤頂大道 2 段 407 巷 20 弄 35 號 7 樓
電 話 02-87977333
網 址 <http://www.arteck.com.tw>
執行總監 萬冠麗
藝術總監 陳美雲
文字撰寫 張念中、謝瑩潔
視覺設計 楊閔如、陳欣宏、廖桂寧
專案執行 張淑美、彭偉銘
專案攝影 齊柏林、鄭肇寧、吳志學、陳良道、黃基峰



國道1號五楊高架——雙層橋剪影

五楊泰山林口段為迴避國道1號邊坡地質敏感區，於單側狹窄空間布設上下層高架橋，此一國道特殊橋梁工程巨擘及其展現的藝術之美，不僅足以闡述國道謀求環境永續經營及生態保育的理念，並具體詮釋了高速公路局創新前瞻，努力為國人提供「樂行千里」的優質國道服務目標。

National Freeway No. 1 Wugu-Yangmei Double-Deck Elevated Road

To avoid geologically sensitive area along National Freeway No. 1 and to cope with space constraints, this extraordinary project and its great aesthetic beauty bear witness not only to the Bureau's commitment to sustainability and ecological preservation, but they also demonstrate forward thinking and innovation, and show the Bureau's mission of providing ROC citizens with higher quality national freeways.



交通部高速公路局
FREEWAY BUREAU, MOTC



GPN: 1010700522