2012 ANNUAL REPORT

DIRECTORATE GENERAL OF HIGHWAYS, MOTC

Protecting the Happiness of a Safe Journey Home

Points of the highway network form an outline of prosperity

For over 60 years the DGH has persevered

Ensuring convenient roads, stable bridges, flowing traffic and safe driving

So the transportation system can become benefactor of a lively culture

The DGH has humbly sought harmony with the natural environment

Remaining committed to this land and the people upon it

Diligently building and protecting each road to provide a safe way home

CONTENTS

04 **Director General's Preface**

Linking to the Beautiful Life —
Continuing Progress on the Road to Building a Dream

06 **Introduction**

Riding the Boulevard of Hope to
Bring Greater Happiness

08 **Activating**
Linking the Highway Network

09 Comprehensive Planning of the Taiwan Highway Network
12 Promoting the 2013 Transportation Management Calendar
14 Building Better Highway Disaster Prevention Warning Mechanisms

16 **Stirring**
Beginning a New Era in Transportation

17 A Three-Stage Project to Refurbish Provincial Highway 9
20 Continuing Follow-Up to the South Link Highway Improvement Project
22 Continuation of the Suhua Highway Mountain Section Improvement Project
25 Carbon Management Plan for the Suhua Highway Improvement Project
27 Expressway 82 Between Dongshih and Chiayi Fully Opened to Traffic
28 A Golden Quality Award for Tender E707-3 on Expressway 84 Between Beimen and Yujin
30 Completion and Opening of Expressway 65

32 **Driving**
Convenient Travel and Transportation

33 Full Launch of the Provincial Highway 2C Construction and Improvement Project
36 Progress on the Provincial Highways Dangerous and Bottleneck Sections Urgent Improvement Project
38 Execution of the Local Government Aged and Damaged Bridge Refurbishment Project (Stage II)
40 Promotion of the Region-Based Road System Construction Project
42 Completion of the Provincial Highways Urgent Construction Project for Earthquake Resistance Strengthening of Bridges
44 Reflecting on the Post-Morakot Highway System Urgent Repairs and Rebuilding Project
46 Provincial Highway Bridge Construction to Accommodate River Management Planning

48 **Touching**
Service in Touch with People's Needs

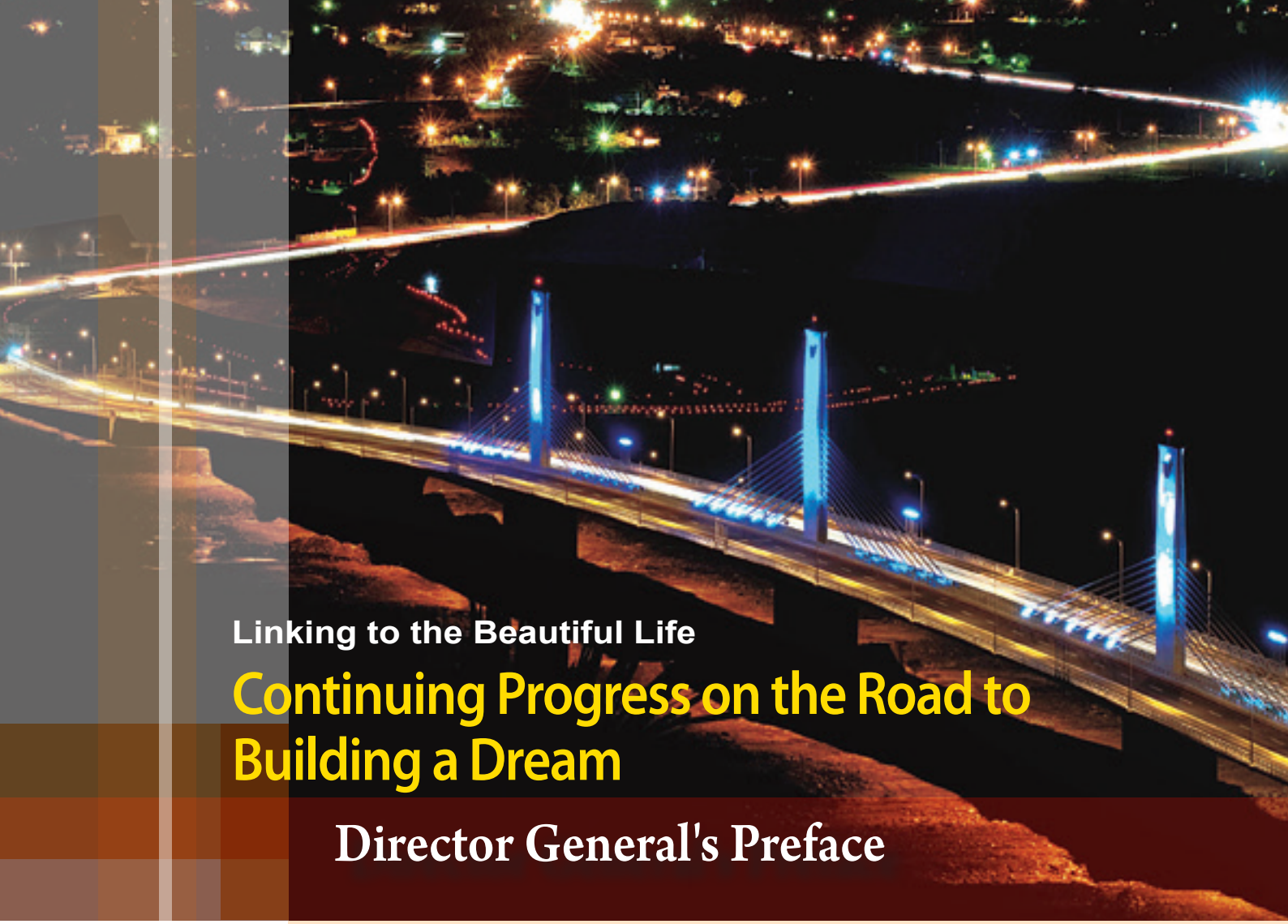
49 End of Regular Motor Vehicle License Renewals for Automobiles and Scooters
51 Road Driving Exam Pilot Project
53 Better License Plates for Automobiles and Scooters
54 Promotion of the Highway Public Transportation Development Project
56 Refunds for Excessive Fuel Tax
58 Special Lectures for Truck Drivers
59 A Special Activity for Young Drivers
60 Establishing an "E-Bus System" for Intercity Buses
62 Building a Delivery System for Checks and Bank Drafts
64 Kaohsiung Motor Vehicle Office Honored by the Executive Yuan at the 4th Government Service Quality Awards
66 Madou Motor Vehicle Station Honored by the Executive Yuan at the 10th Archives Management Quality Awards

68 **Promoting**
Broad Ambition for the Highway System

69 Using Market Value and Negotiations to Acquire Land
71 SafeTaiwan@WikiGIS Spatial Data Warehouse and Service Platform
74 Status of the 3rd Generation Motor Vehicle and Driver Information System
76 Publicizing Lunar New Year Transportation Management in Press Conferences
78 Anti-corruption and Crisis Management
80 Record High Satisfaction Rates for Motor Vehicle Supervision
82 66th Anniversary Celebration Shows a Love for Taiwan Starts on the Roads

84 **Evolving**
Witness the Signs of Prosperity

85 Administrative Performance
86 Organizational Structure
87 Budget Enforcement
89 Competition Performance
91 Research and Development
92 Major Events



Linking to the Beautiful Life

Continuing Progress on the Road to Building a Dream

Director General's Preface

For more than six decades we have served the people of Taiwan. Most importantly during this long history, from the time we were the Directorate of Highways to when we became the Directorate General of Highways (DGH), all our staff has been unstinting in their efforts. They have ensured that the DGH's reputation comes from the fearless approach of highway workers to their difficult work. They are unwavering in the pursuit of goals and know that each mission must be accomplished at all costs. They uphold the principle that roads, bridges, people and automobiles must be protected. At the DGH we believe it is our job to "be a link to the beautiful life." Silently we toil on, whether it is day or night, to give each highway user a safe road home.

Serving drivers in a land like Taiwan means building a highway system that crosses mountains and hugs coastlines. In this environment, where extreme weather events mean great uncertainty and the constant threat of natural disasters, civil engineers have had to dispel the myth that man can conquer nature. Today on Taiwan's highways, as post-disaster rebuilding continues we face new challenges: How can we humbly approach the natural environment? How can we meticulously plan transportation construction? These questions are derived from lessons engraved in the heart of every highway worker.

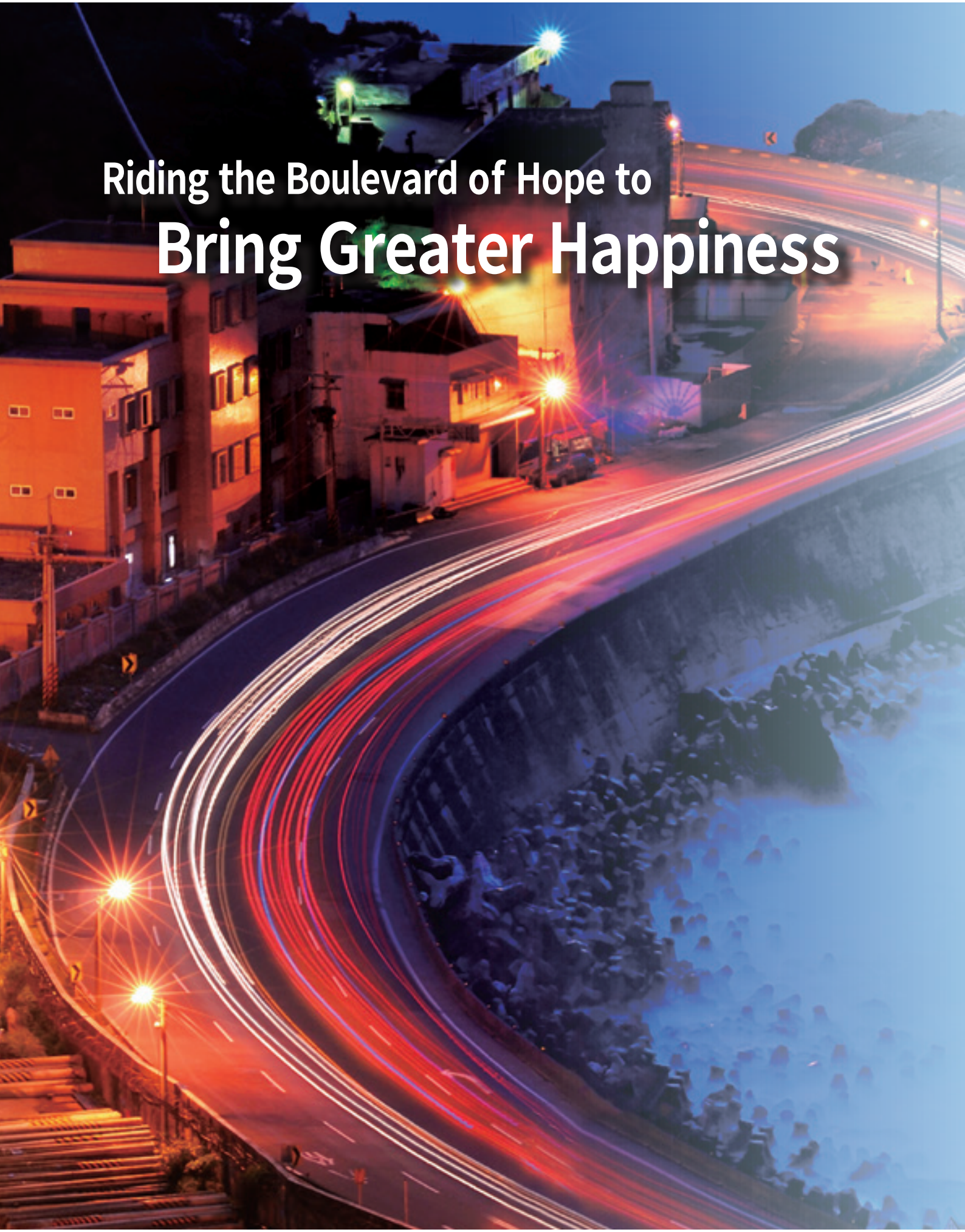
A valuable part of highway disaster prevention is the advance warning system. As a precautionary measure, roads in Taiwan were closed 230 times in 2012, and 139 of these times highway collapses occurred. This shows the effectiveness of our road-closing mechanism in the prevention of disasters. In terms of road maintenance the DGH has completed the first stage of post-Morakot rebuilding, improved dangerous and bottleneck highway sections, and strengthened highway bridges against earthquake damage. It has also assisted local governments in the renovations of older bridges to ensure that the entire highway system is of a constantly high quality.

Of all the changes to highway supervision, the one that will have the greatest impact on people is abolishing regular renewals of motor vehicle licenses for automobiles and scooters. This will save time and money for more than 20 million vehicle owners and is an important part of our goal to innovate in noticeable ways. Other changes include a pilot program for conducting driver's license exams on public roads to ensure that new drivers have the confidence and ability to drive safely. Also as the quantity and variety of automobiles continues to grow, license plate numbers will soon be insufficient. We have therefore decided to offer a new type of license plate when drivers register new vehicles. However, not requiring that all drivers switch to the new plates will save time and money. Finally, the Highway Public Transportation Development Project offers shuttle bus services to guarantee basic transportation needs of residents in rural regions. The DGH also adopts innovative mechanisms to encourage mass transit use.

From these efforts it is apparent that we never fail to consider the perspective of road users when determining policy. Our longstanding belief is a love for Taiwan starts on the roads. By offering convenient and safe highway transportation, we provide the roads that connect to the beautiful life. Our vision is to continue fulfilling dreams. Through hard work, we will move forward with the people.

Director General

Wu Men-Feng


Riding the Boulevard of Hope to
Bring Greater Happiness

Introduction

If we compare highways to rivers, they are like the waters that give life to the earth, nourishing natural organisms so they can grow continuously. If highways are compared to blood vessels, their unimpeded circulation maintains the health of the body and mind. They guarantee quality of life.

The topography and geology of Taiwan varies greatly, factors that cause cities, townships and communities to be dispersed across the land. This complicates highway network planning. Finding ways to satisfy the basic transportation rights of all people and striving for a harmonious relationship with the natural environment tests the knowledge of overseeing agencies. Highway development is a never-ending pursuit that encompasses construction and maintenance of roads and bridges, as well as supervision and services for drivers and vehicles. Achievement depends on sustaining a kinetic energy that cannot abate.

To describe our achievements in highway management over the past year, the DGH's 2012 annual report focuses on the progress of highway services. Featured reports compose an outline of highway development by looking at planning, new construction, road maintenance, motor vehicle supervision and logistics. The goal is for readers to gain a better understanding of our responsibilities and to reaffirm our commitment to providing friendly services.

The first chapter is titled "Activating." It begins by linking the main points of the highway network and discusses integrated planning of the highway system and improvements to transportation service quality, in order that expectations can be met. It mentions the planning and production of a transportation management calendar for 2013 that not only promotes local tourism but also mitigates traffic jams and encourages the use of public transit. Finally it discusses highway disaster prevention warning mechanisms. These provide more channels to announce emergency information and led to 230 precautionary road closures in 2012. During these road closures road collapses occurred 139 times, showing the effectiveness of the DGH's system.

The next chapter "Stirring" discusses improvements to Provincial Highway 9. There is an account of a third-stage improvement project that will widen the road between Hualien and Taitung, including building the New Fengping Bridge, the East Rift Valley's most beautiful. Another widening project on the South Link Highway will dramatically improve the main tourist road in eastern Taiwan. Meanwhile the Suhua Highway Mountain Section Improvement Project is implementing a carbon footprint management program. Besides providing a safe road home for local residents, the carbon reduction program will make the Suhua Highway more environmentally friendly, signaling the start of a new era in transportation management. On Expressway 82 work finished on the section between Dongshih and Chiayi. Its opening has given renewed life to the local farming, fishing and tourism industries. Finally the construction project to build the Xuejia Interchange to National Freeway 1, along the East-West Expressway Beimen/Yujin Line, won a Golden Quality Award from the Public Construction Commission. This again affirms our commitment to construction quality.

Next comes the "Driving" chapter, which introduces the Provincial Highway 2C Construction and Improvement Project. This will not only give shape to a circular road network along Taiwan's northeast coast but also spark economic development in underdeveloped sections of New Taipei City. The chapter continues by describing the urgent repairs and rebuilding to highways damaged by Typhoon Morakot. After more than three years of hard work over 80% of provincial highway tasks are complete, and virtually all work is completed on county highways and township roads. Other topics covered show the hard work we put into highway maintenance including urgent improvements to dangerous and bottleneck sections of roadway, support for local governments in repairing old and damaged bridges, and provincial highway bridge projects that accommodate river management planning. Each of these projects makes transportation more convenient for the people of Taiwan.

In the "Touching" chapter we describe our motor vehicle supervision services. Changes to provide more convenience in these services include canceling regular renewals of automobile and scooter motor vehicle licenses, a pilot project for conducting road exams on public streets, and holding special lectures for truck drivers. Each initiative shows our commitment to innovation and the promotion of traffic safety. There is also an account of the awards handed out to various Motor Vehicle Offices and Stations by the Executive Yuan and the Ministry of Transportation and Communications (MOTC). These honors are a form of recognition for our hard work in serving the people.

The "Promoting" chapter discusses the great ambition we see in the work of our logistics and administrative units. Whether they are building highway motor vehicle information systems, reaching new heights in motor vehicle supervision satisfaction polls, or expressing their commitment to anti-corruption and clean government, it is evident that the general public approves of their execution of administrative measures.

Finally the "Evolving" chapter gives general insight into work distribution within our organization. It also offers an overall look at administrative plans, budget execution, competition performance, research achievements and significant events. By gaining greater insight into our hard work and achievements in managing the highway system, you can witness the signs of prosperity.

Activating

Linking the Highway Network

Comprehensive Planning of the Taiwan Highway Network

Taiwan's highway network is nearly complete but our work is not yet finished. In recent years metropolitan areas have grown, economic activity has become more concentrated, and lifestyles have changed. Development of the highway system and related construction must adjust to fit this new environment so we can continue to provide the convenient and friendly services that people have come to expect.

Research Based on Current and Future Transportation Trends

The DGH must consider current and future development trends, whether they relate to national policy, major construction projects, social and economic activity, or transportation needs. Important issues that could affect development of Taiwan's highway system include: integration of metropolitan transit systems, upgrades (mergers) of the five special municipalities, urban district highways, international tourism, extension of roads beneath high-speed rail overpasses, the effects of climate change on highway construction, and rebuilding major roadways damaged or severed by natural disaster. When planning or research takes place, these items must compose the backdrop. They serve as the foundation for the prediction and analysis work of transportation models.

Improvements Based on National Spatial Development Strategies

When determining how development of the land transportation system in Taiwan should proceed, the DGH follows policy guidelines laid out in the Strategic Plan for National Spatial Development. These include land conservation and sustainable management of resources, innovation and economic development, sustainable development of urban and rural areas, and green intelligent transportation. Using the Plan's regional breakdown for Taiwan proper (north, central, south and east) and considering transportation construction and related development projects contained in the i-Taiwan 12 Projects, the guidelines serve as the basis for overall and regional development.

To investigate the overall transportation system and effectiveness of highway network services, the DGH integrates a number of plans. Among these is the "Demand Model of Intercity Transportation Systems Under National Sustainable Development in Taiwan," which includes passenger and freight transit and was created by the MOTC's Institute of Transportation. There are also road construction plans and research created and carried out by the Construction and Planning Agency for different areas of the nation. Together, these form the transportation demand models used to forecast and analyze demand for the overall highway network (highways, provincial highways, county roads and major township roads). The DGH also analyzes the provincial highways network to determine intraregional and interregional service effectiveness, and it focuses on bottleneck sections of road when planning improvement strategies.

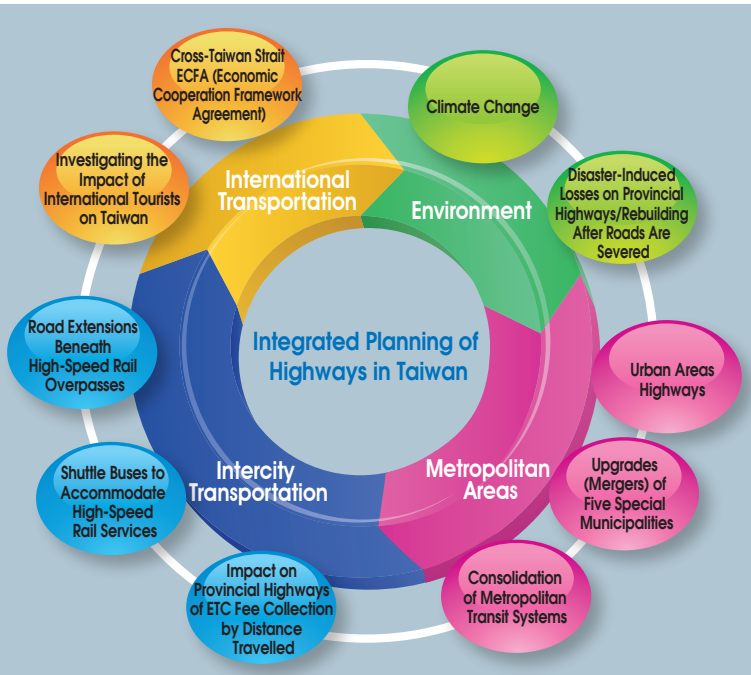
Transportation Improvements Through Location-Based Planning

The DGH formulates and selects appropriate improvement strategies (and projects) based on the Strategic Plan for National Spatial Development. It takes into account current road conditions in each category of road and transportation need to find ways of raising usage efficiency, resolving bottlenecks and achieving a complete road network.

1. Strategies to raise usage efficiency, including mobility and safety

(1) Raising highway mobility: Raising service capacity on Taiwan's road network is a challenge in urban areas. There are limits to how much roads can be widened and land acquisition is highly problematic. The DGH therefore recommends making improvements through better transportation management and transportation construction, such as promoting mass transit systems, linking traffic signals, providing information services for road users, providing a real-time information system, and restricting roadside parking during peak traffic hours.

(2) Improving Highway Safety: The DGH uses the "3E" planning concepts — engineering, education and enforcement — to improve sections of road that are accident-prone or that contain hidden dangers.



2. Strategies for Improving Bottlenecks

The DGH adopts transportation demand models to predict and analyze sections of road where service standards are low, focusing on bottlenecks found in six main areas: freeways and expressways, freeway and expressway interchanges and access roads, highway connections between residential areas, highway connections within residential areas, highways in environmentally sensitive areas, and highways servicing industrial parks or special zones. Considering the cause of each bottleneck and special transportation and environmental features, the DGH determines improvement measures, basing short-term and long-term strategies on the principal of "incremental development."

3. Comprehensive Road Network Strategy

Goals of the DGH are raising service capacity of the overall road network, expanding the range of services, and reducing regional gaps. It considers the entire network when assessing sections that have not yet opened to traffic or that are under planning. When reconstruction of existing roads, management or road-widening projects are not feasible means of ending bottlenecks, it researches the possibility of building new roads to alleviate congestion.

Incremental Implementation of Highway Improvement Projects

Integrated planning of highways in Taiwan requires selecting projects based on management and maintenance responsibility. At present research and discussion is focused on 25 provincial highway maintenance and construction projects with an estimated cost of NT$87.15 billion, an amount exceeding the mid-term budget of the DGH. Therefore the DGH recommends implementing improvement projects on a year-to-year or stage-by-stage basis.

Follow-up maintenance must be based on planning and design to uphold the effectiveness of the provincial highway system.

Promoting the 2013 Transportation Management Calendar

Domestic tourism has flourished in recent years. Whenever holidays occur travelers flood tourist spots, causing traffic jams on surrounding roads. The same problem arises during major flora seasons or other festivals that local governments use to promote tourism.

Compiling Information on Major Tourist Sites and Festivals

To maintain traffic flow and tourism quality, the DGH has compiled information on more than 40 major landmarks, festivals and activities taking place in 2013. From this information it has produced a transportation management calendar highlighting local traffic control measures. Drivers and tourists can use the calendar to reduce time spent in traffic jams and receive better service.

The DGH invited relevant agencies to research and formulate a comprehensive set of transportation management plans for events that caused relatively high traffic levels in 2012 (such as the Wuling Farm Cherry Blossom Festival, the Alishan Cherry Blossom Festival, the Sun Moon Lake and Formosan Aboriginal Culture Village Flower Festival, the Taiwan International Balloon Fiesta, and holiday events in the Xitou area). It then utilized these plans in order to ease congestion.

Advocating Public Transport and Publicizing Information

To encourage people to take public transport rather than drive, the DGH gathers information about public transportation for each major tourist event. The DGH has also negotiated with bus companies to offer discount ticket packages and encourages them to put more effort into bus/driving safety, to ensure a safe and comfortable journey for travelers.

DGH's 2013 Transportation Management Calendar

月份	6月	6-7月	6-9月	7月	7-8月	
活動	秀姑巒溪泛舟觀光活動	拉拉山水蜜桃季	台灣熱氣球嘉年華	貢寮海洋音樂季	宜蘭國際童玩藝術節	南投火車好多節
活動地點	花蓮縣秀姑巒溪泛舟中心	桃園縣復興鄉	臺東縣鹿野高台園區	新北市福隆海水浴場	宜蘭縣冬山河親水公園	南投縣集集鎮
• 主辦單位 • 聯外道路	• 觀光局東部海岸風景區管理處 • 台9線 台11線	• 桃園縣政府 • 台7線	• 臺東縣政府 • 台9線 東32-35線	• 觀光局東北角暨宜蘭海岸風景區管理處 • 台2線	• 宜蘭縣政府 • 台2線 台7丙線	• 南投縣政府 • 台3丙線 台16線
本局相關單位	第四區養護工程處臺北區監理所	第一區養護工程處新竹區監理所	第三區養護工程處高雄區監理所	第一區養護工程處臺北區監理所	第四區養護工程處臺北區監理所	第二區養護工程處臺中區監理所
疏運方式-公共運輸	1. 花蓮客運協助接駁 2. 未來配合主辦單位需求協助疏運	1. 桃園客運及中壢客運共3條路線 2. 未來配合主辦單位需求協助疏運	1. 台灣好行(鹿野線) 2. 未來規劃提供接駁專車並提供參考建言	1. 台灣好行(黃金福隆線) 2. 未來配合主辦單位需求協助疏運	1. 台灣好行(黃金福隆線) 2. 未來配合主辦單位需求協助疏運	1. 統聯客運計2條路線 2. 南投縣政府規劃周邊水、景觀及水里火車站間接駁專車
疏運方式-交通工程	1. 檢視相關指示標誌是否完整 2. CMS及本局省道即時交通資訊網顯示相關訊息	1. 協助設置導引標誌。 2. CMS及本局省道即時交通資訊網顯示相關訊息。	1. 協助設置導引標誌。 2. CMS及本局省道即時交通資訊網顯示相關訊息。	1. 檢視相關指示標誌是否完整 2. CMS及本局省道即時交通資訊網顯示相關訊息	1. 檢視相關指示標誌是否完整 2. CMS及本局省道即時交通資訊網顯示相關訊息	1. 協助號誌時制調整 2. CMS及本局省道即時交通資訊網顯示相關訊息

The DGH also gathers information on traffic control measures that will be in place during each major tourist activity. Event organizers can use this to track access road conditions. Traffic management officials also regularly update electronic road signs, providing drivers with information on road conditions, traffic management measures and parking.

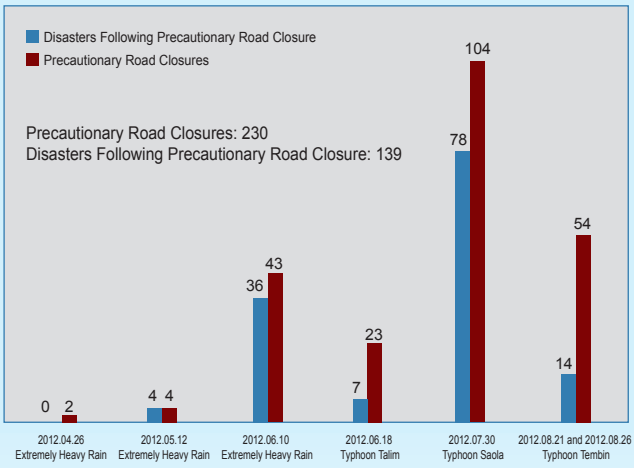
Putting Traffic Calendar Information and Event Links on the DGH Website

The DGH has made the traffic management calendar available online, so when major events occur in 2013 people can search for times, locations, maps, access roads, and transportation control measures, as well as public transit routes and timetables. The website also provides links to the official sites for each event.

To reduce the cost of traveling, promote the use of green transit, and improve overall tourism quality, the DGH will continue to update and promote the transportation management calendar. Using performance indicators it can assess progress and make yearly improvements, resulting in more convenient and comprehensive transportation services.

Building Better Highway Disaster Prevention Warning Mechanisms

To improve highway disaster and rescue response capabilities, the DGH has determined rainfall alert, warning and action levels for monitoring of roads and bridges. It uses these standards to issue disaster prevention warnings and includes them as part of a system it is building to protect drivers and enhance disaster prevention and rescue. In 2012 the DGH monitored 49 Level 1 sections of road, 38 Level 2 sections of road and 33 bridges, closing these as a precautionary measure when the potential for disaster was present. Before the flood season arrived the DGH strengthened drills, education, training, and highway disaster prevention and rescue infrastructure. And when disasters were imminent it used text messages and media reports to announce road and bridge closures.



Precautionary Road Closings Show the Effectiveness of the DGH's Disaster Prevention Mechanisms

The DGH worked with Chunghwa Telecom to establish the Highway Disaster Prevention and Rescue LBS Text Messaging and Broadcast Service. In 2012 it utilized the service to send nearly 740,000 text messages, alerting non-specific road users to leave or avoid entering high-risk areas. After the Executive Yuan made the system a key policy, the National Communications Commission encouraged other telecommunications providers to adopt it.

Taiwan faced six extreme weather events in 2012, namely three incidents of extremely heavy rain (0426, 0512, 0610) and Typhoons Talim, Saola, and Tembin. During the flood season the DGH recorded 1,595 hours of extreme weather. It closed highways as a precautionary measure 230 times, and 139 of these times highway collapses occurred. These early actions prevented the occurrence of any human casualties or vehicular damage during these incidents.

Also on May 7 a serious accident and fire occurred in Hsuehshan Tunnel on National Freeway 5. In response, on August 29 the DGH issued a Standard Operating Procedure for Highway Tunnel Incidents and directed each Maintenance Office to use this SOP as the basis for drills to be completed before November 28.

Multifaceted Approaches to Strengthening Disaster Prevention and Rescue Capabilities

To strengthen emergency response capabilities of disaster prevention and response personnel, the DGH relies on a four-stage highway disaster prevention mechanism covering judgment, deployment, early warning, and response, along with response mechanisms divided into three major categories. Meanwhile, to fully understand disaster prevention and rescue status, the DGH has developed seamless reporting and communication mechanisms for sharing information with joint disaster control agencies. Staff preparation to strengthen disaster rescue capabilities included education and training classes, with total attendance of 648 in 2012, as well as 33 on-site training events and drills. The DGH and joint disaster control agencies also held another seven training drills on procedures for handling tunnel incidents.

Experts Offer a Range of Opinions at Flood Prevention Conference

The DGH held the 2012 Highway Flood Prevention Experts Conference on May 11. Experts and scholars engaged in meaningful discussions on the DGH's highway disaster prevention and warning mechanisms. After the conference the DGH followed up on recommendations to further improve these systems.

A New App Shows Highway Road Warnings and Obstructions During Disasters

The DGH uses a variety of channels to provide information on whether provincial highways are open or closed during disaster periods. Besides the DGH road condition information hotline (0800-231-034) and the Highway Disaster Information System (bobe168.tw), on July 16, 2012, the DGH released an Android app that provides the latest information on provincial highway early warnings and closures during disaster periods. The app has updated maps of provincial highways that show areas under warning and sections of severed road. By using smartphone GPS systems with the app, users can see whether these warnings or obstructions affect them. The app makes it easy to quickly grasp road conditions in tourist areas during times of disaster.

Stirring

Beginning a New Era in Transportation

A Three-Stage Project to Refurbish Provincial Highway 9

At 186 km, the road between Hualien and Taitung along Provincial Highway 9 is the largest traffic corridor in the East Rift Valley. A two-stage widening project, carried out from 1984 to 1989 and 1992 to 1995, improved the road between Hualien City and Taitung County's Beinan Township, bringing its width to between 12 and 30 meters.

Widening Project of the Huadong Highway Finishes on Schedule

On Provincial Highway 9 there is 107 km of road between Hualien County's Muguaxi Bridge (212K+800) and Fuli (near the border of Hualien and Taitung counties at 319K+750). Of this the 80 km that has not been widened to 30 m is covered by the third-stage of the road expansion project.

After review the Executive Yuan assigned priority to three road sections: from Shoufeng to Xikou (222K+400~228K+900), Xikou to Nanping (228K+900~235K+550), and the south approach of Wanlixi Bridge to the north approach of Matai'anxi Bridge (243K+600~246K+650). These roads total 16.2 km (though after straightening the total distance will be reduced to 14.48 km). The project, which was separated into four tenders, took place from 2008 to 2012 at a cost of NT$3.56 billion. Hard work and cooperation of teams from the DGH's Fourth Maintenance Office ensured all tasks were completed on schedule in 2012.

Combining Ecological Tourism with Aesthetics

The East Rift Valley, located along Provincial Highway 9, is known for its outstanding scenery. It features a forest-covered mountain range and fascinating scenic sites that astound visitors. Highway development in an area with such a rich landscape affects more than just transportation. It plays an important role in tourism development and advances local industry. When the DGH plans building projects in such areas it integrates local characteristics into the design. It uses a minimalist approach to maintain the landscape, and it incorporates environmentally-friendly principles. The goal is to build a scenic highway that is aesthetically pleasing and suited for ecological tourism.

A recent project improved a section of Provincial Highway 9 in Changqiao Village, Fenglin Township (243K+600~246K+650). It involved building an outer ring to the east that passed through farm fields and circled the central axis of the village, so the highway could be widened without demolishing town structures. It also solved traffic problems near the Lintienshan Forestry Cultural Area and the popular Manmei pork knuckle restaurant.

A Scenic Highway in a Green Corridor

The design of the Huadong section of Provincial Highway 9 incorporated the following elements: 1. Connecting forested areas - fulfills the green transportation concept of building ecological corridors. 2. An elegant, aesthetic design - a scenic roadway that is safe and agreeable. 3. Exhibiting regional styles - uses materials and features from the local environment to give the road its own character. 4. Harmony - blends in with the existing environment to achieve spatial harmony. 5. Open - uses a minimalist design to reduce elements that disrupt the surrounding landscape, stopping the highway space from feeling enclosed. 6. Uses existing resources - keeps plant life in its original location and when necessary moves affected plants to another green corridor.

The construction project focused on making Provincial Highway 9 a scenic highway that is also an ecological corridor. It expanded on three design themes: 1. building green spaces, 2. incorporating channelizing islands, and 3. linking bicycle lanes.

1. Building Green Spaces

Forest roads link ecological corridors and are highly agreeable to road users. One such road section along the Huadong Highway presented the perfect opportunity for development by linking bicycle paths and installing rest platforms, improvements that give road users a tranquil setting distinct from the open fields found elsewhere.

The project involved widening the road to the west. It created a traffic island to preserve trees located between Wanrong Junior High School and Matai'anxi Bridge (245K+300~246K+300), thereby lowering the environmental impact.

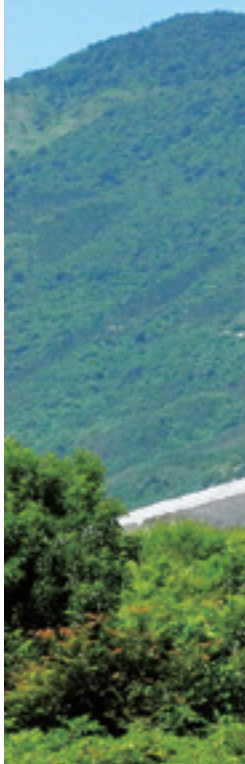
The new section of road is used for traffic heading north on Provincial Highway 9, and the original section of road for southbound traffic. The design preserves dense vegetation and trees found to the west of the original highway while not affecting the drainage channel or trees to the east.

2. Channelizing Islands

Channelizing islands provide a green space within the confines of the road. They enhance the road landscape and the travel experience, providing a boost to local industrial development. And by serving as the focal point of a new road, they reduce the impact of construction on the environment.

3. Linking Bicycle Lanes and Building Rest Platforms

Bicycle lanes on the shoulders of rural roads provide space for cyclists to enjoy Taiwan's pastoral features. When built in a forest area they give cyclists a chance to enjoy a natural calm, where shade and a light breeze provide comfort and phytoncides enhance the crisp mountain air. Platforms provide places to rest and admire mountain and forest views. Cyclists benefit not only from the relaxing stretches of road but also from the refreshing landscape.



New Fengping Bridge Becomes Eastern Taiwan's Most Beautiful

Drivers passing through Shoufeng Township's Xikou Village used to face dangerous curves and bottlenecks. This project sought to improve road conditions by reducing the number and severity of curves. It involved building a bridge crossing the Shoufeng River, linking Shoufeng and Fonglin townships. The official name is New Fengping Bridge, and it is regarded as eastern Taiwan's most beautiful bridge.

New Fengping Bridge is 906 m long with a main span of 140 m and tower height of 30 m. The impressive appearance of the extradosed bridge includes three consecutive towers, a first in Taiwan. The bridge's appearance is based on the white egret, an important local icon. Its towers were made to resemble a male and female bird crossing necks, a way of expressing Hualien's friendly nature and the strong local identity of its people. Lights further enhance the bridge's nighttime appearance. Together these features have turned the bridge into a new Hualien landmark that combines modern technology and traditional culture.

Reducing the Urban-Rural Development Gap by Advancing Industry and Tourism

After the Provincial Highway 9 Huadong Highway Third Stage Improvement Project is complete, the road capacity and average driving speeds will increase. Travel between Hualien and Guangfu will be reduced by 15 to 20 minutes, improving safety and alleviating the traffic jams common during long holidays.

Continuing Follow-Up on the South Link Highway Improvement Project

In Taiwan the areas of Hualien and Taitung are referred to as "Houshan," in reference to their location behind the Central Mountain Range. Passing north to south through this region is the 476-kilometer-long Provincial Highway 9, one of eastern Taiwan's most important roads.

A Construction Project Near the Southernmost Tip of the Island

The South Link Highway is the southernmost section of Provincial Highway 9. It is the only major road that heads south through Houshan then cuts across the island to the west. Along the east coast the highway is built on a narrow strip between the Central Mountain Range and the Pacific Ocean, offering stunning views that have turned the road into an important tourism route. In the face of a gradual increase in tourists and ensuing bottlenecks, in 2012 the government launched the South Link Highway Improvement Project, a venture that is ensuring Provincial Highway 9 remains a fast moving, safe highway.

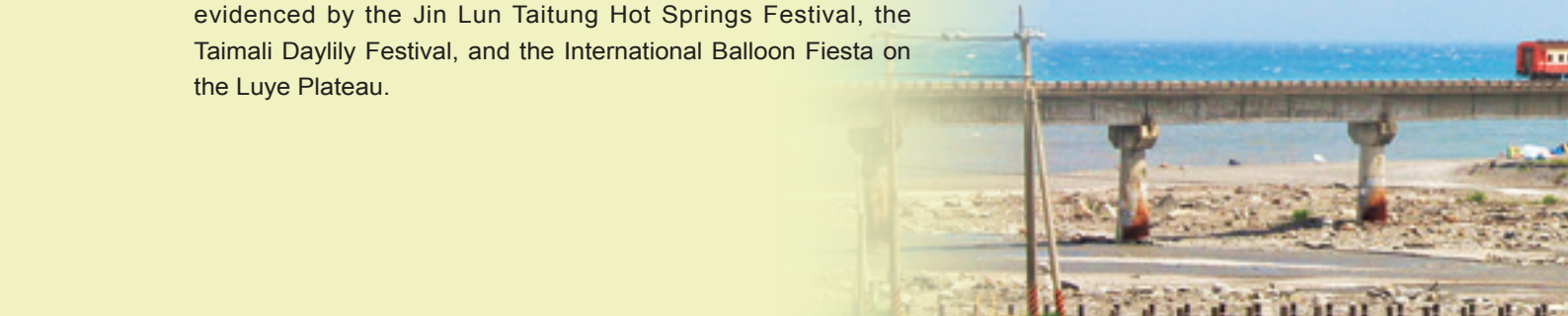
Picturesque Scenery and Indigenous Culture

The project is based in clean and beautiful Taitung County. Because development there is relatively recent, the well-preserved natural terrain and scenery offer an abundance of beautiful scenery. Driving along the South Link Highway, as one passes through Dawu, in the distance at the northern edge of Taitung County is Dulan Mountain. Further north is Duoliang Train Station, which is considered the most beautiful train station in Taiwan. Standing on the platform and looking into the distance a natural paradise opens before you.

Compared to the west coast of Taiwan, Taitung is isolated. Such an environment has led to the distribution of different ethnic groups that together provide a rustic feel. Here visitors can come face to face with indigenous Taiwanese and sample the rich variety of their culture and customs. Indigenous ceremonies and festivals can be considered the most beautiful, genuine scenery of the area. Part of the highway improvement project involves adding artwork along the highway that is representative of each of the region's ethnic groups. These lively decorations give Taitung a richer, more colorful look.

Integrating Carbon Management Principles to Protect This Wonderful Tourist Region

The mountains isolating Houshan have allowed it to remain a secluded paradise. Development there has always come at a slower rate than the rest of Taiwan, though it is far from undeveloped. Cultivation of the land and forest clearing have opened up this section of the Central Mountain Range to the outside. In recent years change has gathered pace due to the rise of the tourism industry, as evidenced by the Jin Lun Taitung Hot Springs Festival, the Taimali Daylily Festival, and the International Balloon Fiesta on the Luye Plateau.



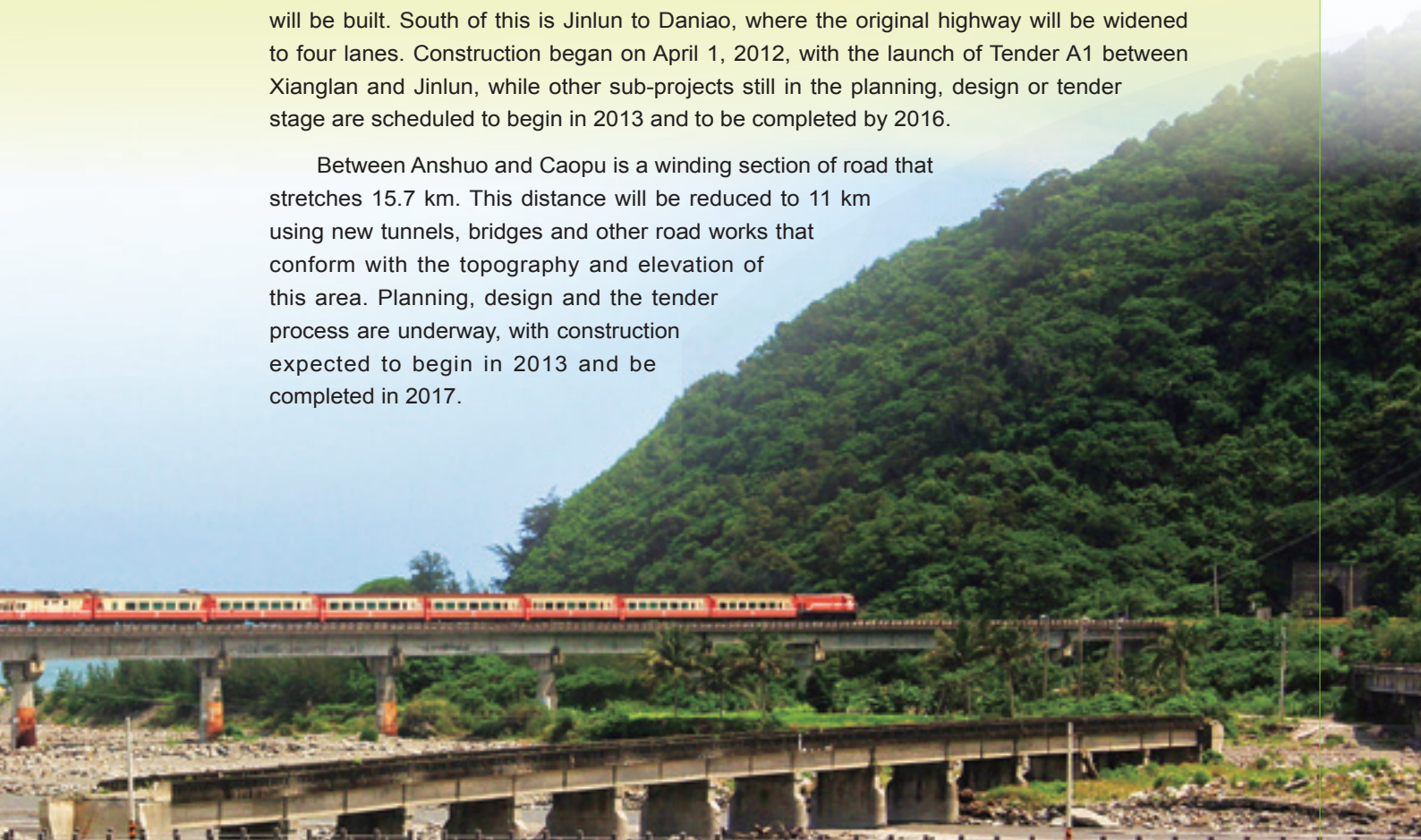
These factors make it even more important that this beautiful land be protected from environmental damage during and post- construction. To this end the construction project adopts greenhouse gas management principles. Using appropriate oversight and materials it reduces carbon emissions to avoid disrupting the natural environment. Steps are also taken to lower impact on the landscape, so the county can keep its natural scenery and tourism resources intact.

A Widening Project on Three Road Sections with Different Terrain

The cost of the South Link Highway Widening Project is approximately NT$20 billion. It extends from Taitung's Xianglan Village in the north to Pingtung's Caopu Village in the south, and involves widening the road to three or four lanes in coastal areas while straightening out certain sections in mountain areas.

Problems with the original highway were attributed to the difficult terrain it passes through. Design standards were low, the route was poor, the road had large elevation changes, and it was not wide enough. The project is correcting these issues for three sections of highway distinguished by their unique characteristics and the widening techniques they require. The northernmost section is Xianglan to Jinlun, where three lanes will be built. South of this is Jinlun to Daniao, where the original highway will be widened to four lanes. Construction began on April 1, 2012, with the launch of Tender A1 between Xianglan and Jinlun, while other sub-projects still in the planning, design or tender stage are scheduled to begin in 2013 and to be completed by 2016.

Between Anshuo and Caopu is a winding section of road that stretches 15.7 km. This distance will be reduced to 11 km using new tunnels, bridges and other road works that conform with the topography and elevation of this area. Planning, design and the tender process are underway, with construction expected to begin in 2013 and be completed in 2017.



Continuation of the Suhua Highway Mountain Section Improvement Project

Ever since the Suhua Highway Mountain Section Improvement Project passed environmental impact assessment on November 9, 2010, design and the tender process have been ongoing. The project is separated into three main sections: Suao to Dongao, Nanao to Heping and Hezhong to Daqingshui.

Scenic Bridges That Reflect Local Characteristics

Between Suao and Dongao is an elevated bridge that serves as a scenic landmark. Its design includes local cultural and historical images crafted using white, rice-like pebbles. Between Nanao and Heping is an extradosed bridge that complements the natural environment of Nanao. Its towers and steel cables resemble the beautiful mountain landscape. The towers seem like a pair of hands making an offering to the sky, paying tribute to the heavens for the gift of the natural environment that surrounds them.

A Satellite Management System to Ensure Worksite and Worker Safety

Main tunnel work for the Suhua project is taking place 24 hours a day at the Guanyin and Gufeng tunnels. To protect workers the Suhua Improvement Engineering Office has introduced radio frequency identification (RFID) and an inner-tunnel wireless signal system to use on the Old North-Link Line Railway Tunnel and related working faces. These systems make it easier to monitor movement in and out of worksites and automatically identify the

Extradosed Bridge over the Nanao North River, Between Nanao and Heping (Model Drawing)

Bridge Work Between Nanao and Heping

Tunnel Construction

number of workers on a site and their locations. Besides assisting with management, in the event of an emergency the systems support response and rescue.

To further strengthen on-site worker's safety, the Suhua Improvement Engineering Office signed an agreement to join the Safety Partnerships Program with the Council of Labor Affairs. The two sides have conducted numerous joint inspections, education and training events that have helped improve worker safety and health.

Changing the Route Between Hezhong and Daqingshui

Typhoon Saola made landfall in Hualien County's Sioulin Township on August 1, 2012, bringing extremely heavy rain. Ensuing landslides severely impacted Hezhong Community, severed several sections of Provincial Highway 9 and changed the topography of worksites between Hezhong and Daqingshui. After considering future work and operations, designers evaluated and drafted a plan to modify the route.

Construction of the Guanyin Tunnel

Excavation at Hanben

Excavated Cultural Relics

A Full Commitment to Cultural Excavation

The Suhua Improvement Engineering Office conducts numerous projects in addition to the main construction work. Among these are cultural excavations to protect relics discovered during highway work. On the Wuta section of the Suhua Highway there were relatively few relics; excavation was completed in November 2012. In the Hanben area there was a wide distribution of relics, including a large deposit of items more than a thousand years old where digging began at the southern entrance to Gufeng. Here excavation is ongoing.

Various Methods Adopted to Reduce Ecological and Environmental Impact

Besides cultural relics the Suhua Improvement Engineering Office is dedicated to protecting the natural environment. It commissioned the Endemic Species Research Institute, under the Council of Agriculture, to conduct a biological indicator species and ecological environment research project. The project included a carbon management plan that used carbon footprint inventories to determine whole lifecycle carbon analysis of construction works. Data gained assisted with implementing carbon reduction strategies.

Other measures include: communication with NGOs, environmental monitoring of the entire highway, research into the geological effects and emergency response mechanisms when large volumes of water suddenly flood into mountain tunnels, hydrologic and geological monitoring, and analysis of the impact on regional water quality and the environment. As the DGH completes detailed reviews of each project, it uses findings to improve future construction. This approach allows the Suhua Highway Improvement Project to meet expectations with minimal environmental impact. Besides finishing on time the project can achieve quality standards and provide road users with a safe route home.

Planning an Investigation of Long-Term Monitoring and Plant Sample Sites in Dongao

Ecological Survey — A Harp Net to Catch the Taiwan Tube-Nosed Bat

Carbon Management Plan for the Suhua Highway Improvement Project

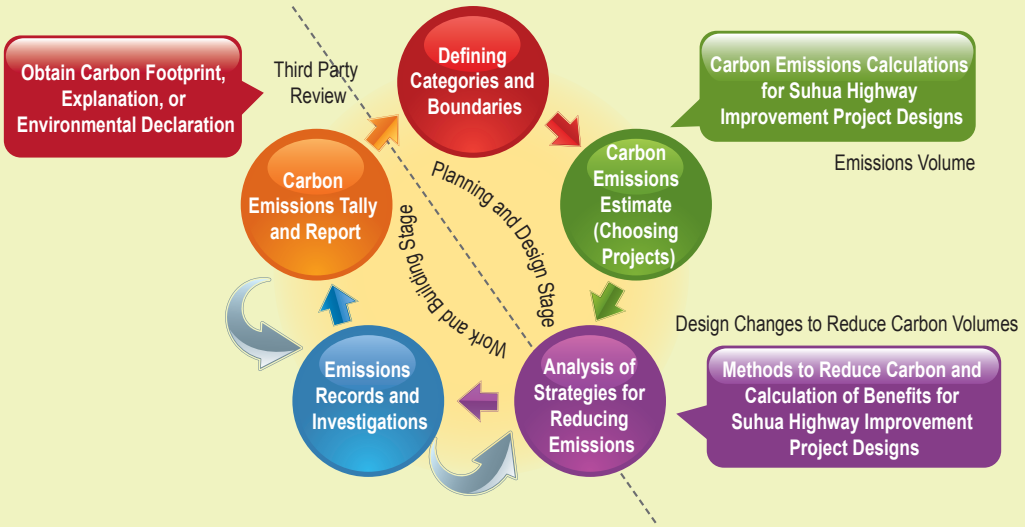
Reducing carbon in construction projects is one innovative way that the government protects the environment. Planners of the Suhua Highway Improvement Project follow international trends for carbon management by estimating carbon emissions and projected benefits, then proposing design changes that further reduce emissions. The work serves as a benchmark for the DGH as it builds a full framework for carbon management of highway construction.

Carbon Footprint Inventory During Construction

To check the accuracy of the achievements described above and ensure they continue, the DGH has introduced a cyclical carbon management system. Implementation started in July 2012 when it began taking carbon footprint inventories of construction projects. Steps included: 1. Determining carbon management norms, mechanisms and case studies for domestic and foreign construction projects, 2. Building a carbon inventory database, 3. Assisting with carbon footprint inventories during project bidding and construction. Each year the DGH reviews its carbon inventory plan, analyzes carbon emissions associated with construction, and introduces new measures for reducing those emissions based on earlier advances. It obtains third-party verification and compiles data and experiences in ways that facilitate use in other projects, then elaborates upon its achievement in reports.

Using International Norms to Achieve Impartiality and Recognition

Advanced nations carefully quantify and manage carbon footprints of construction projects. To guarantee that the Suhua Highway Improvement Project meets international standards, the DGH has introduced workflow and execution methods for carbon footprint inventories. It adopts international carbon footprint norms (PAS 2050 or ISO 14067) to ensure impartiality and recognition and it relies on third party data collection and examination of carbon footprint quantification to show that results are complete and accurate. By gaining credible experiences, Taiwan has put itself at the forefront of building carbon footprint inventories for construction projects.



Conceptual Chart for Carbon Management During the Suhua Highway Improvement Project

Hosting an International Forum on Carbon Management in Highway Construction

Taking carbon footprint inventories of construction projects is still a relatively new pursuit. To advance the field the DGH held an International Forum on Carbon Management for Highways on September 21, 2012. It invited representatives involved in construction policy and execution from developed nations where carbon management is prevalent (such as the United Kingdom and Sweden) to join members of the Environmental Protection Administration, the Public Construction Commission, and the MOTC's Institute of Transportation. They discussed planning and execution of carbon management in construction and mechanism planning, and shared experiences in putting carbon management into practice. Participants also discussed and evaluated carbon management goals and progress of the Suhua Highway Improvement Project.

The forum showed that the DGH's cyclical framework for carbon management of construction projects is systematic, comprehensive and practical.

Consensus Building at a Carbon Footprint Inventories Conference

To ensure that carbon footprint inventories of construction projects are comprehensive and meet relevant standards, on December 5 the Suhua Improvement Engineering Office held a conference to define boundaries and categories for taking carbon footprint inventories of construction projects. Carbon footprint and construction experts from industry, government and academia gathered. They met with inspectors, monitoring agencies and contractors responsible for carbon inventories on the Suhua Highway Improvement Project to discuss the latest international developments. By moving toward a consensus on boundaries and categories for carbon footprint inventories on the Suhua Highway Improvement Project, participants facilitated smoother production of carbon footprint inventories in the future.

Carbon Footprint Inventories Underway on Three Construction Projects

Carbon inventory takes places before and during construction. After inspectors examined and approved a carbon inventory plan for the Suhua Highway Improvement Project at the beginning of September, the DGH put the plan into practice on three civil engineering tenders of the project, C1, A3 and A2, starting in September, November and December. Before construction began the DGH held meetings and training sessions to assist with the launch. When construction was underway it requested and examined daily records and monthly reports on carbon management while making improvements through on-site guidance, corrections and inspections.

Providing a Model for Other Public Construction Projects

Carbon footprint inventories and carbon management on the Suhua Highway Improvement Project will lead to many external benefits. They can become models for other construction projects, and data and analysis accumulated during construction can serve as a reference for future planning and design. Besides improving the accuracy of carbon emission measurements and showing the benefits of reducing emissions, these experiences can contribute to selection of future low carbon projects.

As construction on the Suhua Highway Improvement Project continues, the DGH will support construction supervision units and contractors as well as firms and suppliers providing assistance. Besides aiding carbon inventory programs, it will provide ideas for improvement. As carbon management becomes a habit for firms involved in the Suhua project, they can effect change in other parts of the industrial chain, making carbon management an integral part of public construction in Taiwan.

Expressway 82 Between Dongshih and Chiayi Fully Opened to Traffic

Expressway 82 runs east to west in the Chiayi region. It is the only expressway in the Chianan Plain that connects three major national scenic areas, linking with the Southwest Coast National Scenic Area in the west as well as Alishan and Siraya National Scenic Area in the east.

Providing Easy Access to National Freeways

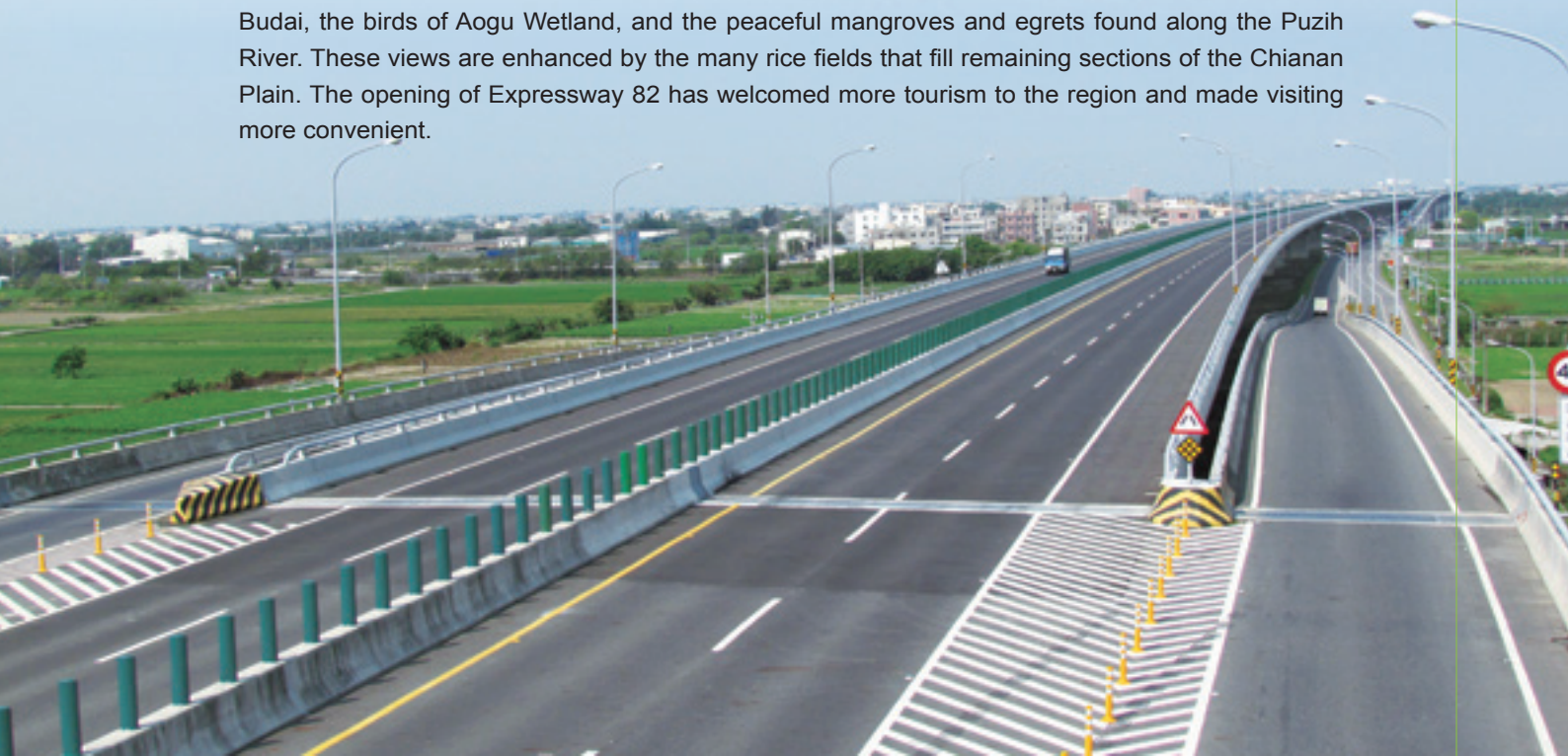
Expressway 82 begins in Dongshih Township to the west, connecting to access roads that lead to Dongshih Fisherman's Wharf. It then passes through Puzih City, Taibao City, Lucao Township, Shuishang Township, and Zhongpu Township before ending by linking to National Freeway 3. The 34.2-kilometer long expressway has two system interchanges: the Chiayi System Interchange that connects to National Freeway 1 and the Shuishang System Interchange that connects to National Freeway 3. For added convenience there are another six interchanges on the expressway.

The expressway was built in stages, with the section between Xianghe (near the Chiayi County government) and Jiabai Highway (County Highway 165) opening first. At the end of 2001 it was extended to National Freeway 3 in Dongshih, then in November 2009 it was extended west to Puzih. Another section from the start of the expressway in Dongshih to the West Coast Expressway is shared with County Highway 168 and was finished in September 2011. And a final 6-kilometer section was opened to traffic on November 23, 2012.

A Traffic Artery That Links Farming, Fishing and Tourism Industries

When Expressway 82 fully opened it became an important east-west thoroughfare in the Chiayi region. The expressway and freeway network that it brings together serve as a traffic artery for use by local industries. It offers access to the oysters of Dongshih, the seafood of Budai, and the agricultural products found in various cities and towns along the way. The variety of goods transported on the network every day shows how it benefits local industry.

The expressway also links tourism resources, from the famed sunrise, sea of clouds, and cherry tree blossoms of Alishan, to the sunset and oyster farms of Dongshih, the salt fields of Budai, the birds of Aogu Wetland, and the peaceful mangroves and egrets found along the Puzih River. These views are enhanced by the many rice fields that fill remaining sections of the Chianan Plain. The opening of Expressway 82 has welcomed more tourism to the region and made visiting more convenient.



A Golden Quality Award for Tender E707-3 on Expressway 84 Between Beimen and Yujin

The Public Construction Commission Golden Quality Award is one of the highest honors in the construction industry. After careful consideration the commission awarded a 2012 Golden Quality Award to the East-West Expressway Beimen/Yujin Line Tender E707-3, Xuejia Interchange to National Freeway 1 New Construction Project, ahead of numerous impressive candidates in the Good Quality Award category. The honor not only affirmed overall construction quality but also showed that the DGH had achieved its goal of improving construction quality.

Innovative Worker Safety and Environmental Protection Concepts

The design concept of this project focused on respect for nature. In a terrain rich in ecological resources, the goal was to build a transportation corridor that had minimal environmental impact. To integrate the local culture of pigeon *ling* racing (the *ling* is a traditional small wooden drum tied to a pigeon's back), overpass pillars were designed to resemble a dove opening its wings to take flight. They were made of self-compacting concrete to lower the quantity of cement used and to increase water tightness. Another benefit of the technique was that it reduced manpower and machinery needs, cutting both power consumption and carbon emissions.

The design incorporated two green strips on the sides of the road beneath the overpass to build a grassy waterway with wells. Besides conserving underground water, the waterway uses drainage from Waliao Community to sustain an ecological pond with endemic plant life. This provides a habitat for plant and wetland life while improving the visual experience of road users.

Completing the Project Regardless of Weather Challenges

Construction took place in parts of Tainan's Madou and Xuejia known for their fish farms. This area was also struck hard by Typhoon Morakot in 2009, a disaster fresh in the memories of the people of Waliao Community. Builders were aware that the flood season would have a major impact on progress and therefore looked at the project as a race against time. They doubled the

number of work teams laying foundation piles and foundation pillar formwork from four to eight. Strict time management helped them finish seven months ahead of schedule.

Builders also increased the box girder support frame and formwork system from four to six, putting them into place using rail, load movers and automatic winding equipment. Easy, accurate and reliable assembly improved work safety and efficiency. The bridge surface also has an automatic mist spraying system that improves concrete maintenance by reducing drying shrinkage and the cracking that can result.

Construction Workers Adhere to the Pursuit of Improved Quality

A project's quality depends on the hard work and contribution of the team that builds it. During construction, Director Wu, former Deputy Director Chang, and other officials from the DGH made frequent trips to the worksite to offer advice. Minister Chern of the Public Construction Commission also visited.

The Southern Region Inspection Office of the Council of Labor Affairs used the worksite for numerous improvement programs. It promoted fall prevention, helped the DGH hold worksite inspection training courses for new officials in 2011 and 2012, and assisted with a worksite transportation, safety, health and environmental protection program in 2012. And in 2011 this project won an outstanding public works award for its promotion of worker safety. These honors show that highway workers remain committed to improving quality.

Steel Frame Overpass on the Tucheng Section

Completion and Opening of Expressway 65

Total cost of the construction project to build Expressway 65 (formerly New Taipei City Special Highway 2) was NT$30.946 billion. After many years of work beginning in 2003, the road was fully opened to traffic at noon on January 31, 2013.

Expressway Opened in Stages

The completed Expressway 65 starts at the Wugu Interchange in the north end at Zhongyang Road. Along the way it passes south through Xinwu Road, crossing Xinzhuang's Zhongshan, Xintai and Zhongzheng roads, before crossing the Dahan River near the Tailiaokeng Pumping Station. After reaching Banqiao's Huazhong Park it follows the west bank of the Nanzai Ditch to Tucheng's Huanhe Road, before crossing over the Chenglin Bridge and following Daan Road to Zhongyang Road. The distance of the expressway is 12.41 km, and an extension to the Tucheng Interchange to accommodate the Tucheng Interchange Improvement Project brings the total distance to 12.8 km.

The section between Wugu Interchange and Xinzhuang's Zhongzheng Road opened in December 2010 while the section between Banqiao's Xianmin Boulevard and Tucheng Interchange opened in October 2011.

Completion of Expressway 65 Leads to Multiple Benefits

The finished expressway connects directly to National Freeways 1 and 3, and in the north it links with Expressway 64, offering direct access to Taipei's international commercial port. The project provides a north-south expressway for the west side of metropolitan Taipei.

In terms of transit the expressway provides a convenient north-south channel across the Dahan River between Wugu/Xinzhuang and Banqiao/Tucheng, cutting travel time between the two areas to about half an hour.

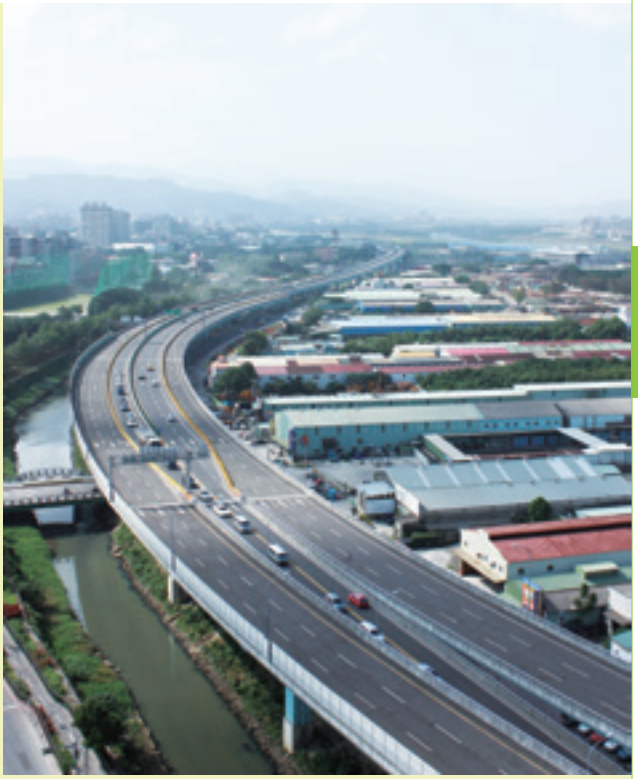
In terms of economic benefits, the expressway will boost economic development by solving accessibility and mobility problems that arise from frequent traffic jams in the city. The expressway also links four major industrial areas — Wugu, Xinzhuang, Shulin and Tucheng — and connects to Taipei's international commercial port via Expressway 64. By improving logistical flow, it reduces transit fees for domestic goods sold locally as well as imports and exports.

Technical and Landscaping Achievements

The expressway consists primarily of an overpass with two to three lanes for fast-moving traffic heading in each direction. Underneath the overpass is an additional roadway to raise local road capacity. Building methods included hoisting a steel frame, in situ support span-by-span construction, construction of an advanced shoring method corrugated steel web bridge, and cast-in place cantilever. The cantilever method bridge that crosses the Dahan River has a main span of 170 m, Taiwan's largest span on a three-lane wide cantilever bridge.

More than half the expressway was built by hoisting of a steel frame. Because the materials for the steel frame meet conditions for a green road, the project adhered to government policy to promote energy saving, carbon reducing methods. Also the overpass beside Banqiao's Nanzai Ditch used a corrugated steel web design instead of a traditional concrete box girder web. Building a hybrid bridge that integrates steel frame and RC frame components produces many advantages: a lighter framework, efficient steel tendon design, a high shear rate and stiffness, a reduction in labor requirements, and reduced work time.

Finally near the Executive Yuan offices in Xinzhuang, Expressway 65 was constructed between the Airport Rail line and an overpass of Provincial Highway 1, raising the difficulty level of the project. The structure consists of an impressive four levels.



Overpass along the Nanzai Ditch Section

Cantilever Method Bridge over the Dahan River

Corrugated Steel Web Bridge
Beside the Nanzai Ditch

Driving

Convenient Travel and Transportation

Full Launch of the Provincial Highway 2C Construction and Improvement Project

In the northeast section of northern Taiwan lies Pingxi, Shuangxi and Gongliao. These New Taipei City districts are known for their abundant natural and tourism resources, but a lack of external transport links has dramatically slowed tourism development in the region.

Meeting Demands for a Tourism-Based Circular Road Network

Traffic to the region quickly increased when the main road in the northeast area of the region, Provincial Highway 2, fully opened in 1983. Demand was heavy however. Besides needing to carry highway traffic between Taipei and Yilan as well as between Keelung and Suao ports, it had to accommodate the northeast coast and the influx of tourists brought by development. Heavy traffic led to annoyances and disputes between industrial and tourism users, particularly on weekends and holidays.

These problems led to repeated calls to build a new route that took into account the entire northeast coast transport network. Besides improving regional transportation, by connecting to the coastal tourism band along Provincial Highway 2 the new route could create a circular road network to promote northeast tourism. Better transportation would then spark economic development in underdeveloped sections of New Taipei City.

Advancing Regional Development by Reducing Traffic Congestion

To improve transportation in northeast Taiwan, the DGH launched the Provincial Highway 2C Construction and Improvement Project. Goals were as follows:

1. Build a circular road network along the northeast coast to ease weekend and holiday traffic along the Northern Coastal Highway.
2. Promote balanced development in Pingxi, Shuangxi, Gongliao and other areas to improve quality of life for residents.
3. Build a circular road network to boost northeast coast tourism and improve travel quality for Taiwan residents.
4. Develop a circular road network that links mountain and sea tourism routes in the north.

Swift Completion of Related Construction Projects

The project involved improvements to 27.9 km of roadway from Keelung's Nuannuan to New Taipei City's Fulong District. Of this 22.13 km is completed, 4.71 km remains under construction and 1.06 km is still in the design stage.

1. Tenders Under Construction:

(1) Provincial Highway 2C 1K+856~4K+280, New Road Construction

A. The project was settled following negotiations with the Keelung City government and local residents between 2007 and 2012.

B. Construction began on September 1, 2012. Work was taking place quickly so the project could be finished before the end of 2013.

(2) Follow-Up Construction to the Jiping Tunnel (Construction Tender):

A. A tunnel to be built between Keelung and New Taipei City (Pingxi) was disrupted by excess dirt and rock because builders were not permitted to use Keelung's Dongshih Street to transport waste materials excavated from the north end of the tunnel. After nine rounds of negotiations with the Keelung City government, local representatives and residents, agreement still could not be reached. The original contractor blamed the excess waste and other reasons when suspending work on various occasions, and later applied for mediation to change contractual terms. The Public Construction Commission mediated an end to the tender.

B. The government issued another tender for the project. Work began on December 1, 2008, and was finished on November 6, 2012.

(3) Follow-Up Construction to the Jiping Tunnel (Machinery Tender):

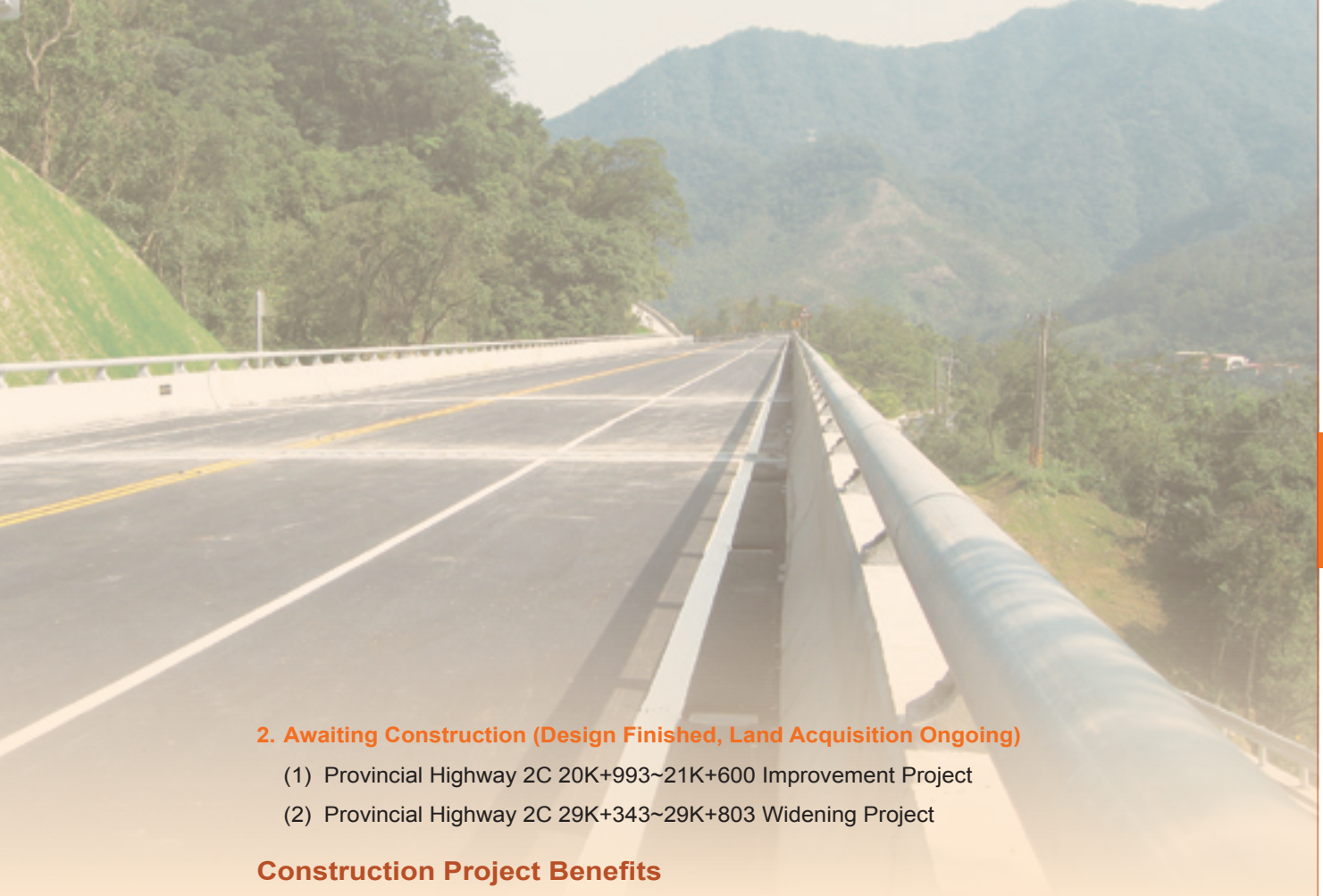
Work began on January 15, 2013, and is projected to finish on January 19, 2014.

(4) Provincial Highway 2C 7K+180~9K+150, New Construction:

Work began on June 1, 2011, and is projected to finish on December 6, 2013.

(5) Provincial Highway 2C 25K+663~26K+063 Improvement Project:

Work began on April 1, 2012, and is projected to finish on April 29, 2013.



2. Awaiting Construction (Design Finished, Land Acquisition Ongoing)

(1) Provincial Highway 2C 20K+993~21K+600 Improvement Project

(2) Provincial Highway 2C 29K+343~29K+803 Widening Project

Construction Project Benefits

The construction and improvement project to Provincial Highway 2C has important meaning for the development of northeast New Taipei City. Projected benefits include:

1. After the section of road between Nuannuan and Shifenliao is completed, travel time will be reduced by 20 minutes compared to County Highways 102 and 106.
2. The new highway will reduce travel time between Shifenliao and Fulong by 30 minutes compared to Township Road Bei 38 or County Highway 102. It will provide better external access for the Pingxi, Shuangxi and Gongliao areas. And when emergencies arise it will reduce losses to life and property by providing a more convenient transportation system.
3. The New Taipei City government has launched a comprehensive development plan for tourism in Shiding, Pingxi, Shuangxi, Gongliao and Ruifang. The highway will accommodate this plan by making better use of tourism resources in the area, boosting development of the tourism and recreational industries and improving tourism quality for Taiwan residents.

Widening of the Road Foundation and Surface on Provincial Highway 9 466K+300~467K+050 (Previously 480K+220~480K+970)

Widening of the Road Foundation and Surface on Provincial Highway 19A 61K+372~62K+339

Progress on the Provincial Highways Dangerous and Bottleneck Sections Urgent Improvement Project

The provincial highway network is generally complete, though a few sections awaiting improvements contain either unsafe areas or bottlenecks, making them prone to traffic jams.

The government therefore launched the Provincial Highways Dangerous and Bottleneck Sections Urgent Improvement Project to reduce damage caused by natural disasters, improve traffic safety, minimize loss of life and property, maintain local traffic flow, and make highways more efficient. The network will better meet the needs of local industry, advance local economic development, and increase trust in the safety and reliability of transportation infrastructure.

Goals Cover Driving Safety and Transportation Services

When the project was launched in 2008 it called for improvements to 66 dangerous sections of road and 19 bottleneck sections. Goals were as follows:

1. Raise service quality on provincial highways. Ensure the safe flow of traffic on highways while improving driving safety.
2. Maintain safety of provincial highways, reduce the loss of life and property caused by natural disasters, and thereby improve the government's image.
3. Reduce the long-term costs of highway maintenance.
4. Raise efficiency and transportation safety on local highway networks. The road system can then better meet transportation needs of local industries and advance local economic development.

5 Maintenance Offices Oversee Jurisdictional Construction

The DGH's Maintenance Offices 1-5 are responsible for construction and supervision of this project while the DGH's Maintenance Division provides oversight. The offices negotiate with local governments to obtain support in land acquisition (including demolition of land improvements).

Anticipating Environmental Protection Countermeasures Before Construction Begins

The project includes 85 items spread across Taiwan. To minimize impact of construction and opening of the highways on the natural environment and society, the project heeds: 1. hydrologic elements and water quality, 2. air quality, 3. noise pollution and vibrations, 4. waste materials, and 5. protection of plant and animal life. These serve as a foundation for environmental protection during construction.

Overcoming Difficulties to Achieve Project Goals

Challenges include preventing natural disasters such as rock falls, stratum breaking and debris flow, managing urban planning changes, explaining details to residents and resolution of any protests.

Under these conditions project execution is not easy, but the Maintenance Offices overseen by the DGH do not quit. Besides using building techniques to overcome difficulties, they have worked with local governments to acquire land and held public hearings to communicate with locals. Work items have gradually been completed each year since 2008, easing traffic congestion while improving road safety and service quality.

Widening of the Road Foundation and Surface on Provincial Highway 9 466K+300~467K+050 (Previously 480K+220~480K+970)

Execution of the Local Government Aged and Damaged Bridge Refurbishment Project (Stage II)

Xiluo Bridge After Refurbishment

Yuemeitan Bridge After Rebuilding

In 2008 Typhoons Kalmaegi and Sinlaku toppled or severed Houfeng Bridge on Provincial Highway 13, Jiaxian Bridge on Provincial Highway 20, Niuyan Bridge on Provincial Highway 21, Wuhuliao Bridge on Provincial Highway 18, Kaiyuan Bridge in Taichung City, Changrong Bridge in Nantou, Meinan Bridge in Yunlin County, and Xizhou Bridge in then Kaohsiung County. The destruction showed the challenges faced by local governments in operating the numerous bridges on county highways, township roads and urban roads in the face of limited manpower and funding. It also showed there is much room for improvement in terms of bridge maintenance and management.

Obtaining Funds for Bridge Rebuilding

Under these conditions the MOTC recognized the need to guarantee safety and traffic flow on bridges. It therefore conducted a safety analysis of the bridges managed by local governments that are found on county highways, township roads and in urban areas then made provision for the Local Government Aged and Damaged Bridge Refurbishment Project (Stage II) to be conducted from 2010 to 2012. The project subsidized local governments in making improvements to 144 old and damaged bridges found along roads under their jurisdiction.

The Council for Economic Planning and Development notified its approval on February 10, 2010. The total budget is NT$5.264 billion (comprising NT$4.623 billion in central government subsidies and NT$641 million in local government funds).

Dynamic Adjustments Allow for Flexible Bridge Rebuilding

After completing a NT$13.2 million project to improve Taichung's Jianmin Bridge by rebuilding the lower section in 2010, the bridge was badly damaged on August 11, 2010. The MOTC used a dynamic review to adjust the budget to NT$26.4 million, so rebuilding could be expedited.

Also Taixi Bridge, in Yunlin Township's Taixi Township, was not included as part of the original project. But the need for repairs arose after an earthquake in Hualien on April 8, 2012, severed

three large beams on the upstream side of span 2, warping the shape of the bridge. Dynamic review allowed the bridge to be included under the original project.

Completion of Bridge Rebuilding to Maintain Driving Safety

Transportation construction is an important part of advancing cultural development and producing economic prosperity. And highway bridges are an indispensable part of maintaining regional transportation and economic development. As recent history shows, bridges are not immune to environmental changes or disasters, such as earthquakes and flooding. When they are severed, besides causing inconvenience, the safety of road users is put at risk. Therefore the Local Government Aged and Damaged Bridge Refurbishment Project has set the following goals:

1. Maintain the safety of road users and reduce loss of life and property.
2. Eliminate the public's safety concerns by raising bridge safety.
3. Reduce damage to bridges caused by natural disasters.
4. Lower the significant long-term costs of bridge maintenance.
5. Make travel more accessible.
6. Guarantee a complete disaster prevention and rescue road network.
7. Use public infrastructure spending to boost overall economic development.

Rebuilding Bridges to Achieve Public Infrastructure Investment Goals

Besides raising the government's image, execution of the Local Government Aged and Damaged Bridge Refurbishment Project has provided a boost to local spending and tourism. By raising capital flow and economic development, the project was able to achieve investment goals that are an inherent part of public infrastructure projects. Major bridge rebuilding that took place as part of the project in 2012 includes the following:

1. Gaomei Bridge, County Highway 181

Riverbed scouring led to exposure of the Gaomei Bridge foundations. Despite yearly attempts to reinforce and protect the riverbed, little improvement was seen. After an evaluation showed that further riverbed reinforcement work would neither protect the foundations nor ensure adequate resistance against earthquakes, the DGH decided to rebuild the entire bridge. It began moving traffic lanes on the old bridge to the new bridge in stages starting on December 21, 2012.

2. Xiluo Bridge, County Highway 145

Engineers using caissons to a depth of 20 m around Piers 10-12 and 21-25 of Siluo Bridge noticed corrosion damage on the caissons at a depth of 10 m. They made repairs using the substructure replacement technique, finishing the project on April 24, 2012.

3. Yuemeitan Bridge, County Highway 159

Yuemeitan Bridge was a bottleneck area because it is an 18-meter-wide bridge on the 24-meter-wide County Highway 159. Also the bridge piers and foundation piles were severely exposed. To improve safety the entire bridge was rebuilt (180m x 24 m) opening on April 6, 2012.

Promotion of the Region-Based Road System Construction Project

At the conclusion of a four-year region-based road system construction project, the Executive Yuan issued an official letter on July 25, 2008, directing the DGH to conduct a new Region-Based Road System Construction Project based on research and analysis from the Council for Economic Planning and Development. Factors to consider included: overall development needs of regional construction, energy saving and carbon reduction government policies, assisting regional areas in building comprehensive road networks, and making regional transportation more effective for industry. To achieve its objectives the government prioritized work based on evaluation results and awarded competitive subsidies.

Planning a Comprehensive Region-Based Road System

This construction project calls for planning of a comprehensive region-based road system that fulfills urban development and transit policies. It can serve as a basis for formulating construction plans to take place in stages and over a series of years. Contents are as follows:

1. Improve bottlenecks in the external links that connect region-based road systems and national transportation networks, thereby improving road service quality. Achieve the goal of a maximum of 15 minutes driving time from regional and industrial centers along the western corridor to freeway or expressway interchanges.
2. Making improved mobility and accessibility between region-based road systems and national transportation networks the basis for new road construction and improvements.
3. Achieve a balance between urban and rural areas to mitigate the negative effects of excessive urban growth. Encourage commercial and industrial enterprises to rely on the unique characteristics of each city and township to achieve balanced urban development in each region.
4. Build convenient road links between mass transit stations to increase the benefits of transfer to mass transit systems. This can maximize efficiency of transportation tools and make the overall transit system more effective.
5. Improve overall planning and development of regional tourism resources. This can improve the quality of domestic tourism and encourage people to travel more.

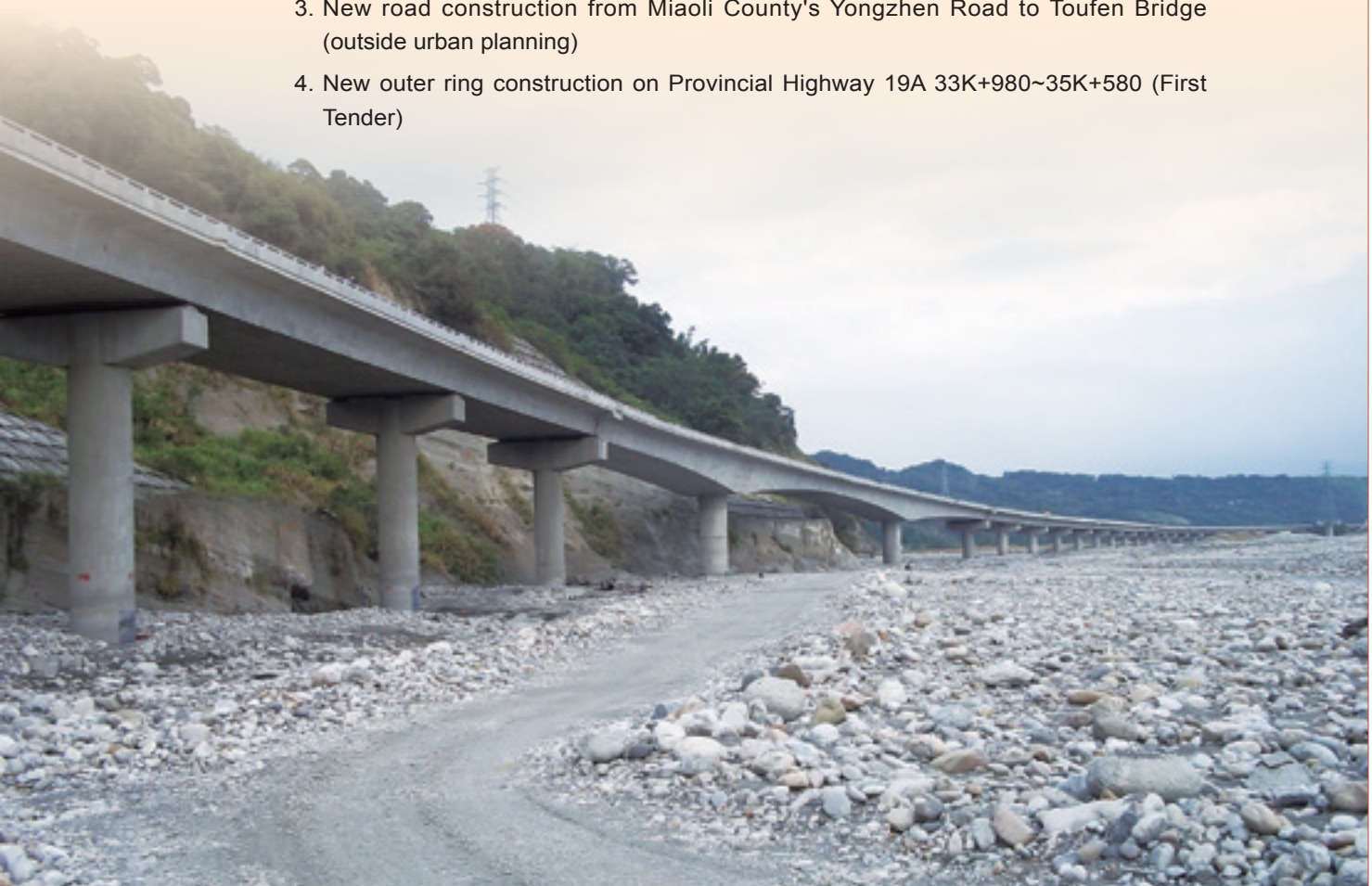
The government will invest NT$36 billion between 2009 and 2014 to achieve the goals outlined above, thereby improving freeway and expressway networks as well as the roads that connect to them. This will lead to a complete regional transportation network in urban areas and fulfill the government's goal of reducing transportation time from regional and industrial centers along the western corridor to freeway or expressway interchanges to 15 minutes or less. The project is comprised of 147 sub-projects, and the DGH is providing subsidies to local governments carrying out related construction work.

Tainan New Outer Ring Construction on Provincial Highway 19A 33K+980~35K+580 (First Tender)

12 Sub-Projects Completed in 2012

Since 2009 the government has completed 82 of the sub-projects encompassing 119 km of roadway. In 2012 it completed 12 of these sub-projects encompassing 22 km of roadway, summarized below:

1. Road and bridge widening on Nantou County Highway 131 43K+145~43K+600 (including Qingxiu Bridge)
2. Detour construction on Miaoli County Highway 124 (Xixi Bridge to County Highway 124)
3. New road construction from Miaoli County's Yongzhen Road to Toufen Bridge (outside urban planning)
4. New outer ring construction on Provincial Highway 19A 33K+980~35K+580 (First Tender)



Earthquake Resistance Strengthening on Xinrong Bridge, Provincial Highway 1
(Strengthening Steel Plate Covers to Increase Earthquake Resistance Capability)

Completion of the Provincial Highways Urgent Construction Project for Earthquake Resistance Strengthening of Bridges

To improve earthquake resistance of bridges, the DGH implemented the Provincial Highways Urgent Construction Project for Earthquake Resistance Strengthening of Bridges (2009-2012), which was included as part of the Economic Revitalization Policy — Project to Expand Investment in Public Works. It began by assessing the earthquake resistance capability of 2,213 bridges, based on research that analyzed highway bridge earthquake resistance capability and the feasibility of strengthening. Initial screening looked for problems such as old age, depreciation, insufficient strength, insufficient length of unseating devices, and failure to meet current highway bridge earthquake resistance design specifications. 512 bridges that fell short of earthquake resistance standards were discovered with an estimated total cost of strengthening of NT$14.7 billion.

Project Goal of Strengthening Earthquake Resistance of 399 Bridges

The project included detailed analysis of 512 bridges. After receiving budget approval of NT$8.5 billion and conducting a rolling review of earthquake resistance strengthening work, the DGH set a goal for strengthening of 399 bridges. Once the project is complete and its achievements can be assessed, the DGH can research the possibility of a follow-up plan to strengthen the remaining 113 bridges using the general central government budget.

Earthquake Resistance Strengthening on Huajiang Bridge (Water Jet Treatment on Concrete Piers)

Earthquake Resistance Strengthening on Huweisi Bridge (Using Riprap Around Bridge Piers to Stabilize the Riverbed)

A Mission to Stabilize Basic Transportation Infrastructure

The project goal of completing urgent earthquake resistance strengthening on 399 bridges was completed by the end of December 2012.

When bridge earthquake resistance strengthening was complete, besides meeting earthquake standards (no damage in small quakes, repairable damage in mid-sized quakes, and no collapse during large quakes), the bridges were able to avoid damage from extremely heavy rain during typhoons. By serving as part of a high-quality transportation network for road users, the bridges will boost local economies and industries as well as tourism development.

Reflections on the Post-Morakot Highway System Urgent Repairs and Rebuilding Project

For three years between August 2009 and August 2012 the DGH conducted a post-Morakot urgent repairs and rebuilding project on the highway system. The total cost was NT$26.63 billion (with NT$3.74 billion shifted from less urgent projects, NT$12.24 billion shifted from provincial highway projects [including reserves], and NT$10.64 billion shifted from county highway and township road projects). The project consisted of 961 tenders, including 93 tenders for provincial highway urgent repairs (all of which are finished), 181 tenders for provincial highway rebuilding (of which 152, or 84%, were completed by the end of 2012), and 687 tenders on county highways and township roads (of which 667, or 97%, were completed by the end of 2012).

Typhoons and Extreme Rain Make Rebuilding More Difficult

From the visit of Typhoon Morakot in 2009 to August 2012 another 11 typhoons or extreme weather events hit Taiwan. Morakot rebuilding zones were directly hit on eight of these occasions: Typhoon Fanapi in 2010; extreme heavy rain events on May 12, July 18 and November 15 along with Typhoon Nanmadol in 2011; and extreme heavy rain events on May 12 and June 10 along with Typhoon Talim in 2012. These events made rebuilding even more difficult.

Post-Disaster Work Involves Restoring Access, Improving Reliability, Then Rebuilding

The power of nature is impressive. At any time a major natural disaster can inflict significant damage on the environment. Only after years of hard work do conditions return to their original state. For the past three years the DGH has addressed highway emergency repairs, rebuilding and driving safety based on transportation needs and overall land planning. The rebuilding process requires prudent planning and evaluation, not least of which when it comes to managing temporary roads and bridges that are unsuitable for withstanding disasters but still need to be used during the flood season. Based on past experiences the DGH has formulated a three-stage recovery strategy: 1. Restoring access for emergency transportation and supplies, 2. Improving reliability and safety of routes for emergency transportation and supplies, and 3. Restoring highway function.

Learning to Coexist with Disasters — A Humble Attitude to Nature

When Typhoon Morakot struck in 2009, the riverbed along Provincial Highway 20 between Taoyuan and Fuxing (95K~103K) in the Qinhe Community area rose by about 30 m, completely covering an open tunnel and the road foundation.

To quickly restore traffic on the Southern Cross-Island Highway, the DGH decided to excavate land alongside the original Provincial Highway 20 to build a temporary road. Designers planned for this road to serve as a mid-term solution, and it withstood several typhoons and bouts of extreme heavy rain in 2011. But during the June 10 flooding incident of 2012, 1,500 mm of rainfall fell in some mountainous areas. Across from the temporary road, the Butangbunasi River had not yet been repaired. A large debris flow that fell into the Laonong River blocked floodwaters, washing away the Laonong's left bank. Damage caused to the slope at the base of the temporary road quickly led to the road's destruction.

Survival Disaster Becomes a Key Post-Morakot Topic

Three years have passed since Typhoon Morakot struck, but the challenges Taiwan faces due to the extreme weather events caused by global warming are only beginning. Post-Morakot, disaster and survival have become important issues. Mankind has developed theories of natural selection and survival of the fittest, but true risk management also requires minimizing overall damage. In an age where extreme weather events can cause significant destruction, there needs to be a way to avoid an endless cycle of disaster, survival, disaster, survival.

Humans cannot fight nature. Instead, they must learn how to live in harmony with the natural environment. They need to pay close attention to changing extreme weather patterns. When an unusual weather event occurs, government agencies must help one another in carrying out necessary preparations and disaster prevention. For its part the DGH will continue to improve roads damaged by Typhoon Morakot, so it can ensure the completeness of the highway system and the safe flow of traffic.

Provincial Highway Bridge Construction to Accommodate River Management Planning

The increasing severity of flood disasters has led the Water Resources Agency, Ministry of Economic Affairs, to conduct a survey and analysis on flooding in all Taiwan rivers. Findings have been applied to determine solutions to flooding and to formulate river management planning as well as a Flood-Prone Areas Management Plan.

Provincial Highway Bridges Affect the Outcome of River and Flood Management Planning

The plans mentioned above form a basis for the DGH's Provincial Highway Bridge Construction to Accommodate River Management Planning. This planning took into account the Flood-Prone Areas Management Plan and central government river management, as well as regional drainage systems and inter-regional river management planning. Its goal is to improve overall catchment area design by improving bridges that fail to meet requirements of flood and river management planning, but nevertheless are not marked for rebuilding because they are structurally sound and meet local transportation capacity needs. Characteristics of these bridges include insufficient length, low bases and inadequate area for water to flow past. Such deficiencies could completely disrupt flood or river management plans and even turn these bridges into danger spots in times of flood, showing the importance of continued improvements.

Approval from the Executive Yuan to Improve 61 Bridges

This project, scheduled to take place from 2009 to 2013, was based on an official Executive Yuan letter from February 9, 2010. It originally approved work on 63 bridge and box culvert sub-projects, though the letter stated: "While the project is underway, adjustments may be needed based on additional reviews by the Ministry of Economic Affairs or newly approved water management plans. In principle the Executive Yuan approves redistribution of funds within the budgetary limits when preceded by MOTC approval."

Changes came in the third part of a rolling review. In the MOTC's official letter from October 11, 2012, the ministry settled on a budget of NT$5,869,367,000 to improve 61 bridges.

Rebuilding of the Jiukong Bridge to accommodate a management project for the Tsailiao River, a tributary of the Tsengwen River.

Rebuilding of the Ercenghang Bridge on Provincial Highway 1 340K+110 to accommodate an Er-ren River management project.

Improving Safety Through Joint Management of Bridges and Rivers

The project led to improvements on 61 bridges between 2009 and 2013. It is expected to fulfill the following goals:

1. Expedite the flood prevention benefits contained in the Water Resources Agency's River Management Planning and Flood-Prone Areas Management Plan, thereby achieving the goal of joint bridge-river management.
2. Eliminate the public's safety concerns by improving highway bridge safety.
3. Reduce the damage to bridges caused by natural disasters.
4. Improve the government's image by increasing trust towards the government.

A Third of Bridge Rebuilding Work is Already Complete

This project was based on management plans introduced by water resources planning agencies. It focused on improving provincial highway bridges and box culverts to increase the flood prevention capabilities of structures that span rivers and improve driving safety on bridges. Implementation was made possible through inter-ministry cooperation.

The DGH negotiated with various groups to develop consensus over the project. It adopted public hearings and a river joint management task force to ensure that execution was smooth. It gathered widespread opinions, holding several rounds of discussions with the general public and negotiating with public agencies and locals directly affected. The range of parties involved made the project challenging and complicated.

In 2012 renovations were finished on seven bridges associated with this project, bringing the total number of bridges completed to 20. Work will continue to achieve the goal of joint management of bridges and rivers.

Considerable Benefits from Bridge Improvements

Climate change and the increase in typhoons and extreme rain that it brings affects bridge safety. This project takes into account management plans introduced by water resources planning agencies to improve provincial highway bridges and box culverts. It is expected to lead to the following benefits:

1. Lower flooding intensity and frequency in an area of 500 sq. km prone to flooding.
2. Raise the completion rate of flood prevention equipment in rivers and regional drainage systems overseen by local governments to more than 60%.
3. Reduce long-term costs associated with highway bridge maintenance.
4. Expand government infrastructure investment to create job opportunities and boost the economy.

Touching

Service in Touch with People's Needs

End of Regular Motor Vehicle License Renewals for Automobiles and Scooters

After years in operation the system of requiring regular renewals of motor vehicle licenses for private automobile and scooter users ended in January 2013. The change is expected to save time and money for six million automobile drivers and 15 million scooter drivers. Nearly every household in Taiwan is expected to benefit.

Reduced Benefits of Registration

A motor vehicle license is proof of ownership. When the KMT government came to Taiwan in the 1940s, the registration and renewal system was already a valuable part of vehicle management. It offered a way to change, approve and correct ownership and vehicle information while serving as a mechanism to ensure that inspections and insurance were

in order. The registration listed the owner of the vehicle and the vehicle's specifications, both valuable pieces of information to assist authorities (police, motor vehicles agents, environmental protection agencies and tax administrations) carrying out inspection duties. The registration certificate was also an important document when people were buying or selling a vehicle. But advances in information technology and society have gradually reduced the importance of this document. Therefore, the MOTC has decided to eliminate regular vehicle registration renewals for private automobiles and scooters.

Ending Regular Vehicle Registration Renewals Will Save Time and Money

Originally vehicle registration for personal use automobiles and scooters had to be renewed every three years and two years, respectively, at a cost of NT$200 and NT$150. Each year there were typically 1.8 million applications among automobile users and four million among scooter users.

As motor vehicles agencies sought to provide more convenient services, they begin to let vehicle owners change their registration at convenience stores, post offices and contracted inspection agents. But the petrol needed to travel to these places, the time spent

waiting, and the paperwork still imposed a burden on vehicle owners and society as a whole. The launch of the new policy in the new year will save vehicular owners NT$1.1 billion and more than 6 million hours.

Old System Continues for Vehicle Information Changes and Special Class Vehicles

Motor vehicles agencies will continue to issue paper motor vehicle licenses when drivers apply for new license plates, vehicle ownership changes or when modifications occur. This will give drivers the vehicle registration documents they require. Also in the past scooter drivers paid a fuel tax when renewing their vehicle registration. To accommodate the new renewal regulations, like automobile owners they will now receive payment notification by mail.

The old system of regular renewals for vehicle registration will remain in place for commercial and special classes of vehicles, such as tour buses, ambulances, school buses and kindergarten vans. This will assist vehicle management, motor vehicle supervision and police inspections. Also if vehicle owners choose to scrap their vehicle or modify registration information, they still must visit the motor vehicles office to make relevant changes. This helps them guarantee their rights.

Pilot Project to Hold the Driving Exam on Public Roads

Road Driving Exam Pilot Project

The current driving portion of the drivers' license exam takes place in an enclosed area meant to simulate road conditions. But the static nature of the setting means that exam takers are only tested on basic vehicular operation skills and their knowledge of general traffic regulations. Examiners cannot determine how the exam taker interacts with pedestrians, drivers and vehicles found in real world driving conditions.

Ensuring Driving Safety with the Road Driving Exam

There are many shortcomings with driving exams conducted in enclosed areas. They do not show if exam takers have proper driving habits, a responsible attitude toward driving or an ability to assess risk. Because they fail to reflect actual driving conditions, they also do not show whether the exam taker has developed the confidence or the ability to drive safely on the open road. In some cases, drivers who obtain a license are still highly uncomfortable driving a vehicle on public roads. For these reasons the DGH has therefore decided to launch a road driving exam pilot project.

Motor Vehicles Offices Began Implementing the Pilot Program in 2011

The initial stage of the pilot program began on October 14, 2011, when the DGH's Training Institute recruited its first batch of students. Since the first exam on December 7, 2011, 679 new drivers have taken the road exam and 446 have passed, a success rate of 65.68%.

The Penghu Motor Vehicle Station, Kaohsiung Motor Vehicle Office and Lienchiang Motor Vehicle Station began accepting individual road exam applicants in 2012. In Kaohsiung 87 of 119

people who took the exam passed, for a success rate of 73%, in Penghu five of 11 people who took the exam passed, a success rate of 45.45%, and in Lienchiang the one person who took the exam passed.

Private Driver's Education Centers Respond to the New Driving Exam

A research team at Feng Chia University conducted an evaluation and research study on the pilot automobile license road exam. The study included on-site observation and information gathering in Japan, as well as questionnaires in Taiwan. A majority of respondents had a positive view of road exams for automobile drivers.

The Fuan Driving School, located in the administrative region of the Taipei City Motor Vehicle Office, joined the pilot program on December 19, 2012. It was followed by the Tung Ann Driving School, located in the administrative region of the Kaohsiung Motor Vehicle Office, in January 2013. Entry of these two private driving schools into the pilot program will increase the number of research samples.

Better License Plates for Automobiles and Scooters

Most scooters and automobiles sport license plates that were designed before the reorganization of the Taiwan Provincial Government. They were introduced in January 1992. As automobile quantity and type has increased, simply placing an identifier at the front followed by a sequence of numbers has become insufficient. A slight modification increased combinations by permitting the number sequence before the identifier. For example, small passenger vehicle plates could include combinations such as AB-2233, A2-2233, 2A-2233, or 2233-AB and 2233-A2. But this is an inelegant system and the identifiers will soon be exhausted.

A New Design to Increase Identifiers

To solve the approaching shortage of identifiers, on October 25, 2011, the DGH sent new license plate styles and specifications for automobiles and scooters to the MOTC. The ministry gave its approval on November 11, 2011.

Visually the new license plates are similar to the old plates. The font size, plate color and material are the same, but there is an additional number and the plate is longer and thinner. The screw holes on the bottom have been replaced with a picture of a plum blossom. Also laser engraving and folded edges are adopted as is a font that prevents modifications.

On March 1, 2012, the DGH invited bids from companies that manufacture automobile and scooter license plates. On April 27 it awarded the tender, signing a contract on May 10. The tender included 24 models of new license plates to be verified and delivered in three batches. The winning bidder produced samples and delivered them for inspection. After the DGH verified that the samples met standards, on July 23 it provided plate identifiers and requested manufacture of the plates based on contractual terms. All plates were finished by December 20. Verification and delivery of the third batch was completed on January 4, 2013.

Motor vehicle offices (stations) began introducing the new plates on December 17 offering them to drivers with a new automobile and those cancelling or writing off old plates in exchange for new ones. Old plates already issued can remain in circulation. Also the earlier practice of letting people choose numbers, for a price, will continue.

Promotion of the Highway Public Transportation Development Project

To strengthen public transportation development, the MOTC introduced a three-year (2010-2012) highway public transportation development project in 2009. The plan, which set out to develop transportation models best suited to the needs of each region, was focused on four guiding principles: providing excellent public transportation, attracting new and habitual users, creating a robust public transportation environment, and guaranteeing basic transportation rights in remote areas.

Subsidizing Bus Routes in Rural Areas and Replacing Old Vehicles

To achieve these goals the DGH has subsidized more than 1,000 remote service routes over the past three years at a cost of NT$3.43 billion. These subsidies ensure the basic transportation rights of people in remote areas and on Taiwan's outlying islands.

Another component of the DGH's plan is to guarantee a more comfortable riding experience for bus users. By subsidizing 2,189 new intercity buses, the DGH has reduced the average age of buses used on highways to about eight years. Progress has also been seen in city buses, where operators have lowered the average vehicle age to under five years, and the DGH has subsidized the purchase of 1,049 low-floor buses. This has increased the number of low-floor buses to more than 20% of total city buses, making it easier for seniors, the disabled and others with impaired mobility to take public transit. They have also provided an all-new riding experience for the general public.

Subsidized Community Shuttle Bus Service in Dahu Township, Miaoli County, Brings Greater Convenience

Subsidized Railroad Shuttle Bus

The Cishan Bus Station was Built Using Subsidies

Promotion of E-Tickets and Shuttle Bus Transfer Services

As e-tickets grow in popularity, the DGH has decided to integrate them further into the highway bus system. It subsidized the purchase of multi-card scanners for more than 8,400 buses, so people can use e-cards to ride intercity buses around Taiwan. To further increase convenience of the bus transit system the DGH has copied the metro shuttle bus system by introducing railroad shuttle buses in the Keelung area as well as intercity bus transfer stations in Keelung, Hsinchu, Yunlin's Xiluo Township, Yilan's Luodong and Jiaoxi, and Kaohsiung's Cishan. These improvements are expected to change the earlier poor perception people have of public transit, turning it into a top travel option.

Subsidies to Purchase Low-Floor Buses Make Transit Easier for Seniors, the Disabled and those with Impaired Mobility

Refunds for Excessive Fuel Tax

Calculation errors on the fuel usage table used to determine the automobile fuel tax led to excessive fuel tax levies on certain vehicles since July 1,1983. Immediately after the news broke the DGH recommended to the MOTC that it refund in full excess fuel tax levies. It also recommended that the ministry not pursue fuel tax shortfalls.

	Personal Use Large Passenger Vehicles (Annual) 5401cc~6000cc	Personal Use Small Passenger Vehicles (Annual) 1801cc~2400cc		Commercial Trucks (Seasonal) 6601cc~7200cc		Motorcycles (Every Two Years) 1201cc~1800cc
	Diesel	Petrol	Diesel	Petrol	Diesel	
Original Fee	NT$9,160	NT$6,210	NT$3,726	NT$7,762	NT$4,658	NT$3,960
Corrected Fee	NT$9,162	NT$6,180	NT$3,708	NT$7,605	NT$4,563	NT$4,020
Discrepancy	-NT$2	NT$30	NT$18	NT$157	NT$95	-NT$60

Refunds Provided in Two Stages

The method and timetable for refunds was broken down into two stages based on vehicle type and usage.

1. Stage I

Stage 1 applied to personal use vehicles still on the road with the same owner. Motor Vehicle Offices (Stations) reduced the 2012 fuel tax by the amount owed without requiring application. When the refund was issued in July 2012 it was noted on the fuel tax payment notice. During this stage the ministry provided refunds worth NT$359,598,179 on 1,901,317 vehicles.

2. Stage II

Stage 2 applied to: 1. Vehicles on the road after 1983 that did not change plates prior to 1995; previous vehicle owners who transferred ownership of their vehicles after 1995. 2. Vehicles that were cancelled, written off or scrapped so original owners could not receive a discount on their fuel tax in 2012, 3. Commercial vehicle owners who were overcharged in the past for commercial vehicles still in use.

The DGH began sending notifications in September 2012. Owners could receive a discount on license or vehicular registration renewal fees, go to a Motor Vehicle Office (Station) for a direct refund, or provide banking information by fax or online to receive direct payment. Refunds will be available until September 20, 2017.

By December 31, 2012, stage 2 payments worth NT$186,016,181 were made on 599,109 refunds.

Accomplishing a Difficult Task Through Collaboration

Media exposure of the excessive fuel tax levies caused a minor uproar. Rectifying the situation turned into a major task for the DGH in 2012. Because the error occurred over a period of close to three decades, there was a significant amount of data to sift through, much of which was old and some of which was missing. The unprecedented nature of the case meant that many issues arising were unforeseeable, leaving the DGH and staff at Motor Vehicle Offices (Stations) ill-prepared. Fortunately management and staff cooperated to find appropriate solutions to problems that emerged. Eventually the news subsided and refunds were provided in a satisfactory manner.

Special Lectures for Truck Drivers

The DGH began holding lectures and training classes for gravel truck drivers as well as drivers of large trucks with prior penalties for driving through red lights, speeding, or causing an accident within the past three years. Its goals were to reduce the rate of major traffic incidents involving large trucks, encourage operators to drive more safely and help drivers understand new regulations. They could then better protect their own safety and the safety of other road users. Since the DGH held its first such class on May 2, 2012, 19,554 gravel truck drivers and 18,355 large truck drivers have attended the lectures, a total of 37,909 drivers.

Focus on Drivers' Health and Driving Skills

Design of the six-hour long class was based on a review of major accidents of the past several years. The class covered safe and defensive driving techniques, methods for preventing and handling accidents (taught by an outside lecturer), and a discussion of relevant rules. Other sections of the class focused on health management and reducing stress (taught by an outside lecturer), as well as technical issues.

The class covered health management and stress reduction to show drivers how to manage workloads. The lessons also taught them early warning signs of mental or physical distress, so they can reduce driving risks caused by the sudden onset of medical issues. Another component of the class was a two-hour technical lesson that covered truck maintenance, braking systems, event data recorders, fleet management, and advanced equipment. Inclusion of these practical applications provided additional benefits.

Student Satisfaction Exceeds 90%

Analysis of student responses showed that 94.5% were satisfied with the class and 5.5% dissatisfied. The the two items students were most satisfied with were "the training improved my driving safety knowledge" and "class instructors were professional and well prepared." To improve future classes, the DGH will refer to suggestions of the students.

A Special Activity for Young Drivers

Every year scooter accidents account for a significant portion of traffic-related deaths. To reduce death and injury, the Taipei Motor Vehicle Office held an inaugural event geared specifically toward young adults. The purpose was to remind new drivers that getting a license means more than just obtaining the right to drive. It also symbolizes the beginning of new responsibility.

Correct Driving Habits and Following Regulations

The activity focused on developing correct driving habits and a respect for traffic laws in young drivers recently receiving licenses. It included written and road exams for scooters, followed by a safe driving class taught by an expert in traffic law. The instructor covered skills and concepts that could help drivers remain safe on the road, lessons which were enhanced by on-site training. Topics included: advantages and disadvantages of front and rear brakes combined with a demonstration of proper braking techniques; the inner gap between front and rear wheels when trucks turn, along with blind spots; important items for scooter drivers to pay attention to; scooter turning technique; and inspections scooter drivers should carry out before hitting the road.

Nationwide Promotion of this Meaningful Event

The Taipei Motor Vehicle Office did an excellent job of hosting the activity, letting students who had recently turned 18 acquire the knowledge and techniques they need to be safe drivers. A new understanding of the importance of driving safety allowed them to reduce the frequency of traffic accidents. The class reached the students by trading the rigid nature of the scooter driving exam for a lively, more meaningful approach. Its success led the DGH to encourage Motor Vehicle Offices across the nation to hold similar events.

In 2012 the Taipei Motor Vehicle Office held this event 11 times starting from April 21, the Hsinchu Motor Vehicle Office five times starting from July 18, the Taichung Motor Vehicle Office eight times starting from May 23, the Chiayi Motor Vehicle Office seven times starting from August 4, and the Kaohsiung Motor Vehicle Office 14 times starting from June 23.

Establishing an "E-Bus System" for Intercity Buses

Borrowing on its experiences from introducing the Smart Bus system, in 2009 the DGH began researching ways to implement a nationwide e-bus system to be deployed on all intercity buses. It designated the Taipei Motor Vehicle Office to conduct planning and implementation of the Intercity E-Bus System. The system will provide motor vehicle supervisory agencies with real-time information on operations of intercity buses, which will help operators manage their fleets. Besides saving energy and reducing carbon emissions the system provides passenger information.

Beneficial to Motor Vehicle Agencies, Users and Bus Operators

Advantages are as follows:

1. Effective Implementation of Intercity Bus Supervision

To improve management and functionality, the system compiles intercity bus operating routes, prices, station locations, and timetables, providing the information in a digital format. Also the system's on-board management function provides real-time information related to bus movement. This will improve management of bus routes, schedules, bus stop locations, subsidies and service quality.

2. Real-Time Info for Intercity Bus Users (Scheduled to Begin in 2013)

People will be able to use the Internet, cell phones or landlines to check information related to intercity bus services. This will assist with trip planning and reduce waiting time, lowering overall social costs. The greater transparency will make people more open to public transit, raising the public transit usage rate. This fits with government policy of making public transit the primary mode of transportation while producing environmental benefits such as reduced energy use and carbon emissions.

3. Helping Intercity Bus Operators Manage Their Fleets

The system uses GIS, GPS and GPRS to provide real-time bus movement information to operators. They can use this data to build internal information management systems that assist with managing large bus fleets. Bus operators can also use the system to understand the driving habits of bus drivers. The data can serve as a reference for education or training, and it can lower costs by improving fuel management. When traffic jams occur service adjustments can be made, and when urgent situations arise it can inform crisis management.

Installation of Hardware, Software is Underway

Planning of the intercity e-bus system began in 2009. Since then, an information center, a nationwide bus information exchange platform, compilation of intercity bus routes, an information management system, an inquiry system, and installation of on-board equipment in all intercity buses has been completed. The more than 5,770 buses under management consist of all intercity buses and a portion of local buses. Additional features include on-board LED displays that show station names and a voice system for announcing station arrival.

Users also have the option of checking the Travel Taiwan intercity bus inquiry system. This offers complete intercity bus routes and timetables as well as sightseeing route information to help travelers plan their itinerary. As of December 2012 the system had been used more than 500,000 times.

A Leading Reference Tool for Highway Transport

As motor vehicle supervisory agencies seek to provide a convenient highway public transit service, e-buses have become a popular trend for the safety, comfort, convenience, economic benefits, and caring service they afford. The DGH built the intercity e-bus system so people could check bus route information online. Following implementation, the system has also proved its value as a management tool for highway supervisory agencies.

Currently the DGH is conducting receipt and verification of the system while researching ways to improve identification capabilities, detection rate of buses and accuracy. After installation is complete and tests are conducted on the fully operational system, highway supervisory agencies will provide transit information tothe public, including the location of intercity buses and their estimated time of arrival at each station. Besides acting as a tool for supervisory agencies to manage intercity buses, the system gives travelers the information they need to make informed travel decisions.

Building a Delivery System for Checks and Bank Drafts

As technology advances, public agencies likewise need to progress. Because Motor Vehicle Offices rely primarily on revenue, they provide a variety of channels for people to make payments. Among these are checks and bank drafts, the volume of which received by mail increases annually. To effectively process and control dissemination of these payments and conform to the Executive Yuan's policy of increasing internal controls, the Taichung Motor Vehicle Office proposed creating a new management system. Its Accounting Office began design and planning in June 2011 with the support of the Information Management Office, the Taxes and Fees Section, the Penalty Section, and the Secretariat. The goal was to create a system that saved time, labor and money.

A Delivery System for Checks and Bank Drafts that Utilizes E-Management

The Taichung Motor Vehicle Office used the following stages to build and promote the transfer system for checks and bank drafts:

1. Stage Ⅰ (June 2011)

The process began with changing internal operations. A single payment window solved the problem of converting various checks and bank drafts (simultaneous payment of taxes and infraction penalties). Before the transfer system for checks and bank drafts was finished, the Taichung Motor Vehicle Office created a document system for copying data into Excel files to serve as a prototype for a system that can be shared between various offices and sections. This method saves labor and can be tested by related personnel.

2. Stage Ⅱ (August 2011)

The Accounting, Information, Cashier, Taxes and Fees, and Penalty sections and offices gathered for eight discussions on establishing the new system.

3. Stage Ⅲ (September 2011-February 2012)

The offices and sections of the Taichung Motor Vehicle Office, as well as the stations it oversees, gathered for eight training sessions on the launch of the new system.

4. Stage Ⅳ (March-April 2012)

The DGH invited Motor Vehicle Offices from each region to gather for an explanation of the new system. Each office had the opportunity to suggest improvements and try out the system.

5. Stage Ⅴ (May 2012)

Training was offered for "seeds" and accountants who could show others how to use the system.

An Award-Winning System with Practical Benefits

Conception, design and establishment of the transfer system for checks and bank drafts, as well as spreading the system to each Motor Vehicle Office, took a year. The MOTC honored the system in 2012 with a first class award in innovative management, as part of its reward system for innovative proposals.

Benefits of the system are economic and intangible:

1. Economic Benefits:

Because the system was self-developed, maintenance and repairs are convenient. Estimated benefits of using a self-developed system rather than one purchased externally are NT$3,600,000.

2. Intangible Benefits:

The system offers many not easily quantified benefits: it is convenient for the general public, allows for control at the source, supports long-term data preservation, and promotes resource sharing. It also combines different system resources, supports uniform procedures, and simplifies review, inspection and calculation.

Kaohsiung Motor Vehicle Office Honored by the Executive Yuan at the 4th Government Service Quality Awards

The three primary responsibilities of the DGH are highway construction, highway transit and motor vehicle supervision. Of these, it is the personnel responsible for motor vehicle supervision who are on the service front line. The Kaohsiung Motor Vehicle Office puts itself in the shoes of the general public as it seeks for ways to improve, an approach that was recognized at the 4th Government Service Quality Awards.

Planning Convenient Services that Satisfy the General Public

The office uses Facebook, microblogging and other tools to spread ideas, gather feedback and exchange opinions on the latest motor vehicle supervision news. Through rapid responses to issues it increases interaction with the general public.

To reduce grievances the office established the nation's first motor vehicle "messenger service," using text messages to notify people of traffic violations. Users simply sign up online, by fax, mail or in person. The service reduces ratio of non-payments and late fee charges.

In 2011 the office sent 46,040 such messages, and 46% of recipients paid their fines on time. Approval from users led the office to use messages for other notifications: vehicle inspections, license renewals, review of commercial driver's licenses, and road safety lectures.

An Innovative Exit Survey to Determine Customer Satisfaction

To give those who visit the Kaohsiung office a timely opportunity to comment on their service experience and to quickly resolve the few instances where people are dissatisfied with the service they receive, the office has developed an e-system that lets people input their level of satisfaction. When the response is negative, a text message is sent to a manager who can immediately intervene to understand and resolve the issue. In 2011 the MOTC gave this

service a first class award for innovative management, as part of its reward system for innovative proposals.

Cross-Government Department Services to Assist Residents of Outlying Islands

Conducting public affairs can be difficult for residents of outlying islands. To assist them, the office signed joint service agreements with the township offices of Taitung County's Green Island and Lanyu, Penghu County's Cimei and Wangan, and Pingtung County's Liuqiu. The DGH also offers automobile inspection services every half year on the Dongsha Islands. In 2011 the MOTC honored these services with a second place prize in its 3rd Innovative Contributions to Road Safety Awards.

Interactive Game Play to Teach Traffic Safety

The office designed an interactive question-and-answer game as part of its traffic safety promotion "How much heartbreak have you caused loved ones?" Players are exposed to correct driving concepts to get into the habit of following traffic rules. For its contribution, in 2011 the MOTC awarded the office a first class award in innovative management, as part of its reward system for innovative proposals.

A Model Emergency Response Mechanism for Natural Disasters

The importance of providing emergency transportation and motor vehicle supervision in response to natural disasters led the office to create the Transportation Emergency Response Plan for Natural Disasters. The plan gathers resources of each unit associated with the office and is deployed whenever a natural disaster occurs. The service not only took first place in the MOTC's 3rd Innovative Contributions in Road Safety Awards but also serves as a model for other government emergency response mechanisms.

The office will continue to offer motor vehicle services that are safe, comfortable, convenient, economic and courteous. It envisions a future where it adopts new trends (keeps innovating), exceeds expectations (excellent service), understands feelings (standing together with the general public), and is fully reliable (wins people's trust).

Madou Motor Vehicle Station Honored by the Executive Yuan at the 10th Archives Management Quality Awards

Prosperity in recent years has led to a rapid increase in the number of automobiles. This places an additional burden on motor vehicle supervision, a service that is an important part of everyday life. Archive management has also become a more important part of upholding normal operations and the general public's rights.

Madou Station Set a Goal of Participating in the Awards

The Madou Motor Vehicle Station, under the DGH's Chiayi Motor Vehicle Office, understands the importance of archives management. This has led it to form an archives management plan and set a goal of attending the Executive Yuan's 10th Archives Management Quality Awards. By subjecting itself to close examination by experts, the station ia able to evaluate its success and better rate its service quality. This information can serve as a basis for improvements.

Internal and External Promotion of Archives Management

The station created a working group to implement its archive management plan. It regularly verified progress of each item and formed five working sub-groups focused on investigation, document preparation, acquisition, appraisal and public access. Members of each sub-group relied on communication, support and distribution of duties to complete all preparatory tasks. Internally the station improved professional knowledge and had all personnel participate in training courses to improve archive management capabilities. Externally the station took advantage of mobile motor vehicle services and local festivals to let people

know the importance of public access to records while also promoting the concepts of motor vehicle supervision and driving safety.

Using Computer Technology to Give Added-Value to Archives

Archives and other parts of motor vehicle operations should complement one another. In its main office the Madou station set up an area where the general public could access archives. It held an exhibition of archives artifacts, hosted a virtual exhibition online, produced e-books, and built interactive, multimedia, and records retrieval zones. These created a rich archives environment both artistic and diverse. Visitors praised the materials for explaining advances in motor vehicle supervision and the variety of convenient services on offer.

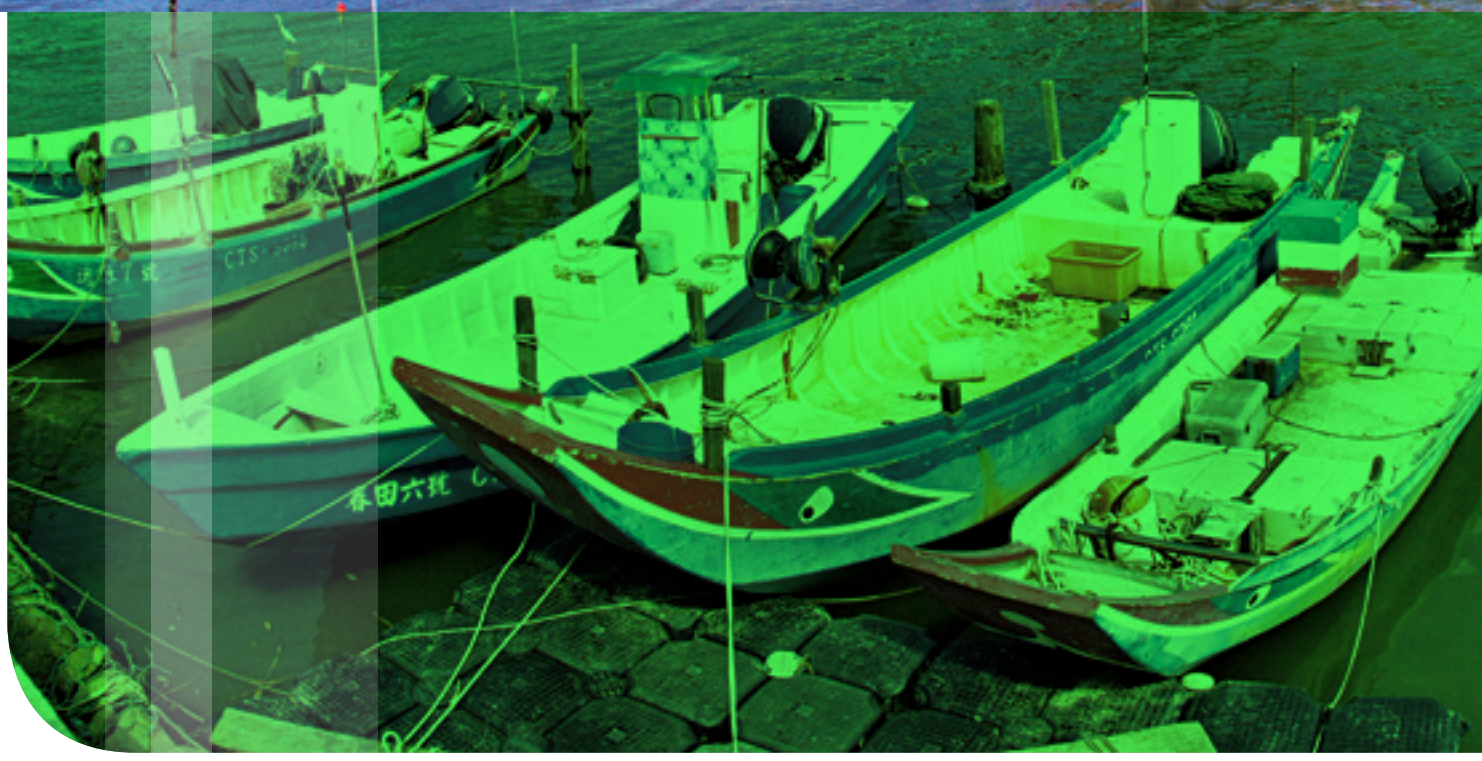
The station also created a new document access and retrieval technique that adopts a voice positioning system. By integrating document retrieval with computer technology the system achieves fast and accurate location of files. It improves archive management efficiency by bringing order to archive storage and allowing for convenient retrieval.

Awards Process Brings the Team Together

Participation in the Archives Management Quality Awards showed the power of teamwork. Management meticulously guided everyone through the process, and staff worked with volunteers and those doing alternative military service. Their efforts were recognized with the winning of an Archives Management Quality Award. This further solidified the team and encouraged everyone to continue finding ways to advance motor vehicle supervision.

Promoting

Broad Ambition for the Highway System



Using Market Value and Negotiations to Acquire Land

To achieve its goal of fair land laws and to respond to demand to reform land expropriation mechanisms, the government has amended the Land Expropriation Act. The changes, promulgated by presidential order on January 4, 2012, require the government to balance public and private interests when deciding whether to expropriate privately held land for infrastructure projects. The purpose is to better protect private property rights.

Avoiding Land Expropriation to Respect Property Rights

A priority of the amendment was that land use applicants should complete all communication and negotiation procedures before expropriation. This achieves the government's desire to use agreements as the main acquisition method and minimize forced expropriation of private property. These methods are suited to a democratic country that respects private property rights when acquiring land for public benefit.

Negotiations Taking Place at the Home of a Landowner

Land Acquisition Must Be for Public Benefit and Follow Fair Procedure

The amended Land Expropriation Act strengthens rights guarantees of landowners. It requires that before applying to expropriate land, the government has to evaluate the public interest, purpose and necessity of such an undertaking. Once these tasks are finished, the government then has to explicitly stipulate land expropriation requirements and procedures. The changes have lengthened the application process to expropriate land while making it more difficult. This means landowners have to wait longer for acquisition procedures to finish so they can receive compensation.

To respect the rights of landowners, the government must first negotiate a deal to purchase land based on market value. Only after these negotiations fail can it apply for expropriation. In other words, if an acquisition agreement can be reached before the expropriation stage, the government does not need to resort to forced expropriation. This in turn lowers incidence of public grievances.

Negotiations Based on Market Value Encourage Landowners to Sell

Negotiations based on market value will become the government's main method for acquiring land. Because market value is defined as the normal market transaction price, landowners can enjoy an additional guarantee that their property will retain its value.

When an agreement is reached, the two sides sign a purchase and sale agreement. Once the transfer and registration procedures are complete, the original landowner delivers the property and receives payment. Because the timeframe is shorter than expropriation, landowners are more willing to enter into a sales agreement.

Signing of a Purchase and Sale Agreement

Negotiations Offer a Win-Win Model for the Government and Public

Acquisition through negotiation offers a win-win model for the government and the general public. During the negotiation process, landowners can express their opinions and secure their rights. The government can also use ongoing communications and negotiations to facilitate the land acquisition process. Therefore, when acquiring land for construction projects in 2012, the DGH earnestly sought to negotiate with landowners.

Projects in 2012 That Involved Land Acquisition Based on Market Value

Item	Construction Project
1	Jingzhong Bridge Reconstruction, Provincial Highway 1B 15K+379
2	4th. Shejiao Bridge Construction, Provincial Highway 1 181K+510
3	5th. Shejiao Bridge Construction, Provincial Highway 1 181K+510
4	Emei Bridge Reconstruction, Provincial Highway 3 96K+010
5	Sanhe Bridge Reconstruction, Provincial Highway 27 15K+960
6	Widening Improvements, Provincial Highway 9 407K+264-408K+140
7	Reconstruction of Provincial Highway 20 82K+500-95K+506 (Including Bingcai Bridge)
8	Road Foundation Construction Following Typhoon Morakot, Provincial Highway 21 99K+895, 101K+330, 79K+760, 80K+180
9	Widening Improvements, Provincial Highway 1 Xinying-Xinshi Section (Guantian District Area)
10	Widening Improvements, Provincial Highway 1 360K+474-361K+000
11	Slope Repairs Following Extreme Heavy Rain, Provincial Highway 9 428K+750-897
12	Reconstruction of Provincial Highway 20 82K+500-95K+506 (Including Shengjing Bridge)
13	Construction Following Typhoon Morakot, Provincial Highway 27 6K+100-200

SafeTaiwan@WikiGIS Spatial Data Warehouse and Service Platform

In its efforts to provide safe, convenient and enjoyable "iRoad" services, in 2012 the DGH began to use spatial data as a way of combining highway planning, new construction, maintenance, disaster prevention and rescue, motor vehicle supervision, traffic management, and public transit management. It gathered information openly available domestically and abroad, as well as real-time information, then developed it into an integrated browsing experience combining maps and other data. Government agencies and the general public can use these tools to evaluate risk and make informed decisions.

Using "SafeTaiwan" as the Development Principle

A prerequisite of convenient and pleasant service is safety. The first stage of this process involved establishing the SafeTaiwan@WikiGIS platform; overall principles continued to be open data, digital convergence, e-governance, and a simple approach. One goal was development of a standardized spatial data storage and service platform that can integrate existing maps, data and system information. Another goal was establishment of a universal spatial data service platform that provides maps with information from multiple sources and that external users can access on various devices.

Standardized Spatial Data Warehouse

Since 2010 the DGH has used Google Earth to build the Highway Disaster Prevention and Rescue GIS Decision Support System. Another advance came in 2011 when it opened the new highway disaster prevention infocloud webpage. Then, in 2012, it combined these experiences with the Google Earth Enterprise to gather spatial data and maps on the "SafeTaiwan" platform under six intuitive elements: Land, Water, Roads, Bridges, Humans, and Disaster. The DGH also created standardized formats for map and information management as well as announcements. These compose a fast and convenient map and information browsing experience which improves safety.

Map and Information Service Based on the Principle of Universality

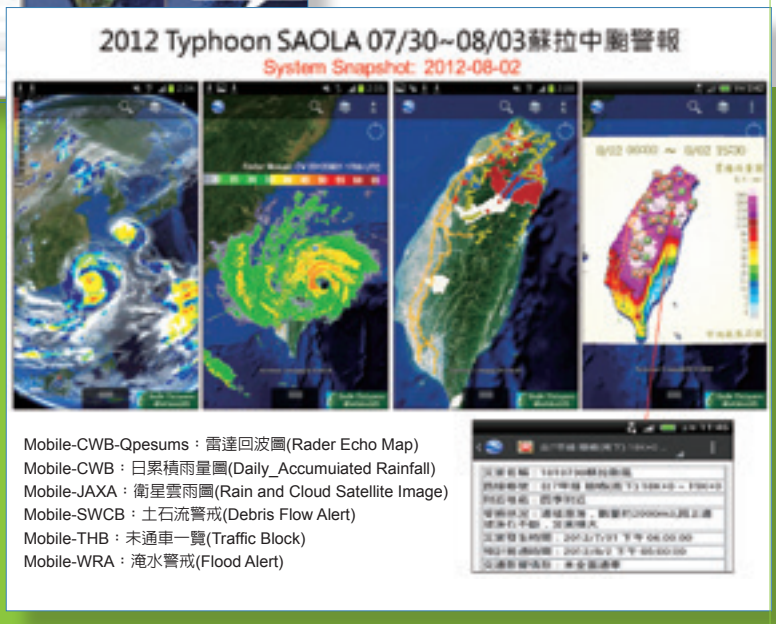
To provide better service the DGH launched five separate products based on the needs of different user groups. Each offers highly usable and fast service that works across different devices and browsers. They are based on the principle of "many to one and one to many." Various real-time and static maps and information are collected from production units then compiled onto a single platform (many to one; N to 1). The platform then provides these data for inquiry, display and management (one to many; 1 to N), creating a universal map and information service outlet.

Integrated Maps and Information from a Wide Range of Sources

The DGH negotiated with government agencies to obtain maps and information from a wide range of sources, including the Executive Yuan's Office of Disaster Management, the National Science and Technology Center for Disaster Reduction, the Water Resources Agency, the Soil and Water Conservation Bureau, the Central Geological Survey, the Central Weather Bureau, the Aerial Survey Office, the Institute of Transportation, the Forestry Bureau, the MOTC's Information Management Center, the MOI's Information Center, and the National Land Surveying and Mapping Center. The DGH also organized its own business spatial data contained in the SafeTaiwan platform. The total number of map and information types already exceeds 250, covering fields as diverse as information and communication technology, transportation, atmosphere, water resources, civil engineering, environmental engineering, surveying, geology, and disaster prevention and response. Besides informing advance warning decisions for disaster prevention and response applications, it provides autonomous risk management. Moreover, services can be used by policymakers during national land planning.

Using Spatial Data Applications for Highway Disaster Prevention and Rescue

In 2010 the DGH finished its Highway Disaster Prevention and Rescue GIS Decision Support System, and in the following two years it continued development of the SafeTaiwan@WikiGIS Spatial Data Warehouse and Service Platform. Besides adopting open government information principles such as Open Data and WikiGIS, these integrate openly available resources, maps and information from around the world and other government agencies, as well as real-time information from joint disaster prevention agencies. During the 2012 flood season the DGH used Google Earth Enterprise, Facebook and other tools to share information and predictions related to typhoons and other extreme weather events, allowing for early deployment and advance responses that ensured the safety of road users. These achievements were honored at the 8th Golden Map Awards with the best application system award.



Status of the 3rd Generation Motor Vehicle and Driver Information System

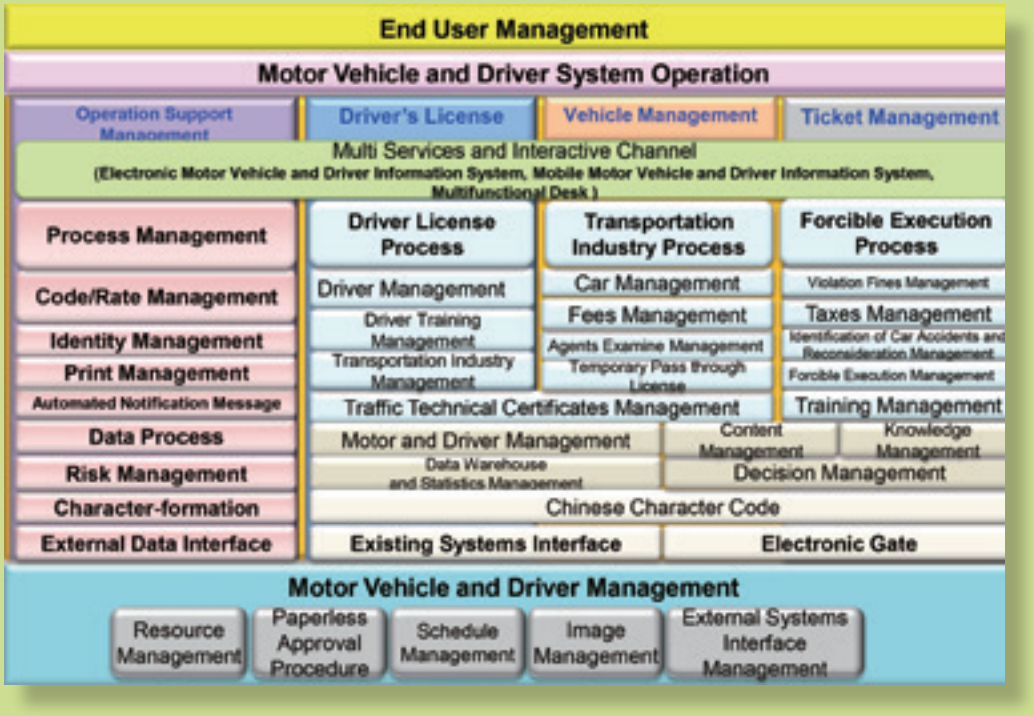
The DGH awarded a tender on September 19, 2012, to build the 3rd Generation Motor Vehicle and Driver Information System. A task force for overseeing contractual terms then commenced duties. Each step is part of the DGH's push to build e-service mechanisms from a service perspective, as it seeks to build a new information platform that fulfills e-government service policies.

Tender Process Completed for the 3rd Generation Motor Vehicle and Driver Information System

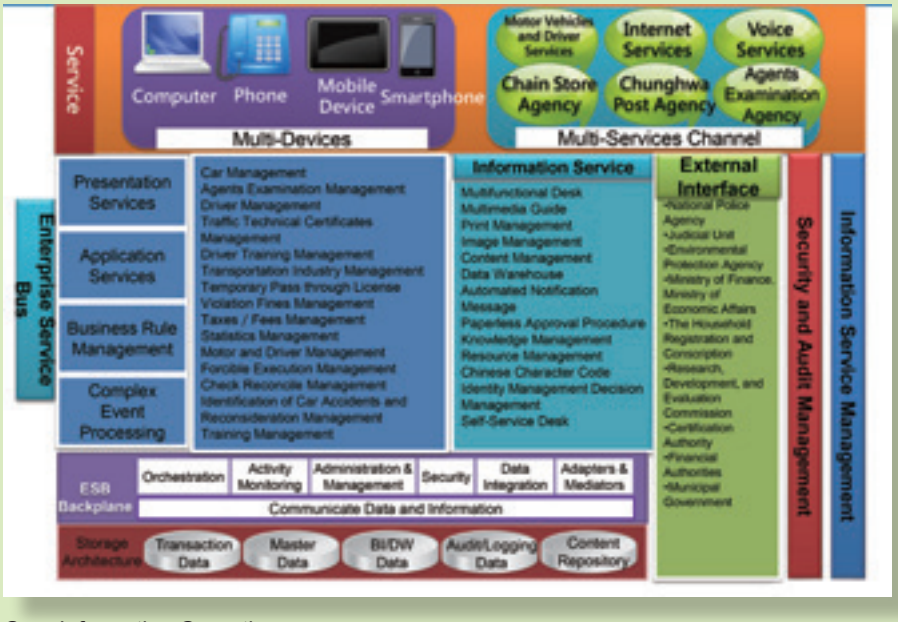
Much happened during the first year of system building, with most tasks concentrated on advance work, the tender process, and contractual oversight.

Work meetings continued in 2011. Participants pored over and revised tender articles, finishing most terms and advance work by the beginning of February. Approval came at the beginning of March to invite bids for the procurement deal.

At two open hearings hundreds of enterprises offered opinions. The DGH answered each concern and used the forums to give assurances that it handles procurement in a fair, just and transparent manner. It also expressed a commitment to closely watch the timetable of each agreement.



Core Motor Vehicle Operations



Core Information Operations

After these procedures were complete the selection process began. Panel members formulated preliminary opinions, at one time even working as a typhoon approached. By the middle of September they awarded a tender to build the system. Shortly before publication of this report, the DGH held meetings to explain distribution of contractual oversight duties. It formed six teams: a business application system team, a management information team, a creative data exchange team, a data migration online team, an information security team, and a project management office team. After the tender was awarded each team began holding meetings to discuss progress in fulfilling contractual terms and oversight.

Oversight Represents a New Stage in the Project

Oversight to ensure fulfillment of contractual terms marks a new milestone. In 2012 alone the tender recipient added central and auxiliary machine rooms across the country, held interviews to assess motor vehicle supervision needs, and began work on the vehicle driving test systems (driving exam system) as well as the Electronic Motor Vehicle and Driver Information System. Besides inviting representatives of each motor vehicle office and station to take part in a trial of the system at the Banqiao Motor Vehicle Station, it finished installation of the written and road exam systems at 29 of the offices and stations and held two training sessions.

Finishing the procurement stage of the 3rd Generation Motor Vehicle and Driver Information System did not signal an end. Instead, it represents a new beginning and an opportunity for the government to continue pursuing better motor vehicle supervision.

Publicizing Lunar New Year Transportation Management in Press Conferences

After urging from the MOTC to expand the Lunar New Year transportation management program, the DGH announced new measures for 2012. To increase local support the director general requested that each unit hold press conferences in all cities and counties to explain traffic policy and conditions during the Lunar New Year holiday and to urge people to use public transit when traveling around Taiwan. Five maintenance offices, with the support of motor vehicle offices and construction divisions, held 15 Lunar New Year transportation management press conferences between January 12 and 19.

Cities/Counties Publicize Transportation Management Plans

At these 15 press conferences the DGH announced sections of road prone to bottlenecks and traffic jams along with alternative routes, as well as dates and times when special transportation management policies would be in effect. It also used the opportunity to interact with local media, establishing good relations that promoted wider coverage of the transportation management plans. These measures ensured that the DGH's message would be well-received by the general public.

Because the DGH held press conferences in various cities and counties, it focused on local transportation management plans, keeping information closely related to people's needs. The media demonstrated an eagerness to report on these issues, with 103 articles published by print media during this time and similarly heavy coverage from online and broadcast media. It is evident that the DGH's strategy for publicizing its transportation management plan is effective.

Former Deputy Director General Chang Jen-te announces alternative routes to roads prone to traffic jams during the Lunar New Year Holiday

Chen Jing-ming, Chief of the Second Maintenance Office, gives a presentation during a press conference

Jian Jhen-ming, Deputy Chief of the First Maintenance Office, demonstrates how to check real-time road conditions using a cellphone app

Local Press Conferences to Become Part of Future Lunar New Year Plans

In the past the DGH did not hold these types of press conferences ahead of the Lunar New Year holiday. They were also a first for any of the agencies that are part of the MOTC. During an MOTC report former Transportation Minister Mao (and current deputy premier) praised the press conferences and suggested that they become future SOP for Lunar New Year holiday transportation management. For greater benefit, Mao advised that the DGH invite the National Freeway Bureau, Taiwan Railways Administration and the Bureau of High Speed Rail to join in using local media as a platform for announcing policy.

The director general also lauded the DGH for its application of management and market principles. He lauded the press conferences for reducing the distance between the agency and media, and felt that the enthusiastic reporting let the DGH use stories instead of advertisements, and service instead of marketing. Therefore the director general requested that each unit continue using this model in 2013.

Showing the True Meaning of the Phrase "a Love for Taiwan Starts on the Roads"

It is remarkable that each unit could arrange and complete these press conferences in such a short time and with such success. The director general was impressed with how effective local media reports were in reporting local traffic information. He called these reports a tool for the DGH to move closer to people's everyday lives and to make the general public feel that somebody was caring for the roads along with their needs. The phrase "a love for Taiwan starts on the roads" is more than just a motto. It is a something we care deeply about and are working hard to achieve.

Anti-corruption and Crisis Management

The DGH's work closely relates to people's everyday lives. In particular, staff involved in motor vehicle supervision stand on the frontlines serving the general public. In addition, the DGH feels a duty to participate in anti-corruption and clean government activities. It hopes to build a consensus where everyone demands integrity and competence from government administration. Each of these relates closely to DGH goals of strengthening risk management and safety.

Clean Government Activities Focused on Suhua Highway Improvement Project

One of Taiwan's highly publicized construction projects is the Suhua Highway Improvement Project. To ensure smooth progress, the DGH has implemented a series of clean government activities related to the project that the general public can join in. In a systematic manner these activities combine construction agencies, the Public Construction Commission, prosecutors, anti-corruption volunteers and ethics units. Each group cooperates to achieve the following goals:

1. **Short-Term Goals**
   Gather local government officials to organize an anti-corruption platform as a communication mechanism.

2. **Mid-Term Goals**
   Hold regular anti-corruption training sessions. Publicize construction ethics to raise overall construction quality.

3. **Long-Term Goals**
   Build a communication platform that includes prosecutors, anti-corruption authorities and police organizations. Create a consensus where everyone demands integrity and competence.

The DGH invited about 120 representatives from the Yilan District Prosecutors' Office, Yilan government ethics units, construction firms involved in the Suhua Highway Improvement Project, construction oversight units, and anti-corruption volunteers from Hualien and Yilan to attend a discussion on October 31, 2012. Topics covered installing GPS on trucks dumping excess soil and publishing data online, mechanisms to prevent the use of illegally extracted gravel, and measures to ease restrictions on PCMS and CCTV. These achieved the dual benefits of making information more transparent and improving construction quality.

Impartial Investigations Into Perceived Corruption of Motor Vehicle Supervisory Units

In 2011 the Ministry of Justice commissioned Transparency International Taiwan to conduct surveys on clean governance in the Taiwan region. In the first of these surveys motor vehicle staff finished first among 13 categories of staff involved in jobs prone to malpractice. This shows that the general public affirms the DGH's implementation of streamlined, convenient services.

The main concern of investigations was collusion involving agents acting on behalf of motor vehicle supervision agencies. To understand the effects of these agents on perceived corruption, the DGH decided that research was necessary. After holding an open bid, it commissioned Transparency International Taiwan to conduct a study involving phone surveys of the general public, interviews of the agents, interviews of five experts, and anti-corruption seminars held at each of the seven Motor Vehicle Offices.

Via questionnaire subjects were asked to rate motor vehicle supervision personnel for integrity on a scale of 0-10, with higher scores indicating higher levels of integrity. The average integrity score of 6.9 showed affirmation of respondents. For collusion with motor vehicle agents, however, the average integrity score of motor vehicle agents was 5.9. This could be attributed to stereotypes remaining from when so-called "motor vehicle scalpers" claimed to have close relations with motor vehicle staff in order to attract customers. Experts interviewed felt these negative perceptions were remnants from an earlier period or the result of persistent rumors. They did not feel the perceptions arose from personal experience. The report also included suggested measures over the short, mid and long-term to improve service by agents. The DGH will use these for future policy improvements.

Holding Crisis Management Drills to Improve Security

Acting on a directive from the MOTC, in 2012 the DGH held special security drills. These focused on guarding personal information stored at motor vehicle supervisory units, ensuring security of confidential data and protest handling.

The DGH's Taichung Motor Vehicle Office hosted an event on September 25, 2012, to provide training on how to handle road inspection incidents, robbery prevention, protection and management of personal information, and escape and rescue in the event of an earthquake or a fire. About 250 people from the MOTC, DGH and the agencies they oversee participated.

Deputy Director General Chao hosted the event, and the Seventh Police Brigade of the National Highway Police Bureau, the Fourth Corps of the Taichung Fire Bureau, and the Wurih Precinct of the Taichung Police Department all participated in drills. These improved coordination between units and support capabilities. The smooth handling of each simulation received high marks from senior officials in attendance. They praised the simulations for effectively raising risk management and response capabilities of motor vehicle units.

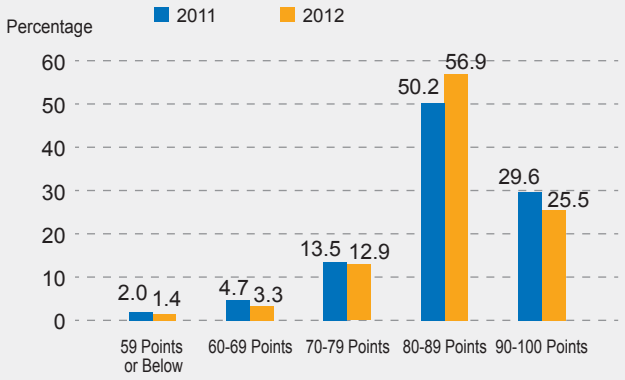
Record High Satisfaction Rates for Motor Vehicle Supervision

Respondents to a 2012 survey that measured satisfaction toward services offered at the DGH's seven motor vehicle offices and 30 motor vehicle stations gave a record average score of 83.7 points for overall service. It was the second straight year the average score exceeded 80 and marked an increase of half a point compared to the 83.2 average of 2011. In addition 25.5% of respondents gave a score of 90 or above.

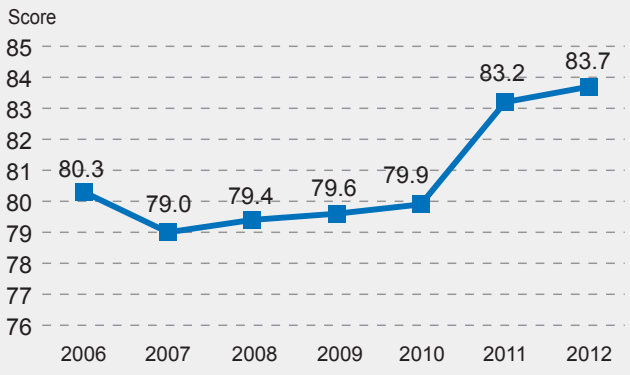
High Satisfaction Rates a Result of Convenient Service Measures

The high scores were attributed to the concerted efforts of each motor vehicle office (station) to raise operational efficiency, which in turn reduced waiting time for the general public. Satisfaction toward the service attitude of staff at counters and conducting driving exams also increased compared to the previous year. Survey takers also praised notification of vehicle registration and license expiration, text messages to alert of upcoming automobile inspections, the computer system permitting written (or oral) driving exams without prior booking, and voice/online payment of the fuel tax as well as free payments at post offices, banks, and convenience stores.

The survey in 2012 asked 2,712 people about their feelings toward overall service quality. About 95.5% expressed satisfaction (22.6% were extremely satisfied, 61.3% were satisfied, and 11.6% felt service was acceptable). This represented a 0.5 ppt



Distribution Chart Showing Overall Satisfaction Toward Motor Vehicle Offices (Stations)



Average Overall Satisfaction Toward Motor Vehicle Offices (Stations), by Year

Overall Service Quality Scores for Motor Vehicle Offices (Stations)

Year	Overall	Taipei Motor Vehicle Office	Hsinchu Motor Vehicle Office	Taichung Motor Vehicle Office	Chiayi Motor Vehicle Office	Kaohsiung Motor Vehicle Office	Taipei City Motor Vehicle Office	Kaohsiung City Motor Vehicle Office
2011	83.2	83.2	83.0	83.2	83.0	83.9	—	—
2012	83.7	83.4	83.6	85.0	83.1	83.2	83.8	83.0

increase from the 95% who said they were satisfied in 2011. Categories in 2012 that achieved 90.0% satisfaction or greater included the computer system permitting written driving exams without prior booking (96.5%); notification of vehicle registration, license and automobile inspection expiration (95.8%); text messages to alert of upcoming automobile inspections (93.6%); layout of Motor Vehicle Office service areas (91.2%); service attitude of staff conducting driving license exams (90.4%); service attitude of counter staff (90.2%).

Using Suggestions to Make Improvements

The DGH will use suggestions provided by survey takers to further improve services, specifically parking space planning, cleanliness and greenery. These ideas are part of a wide range of suggestions gathered from many sources.

To improve efficiency and quality of motor vehicle supervision, the DGH will continue to conduct satisfaction surveys. It will supervise each motor vehicle office (station) to ensure duties are carried out while seeking innovative new services that improve convenience.

Mobile Motor Vehicle Stations Hold a School Campus Promotion


Roaming Service Offered by the Chiayi Motor Vehicle Office

66th Anniversary Celebration Shows a Love for Taiwan Starts on the Roads

Over the 66 years since the DGH was founded its members have shown great dedication. Besides building a highway network that links the country, its convenient motor vehicles services have added to the Taiwan highway miracle by putting the needs of drivers first.

Highway Staff Resemble a Big Family

To build team spirit and pass on long-standing traditions, in 2011 the DGH held a major sporting event to mark its 65th anniversary. A year later to mark its 66th anniversary it switched to a less intense, warmhearted event that still managed to bring everyone together to celebrate the DGH' s birthday. The Training Institute hosted the anniversary celebration on August 17, 2012. Nearly 300 people participated, including supervisors of all levels as well as several retired deputy director generals and chief engineers. Activities included the following:

1. Creative Poster Competition

Each DGH unit designed a poster themed on its operations. The 30 posters entered into competition were displayed during the anniversary celebration, with prizes given to the five units that scored the highest.

2. Creative Video Competition

Each DGH unit shot a creative video. The 20 entered into competition were shown during the anniversary celebration, with prizes given to the five units that scored the highest.

3. Highway Family Members Pitch In

Staff of DGH units encouraged close family members to join the anniversary celebration. Family members were then separated into 68 groups of 170 people. Seven of these groups, consisting of 28 people, took video footage of the anniversary celebration. The rest edited the images then broadcast them during the event. Family members discussed the joy and hard work they witnessed among DGH staff, deeply moving viewers. Staff praised the videos by saying they made everyone proud to be a highway worker.

4. DGH Groups Put On a Show

DGH-wide dance and martial arts groups, as well as a dance group associated with the Taipei Motor Vehicle Office, put on exciting dance and taijiquan performances to showcase the activities they take part in on a daily basis.

Praise for Convenient Motor Vehicle Services and Highway Disaster Prevention

At the start of the anniversary celebration the director general gave a speech in which he mentioned a letter received on the day of the celebration from a Mr. Chen. Mr Chen thanked a motor vehicle supervisory agency for the warmhearted support it gave to his illiterate wife in helping her pass the written and driving scooter license exams. He said this experience changed the negative impression he used to have of government agencies and he urged staff to continue working hard to serve more people. The director general also compared DGH maintenance staff to guardian angels for their work when disaster arrives. The maintenance staff, easily recognizable due to their yellow vests, pass through mountain communities fixing roads. The director general praised them for carrying out their "sacred mission" and said they provide hope for people in times of need.

Former Transportation Minister Mao (currently deputy premier) had other events to attend the day of the celebration, but still managed to put in an appearance at around 11 o'clock. He gave a speech praising DGH achievements, in particular its improved disaster prevention ability and mechanisms. Among all central government agencies involved in disaster prevention, Mao said the DGH was the best at implementation. Mao commented on praise the DGH had received for implementing modernized, e-motor vehicle supervision. He reminded motor vehicle supervision units that besides management of vehicles and drivers, there was room for improvement in the area of highway transit.

Encouraging a Future Where a Love for Taiwan Starts on the Roads

After the speech former Transportation Minister Mao handed out prizes for best videos from DGH family members (Second Maintenance Office, Suhua Improvement Engineering Office, Taichung Motor Vehicle Office, Chiayi Motor Vehicle Office, Kaohsiung Motor Vehicle Office, and the Secretariat) as well as prizes for best posters (First Maintenance Office, Fifth Maintenance Office, Suhua Improvement Engineering Office, Training Institute, and the Secretariat). Although prizes were limited, the passion participants showed in attending was the greatest reward.

The end of the celebration was also the climax — former Transportation Minister Mao, the director general, senior supervisors and retired deputy director generals joined to cut the anniversary cake. As the lead official at the celebration, Mao stated: "Let this be a prosperous year, where construction is environmentally friendly and motor vehicle supervision meets the general public's expectations." The director general said: "Let traffic flow on roads and bridges, people and automobiles be safe, and motor vehicle services reach even greater heights." Highway workers of all generations continue to pass on the noble mission of a love for Taiwan starts on the roads.

Evolving

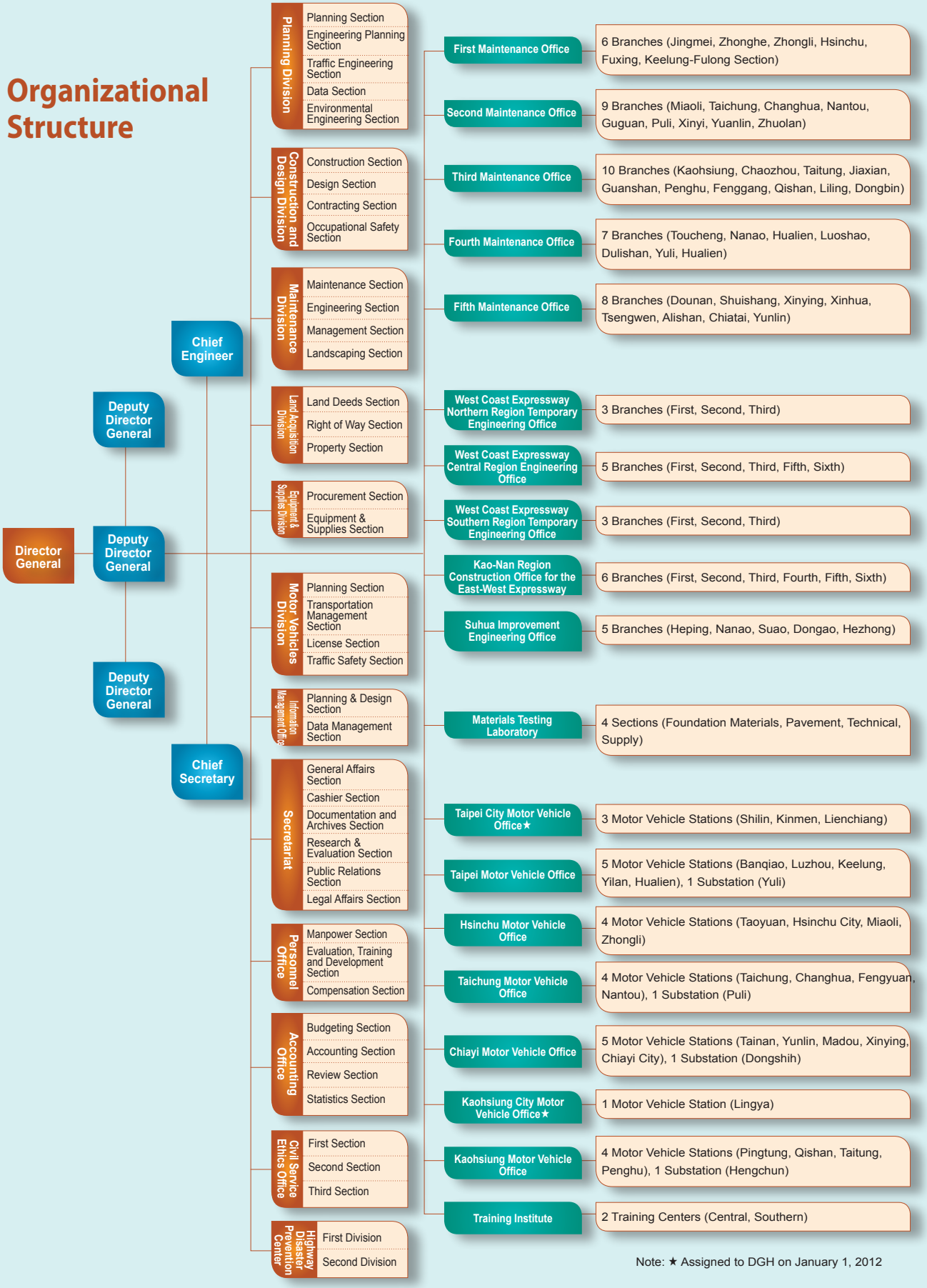
Witness the Signs of Prosperity

Administrative Performance

2012 Administrative Projects

Project Name	Annual Budget (NT$1,000)	Timeframe (Years)	Supervisory Level
Taipei County Special Highway 2 Construction Project	1,875,700	2001-2012	Executive Yuan
West Coast Expressway Construction Follow-Up Project	4,777,110	2009-2017	Executive Yuan
East-West Expressway Construction Project and Network Improvement Project	3,123,000	2009-2016	Executive Yuan
Provincial Highway Dangerous and Bottleneck Sections Urgent Improvement Project	1,000,000	2009-2012	Executive Yuan
Provincial Highway 9 Suhua Highway Mountain Section Improvement Project	4,600,000	2010-2017	Executive Yuan
Management of Tsengwen, Nanhua and Wushantou Reservoirs to Stabilize Southern Water Supplies Project	50,000	2010-2015	Executive Yuan
Provincial Highway 2C Construction and Improvement Project	459,300	2008-2015	Ministry
Provincial Highway 9 Huadong Highway Third Stage Improvement Project	505,600	2008-2012	Ministry
East-West Expressway Dongshih/Chiayi Line Dongshih to Puzi Section Construction Project	600,000	2006-2012	Ministry
Region Based Road System Construction Project (Highway System)	6,252,900	2009-2014	Ministry
Provincial Highway Bridge Construction to Accommodate River Management Planning	1,665,988	2009-2013	Ministry
Local Government Aged and Damaged Bridges Refurbishment Project (Stage II)	1,652,900	2010-2012	Ministry
Highway Public Transportation Development Project	3,418,235	2010-2012	Ministry
Provincial Highway Urgent Construction Project for Earthquake Resistance Strengthening of Bridges	1,200,000	2009-2012	Ministry
Follow-up on the South Link Highway Widening Project	400,000	2011-2017	Autonomous Management
Highway Maintenance Project	5,688,868	2012-2012	Autonomous Management
Energy Saving/Carbon Reduction Model Project for a Bicycle Network in Eastern Taiwan	50,205 (Reserve Funds from the Previous Year)	2010-2012	Autonomous Management

Organizational Structure



Note: ★ Assigned to DGH on January 1, 2012

Budget Enforcement

Revenue

Year	Enforcement Circumstances
2012	The year's revenue budget was NT$12,442,780,000. Actual receipts were NT$12,040,569,038 and uncollected receivables were NT$393,825,503 (3.17% of budget), amounting to NT$12,434,394,541. Implementation efficiency was 99.93%.
Previous FY	Previous fiscal receivables were NT$651,875,691. Actual receipts were NT$651,875,691 (100% of receivables), amounting to NT$651,875,691. Implementation efficiency was 100%.

Expenditure

Year	Enforcement Circumstances
2012	The year's expenditure budget was NT$45,528,208,000. Actual expenditure (not including suspense payments) was NT$41,782,771,577, accounts payable were NT$0, and the amount due to the treasury was NT$574,538,775 (1.26% of budget). Implementation efficiency including suspense payments was 94.80%.
Previous FY	Encumbrances were NT$4,043,091,852. Actual expenditure (not including suspense payments) was NT$2,752,078,024, accounts payable were NT$0, and write-offs were NT$234,817,322 (5.81% of encumbrances). Implementation efficiency including suspense payments was 81.53%.

Special Budget for the Economic Revitalization Policy to Expand Investment in Public Works

Year	Enforcement Circumstances
Previous FY	* 2011 encumbrances were NT$990,575,239. Actual expenditure (not including suspense payments) was NT$878,839,875, accounts payable were NT$0, and write-offs were NT$50,439,415 (5.09% of encumbrances). Implementation efficiency including suspense payments was 93.95%. * 2010 encumbrances were NT$565,504,789. Actual expenditure (not including suspense payments) was NT$457,713,896, accounts payable were NT$0, and write-offs were NT$24,154,216 (4.27% of encumbrances). Implementation efficiency including suspense payments was 95.82%. * 2009 encumbrances were NT$44,159,992. Actual expenditure (not including suspense payments) was NT$34,632,391, accounts payable were NT$0, and write-offs were NT$9,527,601 (21.57% of encumbrances). Implementation efficiency was 100%.

Post-Typhoon Morakot Reconstruction Special Budget

Year	Enforcement Circumstances
Implementation 2009-2012	The year's original budget was NT$21,189,850,000 (implementation was from 2009 to 2012), and reserved funds used were NT$1,695,927,000, for a total of NT$22,885,777,000. Actual expenditure (not including suspense payments) was NT$17,126,507,262, accounts payable were NT$0, and the amount due to the treasury was NT$68,134,556 (0.30% of the budget). Implementation efficiency including suspense payments was 77.51%.

Encumbrance Applications

Expenditure

Year	Encumbrance Applications
2012	Encumbrance applications were NT$3,170,897,648 (6.96% of budget).
Previous FY	Encumbrance applications were NT$1,056,196,506 (26.12% of encumbrances).

Special Budget for the Economic Revitalization Policy to Expand Investment in Public Works

Year	Encumbrance Applications
Previous FY	◎ 2011 encumbrance applications were NT$61,295,949 (6.19% of encumbrances). ◎ 2010 encumbrance applications were NT$83,636,677 (14.79% of encumbrances).

Post-Typhoon Morakot Reconstruction Special Budget

Year	Encumbrance Applications
Implementation 2009-2012	Encumbrance applications were NT$5,691,135,182 (24.87% of budget).

Encumbrance applications from the above transferred to 2013 totaled NT$10,063,161,962 (accounting for 13.59% of the budget and encumbrances).

Competition Performance

Awards Received by DGH Units in 2012

Evaluation (Verification) or Competition Name	Recipient	Place
2012 Golden Way Award in the Driver Information Category, Best Oversight by a Maintenance Office of a Construction Branch for Provincial Highways and Stewarded County Highways	First Maintenance Office	1st Place
2012 Golden Way Award in the Driver Information Category for Provincial Highways and Stewarded County Highways (Construction Branch)	Fuxing Branch	1st Place
2012 Golden Way Award in the Road Maintenance Category for Provincial Highways and Stewarded County Highways (Construction Branch)	Zhonghe Branch	1st Place
2011 Excellence in Disaster Prevention and Rescue Mobilization from a Transportation Agency	First Maintenance Office	1st Place
2012 Golden Way Award in the Road Maintenance Category (Maintenance Office)	Second Maintenance Office	1st Place
2012 Golden Way Award in the Excellent Construction Category — Urgent Repairs to the Road Foundation of Provincial Highway 21 79K+760-80K+180, following Typhoon Morakot in 2009	Second Maintenance Office	1st Place
Provincial Highway 9 Huadong Highway Third Stage Improvement Project (Excellence in Supervision by a Government Department)	Fourth Maintenance Office	Outstanding Performance
East-West Expressway Road Network Improvement Project (Overseen by the Executive Yuan)	Kao-Nan Region Construction Office	1st Class
The Council of Labor Affairs nominated the East-West Expressway Beimen/Yujin Line Tender E707-3, Xuejia Interchange to National Freeway 1 New Construction Project in the 2011 awards for Excellence in Promoting Worker Safety and Health	Kao-Nan Region Construction Office	Selected
Taipei County Special Highway 2 Construction Project (Managed by the Executive Yuan)	West Coast Expressway Northern Region Temporary Engineering Office	1st Class
West Coast Expressway Construction Follow-Up Project (Overseen by the Executive Yuan)	West Coast Expressway Northern Region Temporary Engineering Office	1st Class
East-West Expressway Road Network Improvement Project (Overseen by the Executive Yuan)	West Coast Expressway Northern Region Temporary Engineering Office	1st Class
National Golden Award for Architecture (Taipei County Special Highway 2 Tender 4-3, Chenglin Bridge to Tucheng Interchange New Construction Project)	West Coast Expressway Northern Region Temporary Engineering Office	1st Prize
West Coast Expressway Construction Follow-Up Project (Overseen by the Executive Yuan)	West Coast Expressway Central Region Engineering Office	1st Class

Evaluation (Verification) or Competition Name	Recipient	Place
East-West Expressway Road Network Improvement Project (Overseen by the Executive Yuan)	West Coast Expressway Central Region Engineering Office	1st Class
West Coast Expressway Construction Follow-Up Project (Overseen by the Executive Yuan)	West Coast Expressway Southern Region Temporary Engineering Office	1st Class
East-West Expressway Road Network Improvement Project (Overseen by the Executive Yuan)	West Coast Expressway Southern Region Temporary Engineering Office	1st Class
Golden Way Award in the Excellent Construction Category — West Coast Expressway Tender WH69-1, Budai Harbor, Nanhang Bridge New Construction Project (May 5, 2012)	West Coast Expressway Southern Region Temporary Engineering Office	4th Place
11th Golden Quality Awards (December 6, 2011), Pier Reconstruction (P18-33) on the Guohsing Bridge (Over the Tsengwen River), Provincial Highway 17	West Coast Expressway Southern Region Temporary Engineering Office	Nominated
Executive Yuan Improvement Program for Traffic Order and Safety, 2011 Dump Truck Safety Management	Taipei Motor Vehicle Office	1st Place
2011 Award for Excellence in Water Conservation	Luzhou Motor Vehicle Station	Outstanding Performance
2011 Fuel Tax Collection Performance by Motor Vehicle Supervisory Units	Hsinchu Motor Vehicle Office	1st Place
2011 Motor Vehicle Freight Traffic Survey	Taichung Motor Vehicle Office	1st Place
The 4th MOTC Service Quality Awards	Taichung Motor Vehicle Office	Outstanding Performance
Executive Yuan Information Security External Audit Comparison, First Rate (Extremely Comprehensive)	Chiayi Motor Vehicle Office	First Rate
The 10th Archives Management Quality Awards	Madou Motor Vehicle Station	Overall Award
The 4th Executive Yuan, Government Service Quality Awards	Kaohsiung Motor Vehicle Office	1st Place
Executive Yuan Improvement Program for Traffic Order and Safety, 2011 Motor Vehicle Supervision, Group 1	Kaohsiung Motor Vehicle Office	1st Place
Executive Yuan Improvement Program for Traffic Order and Safety, 2011 Motor Vehicle Supervision, Group 2	Taitung Motor Vehicle Station	1st Place
Executive Yuan Improvement Program for Traffic Order and Safety, 2011 Overall Team Performance, Group 2	Pingtung Motor Vehicle Station	1st Place

Research and Development

2012 Autonomous Research and Development Achievements

Research Items	Research Agencies	Research Personnel
Establishing an E-Document Exchange System for Private Automobile Driver Training Organizations	Taipei City Motor Vehicle Office	Jiang Gui-da, Ke Bo-wen, Xu Xiu-hui, He Zhi-dong, Lin Li-zhu
The Influence of Road Traffic Safety Lectures on Driving Behaviors of Youths Without a Driving License	Banqiao Motor Vehicle Station, Taipei Motor Vehicle Office	Zhang Chao-yang, Jiang Shu-ren, Jiang Mei-ying, Zheng Bao-feng, Hu Shu-yuan, Yang Cai-bing
Building a Transfer System for Checks and Bank Drafts	Taichung Motor Vehicle Office	Cai Yi-fang, You Ming-chuan, Zhang Liang-wen, He Zhong-long, Feng Xiu-ying
Reassigning Road Traffic Administrative Penalties to the Administrative Litigation and Remedies System	Nantou Motor Vehicle Station, Taichung Motor Vehicle Office	Huang You-chuan, Xu Zhi-cun, Chen Xi-heng
Appeals Made Easy — Mobile Phone Appeals Progress Inquiries	Tainan Motor Vehicle Station, Chiayi Motor Vehicle Office	Fang Yu-shan, Cai Yan-ling, Li Guo-de
Using a Voice Positioning System for Document Access and Retrieval	Madou Motor Vehicle Office, Chiayi Motor Vehicle Office	Guo Shan-lin, Lin Wen-hua, Hong Guang-cheng, Wang Bing-Zhi, Zhuang Mei-hua, Shan Zhong-shu
Safety and Maintenance Duties Among Drivers of Large Vehicles and Mechanics	Central Training Center, Training Institute	Liu Ying-biao, He Wen-wang, Li Jian-hong, Ye Chang-heng, Jian Pei-qing, Zhan Zhen-cang, Tang Yao-xin, Wu Jun-hui, Zhang Yao-feng, Zhang Yi-quan
Public Acceptance of Conducting Driving Tests on Public Roads	Southern Training Center, Training Institute	Chen Xin-bin, Lian Ren-zong

Major Events

1 Month

1	The Taipei City Motor Vehicle Office and its stations (Kinmen, Lienchiang and Shilin) as well as the Kaohsiung City Motor Vehicle Office and its station (Lingya) held a plaque unveiling ceremony to mark the return of motor vehicle supervision to the central government.
	MOTC named Cheng Chun-min and Yu Wei-pin director and deputy director of the Taipei City Motor Vehicle Office, and Dong Chi-Cheng and Lin Jhen-Yong director and deputy director of the Kaohsiung City Motor Vehicle Office.
3	Groundbreaking took place for the first tender of a widening project on the South Link Highway of Provincial Highway 9. Deputy Premier Sean Chen, Deputy Transportation Minister Yeh Kuang-Shih, and Taitung County Commissioner Justin Huang hosted the ceremony.
20	The DGH launched a project to form a two-way reporting platform to work in conjunction with the Police Broadcasting Service.
20~30	During the 11-day transportation management period for the 2012 Lunar New Year holiday, the DGH's provincial highway real-time traffic information website received 195,028 hits (an average of 17,730 hits per day).

3 Month

8	The DGH held a book launch for the memoir "A Half Century of Lost Memories – The Central Cross-Island Highway of Taiwan." The Fourth Maintenance Office compiled the book to record the difficult process of building the highway.
3.15~4.5	During the Alishan Cherry Blossom Season and Tomb Sweeping Festival, the DGH implemented traffic restrictions on small passenger vehicles and provided spaces for large vehicles to make U-turns, reducing congestion on mountain roads.

4 Month

3	The Dongao Bridge, on the Suhua Highway at the 119.5-kilometer mark of Provincial Highway 9, opened to traffic after rebuilding work finished on the main structure and approach road.
	Jialiyuan Bridge and adjacent road sections, on Provincial Highway 2 156K+000~157K+575, opened to traffic following conclusion of a road widening project.
6	The DGH completed a procurement agreement to obtain the Highway Inventory Management System from the Institute of Transportation. National Central University, which handled installation of the original system, conducted maintenance and added new functions.

5 Month

8	The DGH held a meeting to deliver the 2012 1st Clean Government Report. Director General Wu Men Feng hosted the event, reporting on progress in promoting clean government policies and five suggestions for reform.
16	Construction finished on the East-West Expressway Beimen/Yujin Line Tender E708-1A 12K+950~13K+884, west of National Freeway 1.

6 Month

25 The DGH held a meeting to discuss transportation management during the Wuling Farm Cherry Blossom Festival. To maintain tourism quality it decided to limit access to 5,000 people or less per day. The plan included additional parking and public shuttle buses.

27 The MOTC named DGH section member Yang Ya-te, engineer and section chief Meng Bo-jun, section chief Wu Yen-chen, Kaohsiung City Motor Vehicle Office subsection chief Chen Tang-sheng, and Third Maintenance Office deputy engineer and chief Li Bing-ren model civil servants for 2012.

7 Month

10 In New Taipei City, the section of Provincial Highway 2C from Shuangxi District's Pinglin to Gonghe (19K+530~20K+993) opened to traffic.

25 To study feasibility of providing a free customer service hotline, Director General Wu led supervisors from relevant units, maintenance Offices, and motor vehicle offices to headquarters of Taipei's 1999 hotline service at the Taipei Research, Development and Evaluation Commission. The group gained valuable knowledge on establishing and operating a hotline that can be used for future reference.

8 Month

8 At a ceremony held by the Executive Yuan's Directorate-General of Personnel Administration, Premier Sean Chen awarded Level 3 medals for meritorious service to the DGH's Wang Ling-yao, Lin Qing-zhou, Xu Wen-yi, Lin Yu-ren, and Guo Qing-shui for outstanding contributions to Typhoon Morakot rebuilding.

11 Transportation Minister Mao Chi-kuo and Hualien County Commissioner Fu Kun-chi hosted a ceremony to open the new Fengping Bridge, on Provincial Highway 9, to traffic.

13 After the MOTC issued an official letter on August 6, 2012, the director of Kaohsiung Motor Vehicle Office, Liu Yu-lin, became director of the Chiayi Motor Vehicle Office (Director Guo Shan-lin retired). Wang Tsai-chu, deputy director of the DGH's Motor Vehicle Division, was promoted to head the Kaohsiung Motor Vehicle Office.

21 The DGH hosted the awards ceremony for the 2012 MOTC Golden Way Awards. Transportation Minister Mao Chi-kuo spoke and oversaw handing out of the awards, 14 of which went to DGH units.

28 The DGH honored Construction and Design Division chief Xia Ming-sheng, West Coast Expressway Central Region Engineering Office chief Chen Song-tang, Second Maintenance Office deputy chief Chen Jia-ying, Kaohsiung Motor Vehicle Office assistant engineer Shi Zhan-hong, Taipei Motor Vehicle Office section chief Wang Mei-xiang, West Coast Expressway Southern Region Temporary Engineering Office section chief Shen Hong-sheng, Maintenance Division section chief Zhou Zong-yu, and West Coast Expressway Northern Region Temporary Engineering Office chief Wu Ming-xu for outstanding performance as public servants in 2012.

31 Renewal of the expansion joint system on the Zhongshan Overpass of Provincial Highway 1 was finished, restoring two-way, double line traffic. The project made driving on the overpass more comfortable and improved quality of life for residents who live along the road.

9 Month

3	The Kaohsiung City Motor Vehicle Office joined the pilot program to conduct driving tests on public roads at the beginning of September.
	Construction finished on the West Coast Expressway 209K+117~210K+522 (Tender WH53B), from Dacheng Interchange to the Gongguan drainage area.
7	On June 20 the DGH commissioned the Tainan Nanying Cultural Resources Protection Association to determine the point of origin of Taiwan's road system. It found that the origin was an old Tainan intersection at today's intersection of Minquan and Zhongyi roads. At a forum on September 7, the Tainan City government agreed to install a commemorative plaque at this location.
24	A transportation delegation from Zhejiang province joined a forum at the DGH.
27	The DGH hosted a forum for highway fans to raise safety by promoting cooperation between public and private groups. Twenty-four members of the Taiwan Highway Club and the ROC motorcycle party joined to discuss highway planning and road tests for scooter and motorcycle drivers.

10 Month

2	The DGH held a meeting to deliver the 2012 2nd Clean Government Report. Director General Wu Men Feng hosted the event, reporting on progress in promoting clean government policies and four suggestions for reform.
16	Construction finished on the West Coast Expressway 187K+910～190K+028 (Tender WH49-2), Xianian to Hanbao.
23	On April 6 Transportation Minister Mao Chi-kuo and DGH Director General Wu Men Feng held a press conference to call for submissions to the 2012 Bus Tour Around Taiwan event. Deputy Transportation Minister Jack Hsu announced results and introduced a booklet and table calendar at a press conference on October 23.
29	The Fenyuan Outer Ring Road on Provincial Highway 14D opened, easing traffic in the Fenyuan area.

11 Month

1	Motor Vehicle Offices began complete inspections of all tour buses. Work was projected to finish at the end of February 2013.
5	Nantaimali Bridge, on Provincial Highway 9, opened to traffic after refurbishment of two lanes beside the mountain. The temporary steel bridge that had been in use was closed.
12	Construction finished on Tender 3-2 on Taipei County (New Taipei City) Special Highway 2, Dahan River to Xianmin Boulevard (10K+060~11K+460).

16 The DGH held an exhibition on the 15th floor of the Dapinglin Joint Development Building to promote National Geographic Information System disaster prevention and rescue applications. It displayed the Highway Disaster Prevention and Rescue GIS Decision Support System.

23 The Zhouzai to Yonghe section 4K+140~8K+200, Tender E609, of the East-West Expressway Dongshih to Chiayi Line opened, after construction finished on October 19. Integration of the section into the freeway and expressway network has aided development of the local economy and tourism.

12 Month

9 A medium-sized tour bus went off the road at the 9-kilometer mark of Township Road Hsinchu 60 as it was heading toward Smangus. Thirteen people died and 10 were injured.

13 After the MOTC gave its approval, the deputy director of the Taipei City Motor Vehicle Office, Fang Su-qing, became office director. Previous Director Cheng Chun-min retired.

14 Data file changes pertaining to provincial highway milage signs were made to the Highway Disaster Prevention and Rescue GIS Decision Support System.

15 On the Suhua Highway, along Provincial Highway 9, work began on a new construction project (A2) to build the Dongao Tunnel. The project is scheduled to end on August 17, 2016.

17 To solve a shortage of identifiers for automobile and scooter license plates, Motor Vehicle Offices (Stations) began to distribute newly designed plates.

22 The MOTC issued an official letter to amend the Regulations Governing Road Traffic Safety. Changes eliminated most automobile registration renewals starting from January 1, 2013.

25 The DGH held an awards ceremony for the "Eye Taiwan" road writing and photography competition. Judges carefully selected the top three in the writing and photography categories and gave awards to a dozen writing and 10 photograph entries.

26 The MOTC issued an official letter, calling for amendments to Articles 5 and 6-1 of the Regulations Governing Levying and Distribution of the Automobile Fuel Use Tax.

28 For the 2013 New Year's holidays, single-line two-way traffic was opened on the Suao to Dongao section of the Suhua Highway for vehicles weighing 3.5 tons or below until January 2. The road had been damaged by natural disaster.

31 Following the upgrade of several cities and counties to the municipality level, the MOTC transferred traffic adjudication to the municipality governments. The DGH completed transfer of adjudication rights to Taichung, Tainan and Kaohsiung and held several explanatory meetings.

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