

HIS MAJESTY'S GOVERNMENT OF NEPAL  
MINISTRY OF WORKS AND TRANSPORT  
DEPARTMENT OF ROADS

**THE STUDY  
ON  
KATHMANDU VALLEY URBAN ROAD DEVELOPMENT**

**FINAL REPORT**  
PART A : MASTER PLAN STUDY

**DRAWINGS**

MARCH 1993

JAPAN INTERNATIONAL COOPERATION AGENCY

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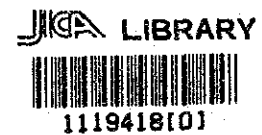
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**THE STUDY  
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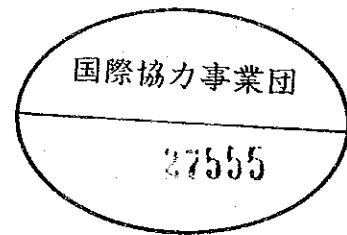
**FINAL REPORT  
PART A : MASTER PLAN STUDY**

**DRAWINGS**

MARCH 1993



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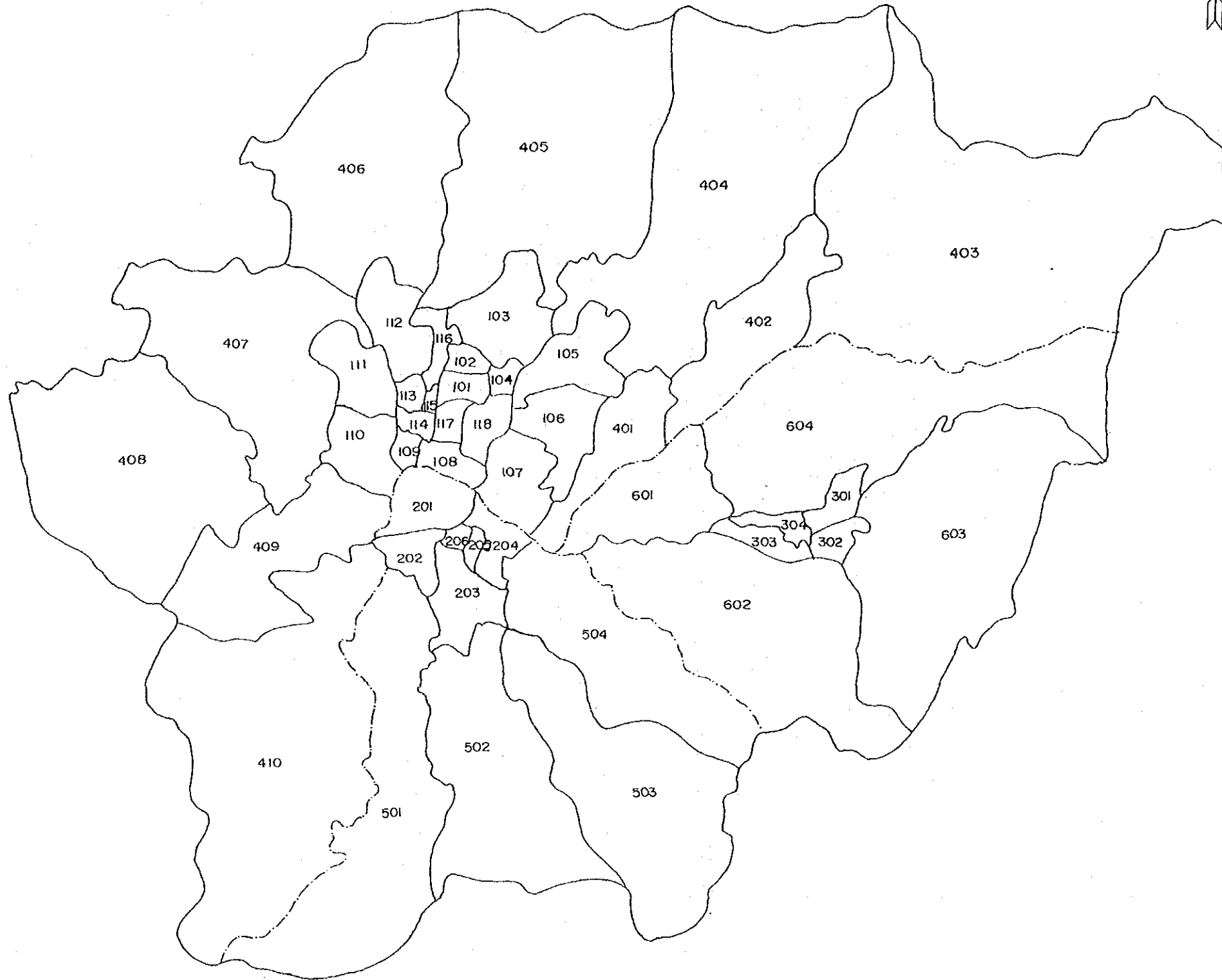
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# LEGEND

----- District Boundary  
101 to 604 Traffic Zone



0 500 1000 2000 4000 K.M.

HIS MAJESTY'S GOVERNMENT OF NEPAL  
(H.M.G)

KATHMANDU VALLEY  
URBAN ROAD DEVELOPMENT  
TRAFFIC ZONE IN THE STUDY AREA

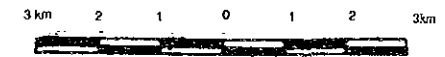
FIG. 1

JAPAN INTERNATIONAL COOPERATION  
AGENCY (JICA)



# LEGEND

- Municipal Boundary
- Major Roads
- Minor Roads
- River & Stream
- Built up Area 1971
- Built up Area 1981
- Built up Area 1987
- Built up Area 1989



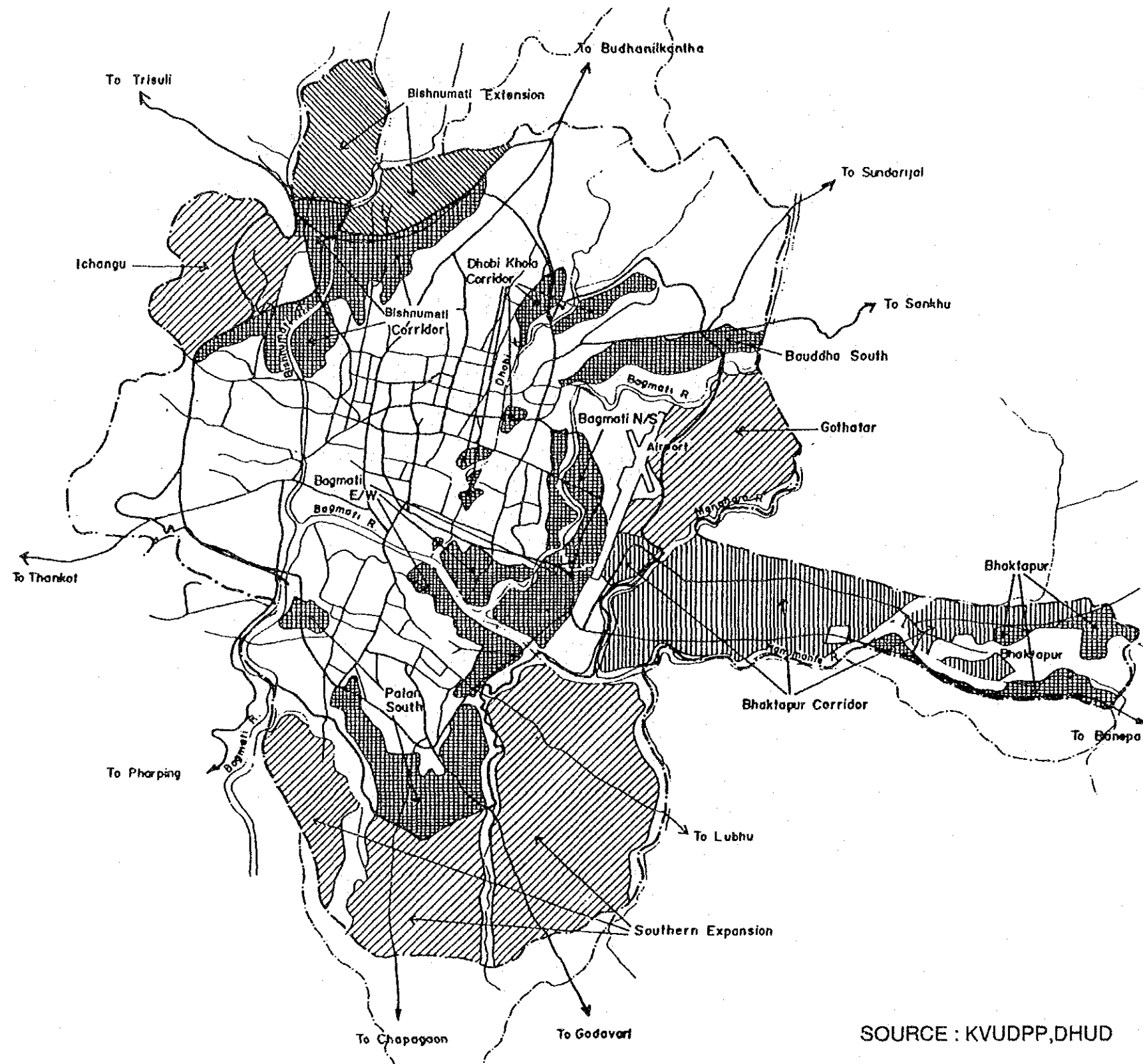
HIS MAJESTY'S GOVERNMENT OF NEPAL  
(H.M.G)

KATHMANDU VALLEY  
URBAN ROAD DEVELOPMENT  
URBAN EXPANSION 1971-1989 IN GREATER  
KATHMANDU

FIG. 2

JAPAN INTERNATIONAL COOPERATION  
AGENCY (JICA)

SOURCE: KVUDPP, DHUD



SOURCE : KVUDPP, DHUD

## LEGEND

- Municipal Boundary
  - Urban Expansion Area
  - River & Stream
  - Major Road
  - Minor Road
- GENERAL PRIORITY, SEQUENCE (1)
- 1991 onwards
  - 1996 onwards
  - 2001 onwards
  - 2006 onwards
  - Later
  - DHUD Addition to Expansion Area

HIS MAJESTY'S GOVERNMENT OF NEPAL  
(H.M.G)

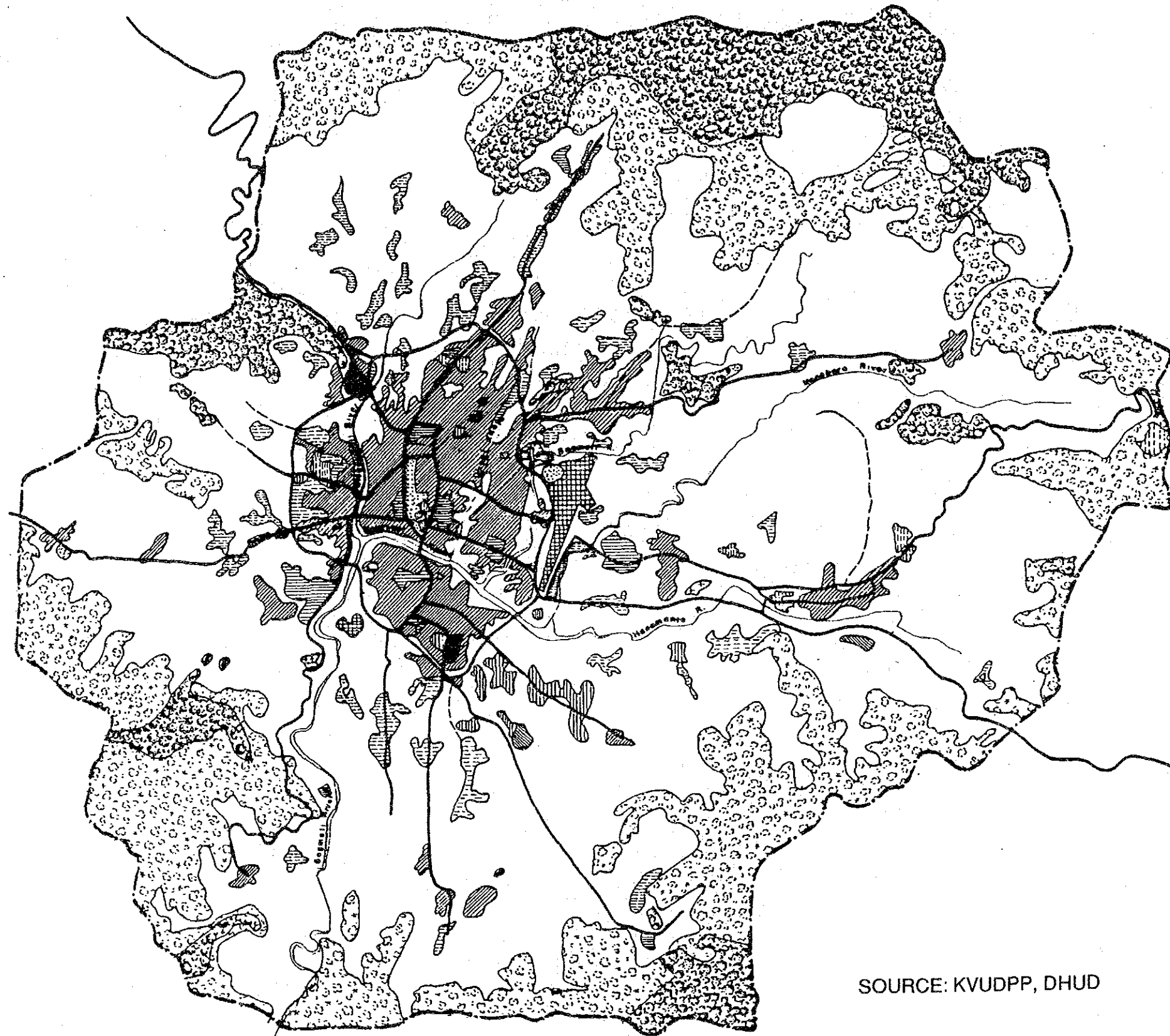
KATHMANDU VALLEY  
URBAN ROAD DEVELOPMENT

ACCELERATED DEVELOPMENT AREAS

FIG. 3

JAPAN INTERNATIONAL COOPERATION  
AGENCY (JICA)





SOURCE: KVUDPP, DHUD

## LEGEND

Study Area Boundary	— · — · — ·
Roads ( Surfaced )	———
Roads ( Unsurfaced )	- - - - -
Rivers & Stream	~~~~~
Predominantly Residential (Urban and Compact Village)	▨▨▨▨▨▨
Residential with Some Agriculture	▧▧▧▧▧▧
Agriculture with Some Residential	□□□□□□
Recreation	▤▤▤▤▤▤
Institutional	▥▥▥▥▥▥
Military And Police	▦▦▦▦▦▦
Public Utilities	▧▧▧▧▧▧
Industry	▨▨▨▨▨▨
Brick Works	▩▩▩▩▩▩
Brick Factories	▪▪▪▪▪▪
Quarries	▫▫▫▫▫▫
Forests	▬▬▬▬▬▬
Shrub	▭▭▭▭▭▭



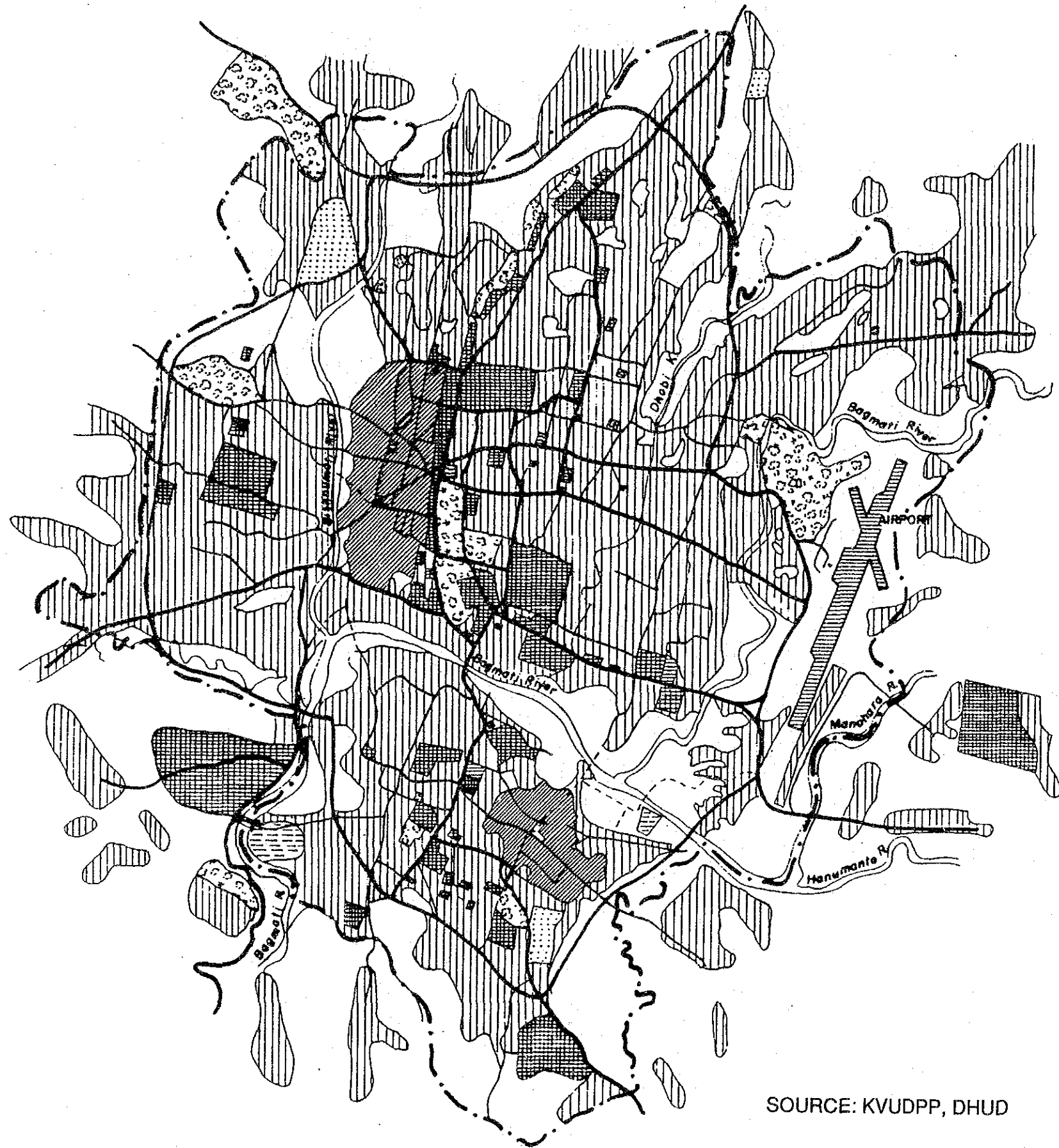
HIS MAJESTY'S GOVERNMENT OF NEPAL  
(H.M.G)

KATHMANDU VALLEY  
URBAN ROAD DEVELOPMENT

LAND USE (1991)

FIG. 4

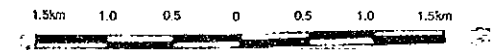
JAPAN INTERNATIONAL COOPERATION  
AGENCY (JICA)



SOURCE: KVUDPP, DHUD

## LEGEND

Municipal Boundary	-----
Major Roads	—————
Minor Roads	—————
River & Stream	~~~~~
Core Area	▨▨▨▨
Residential Area	▮▮▮▮
Vacant Land	□
Transport	▬▬▬▬
Industrial	▫▫▫▫
Institutions	▧▧▧▧
Woods and Open Space	▩▩▩▩
Utilities	▪▪▪▪

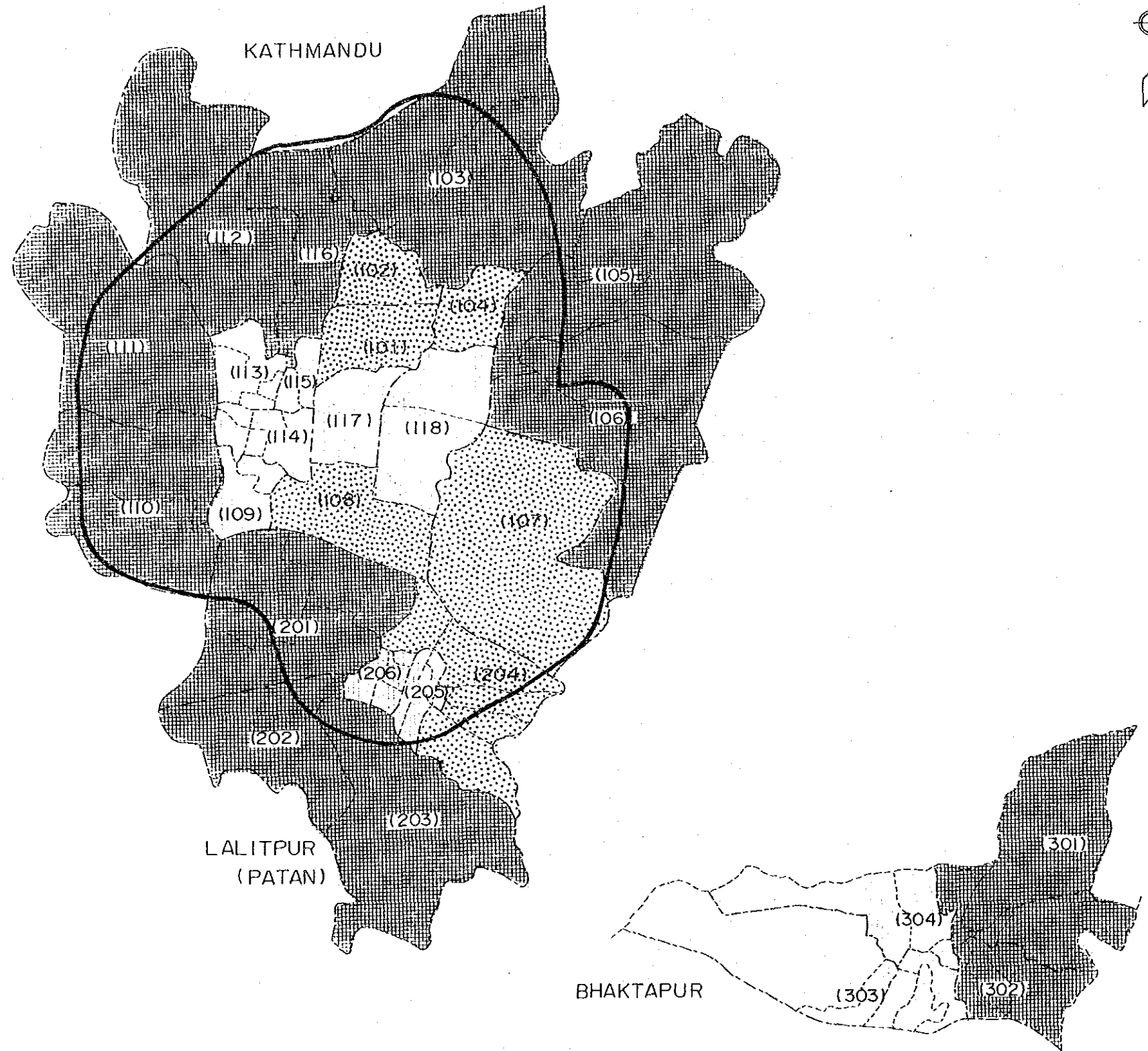


HIS MAJESTY'S GOVERNMENT OF NEPAL  
(H.M.G)

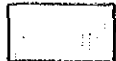

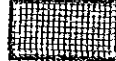
KATHMANDU VALLEY  
URBAN ROAD DEVELOPMENT  
LAND USE IN GREATER  
KATHMANDU (1991)

FIG. 5

JAPAN INTERNATIONAL COOPERATION  
AGENCY (JICA)



**LEGEND**

-  No Potential
-  Some Potential
-  Sufficient Potential

HIS MAJESTY'S GOVERNMENT OF NEPAL  
(H.M.G)

KATHMANDU VALLEY  
URBAN ROAD DEVELOPMENT  
IDENTIFICATION OF LAND-USE  
POTENTIAL






FIG. 6

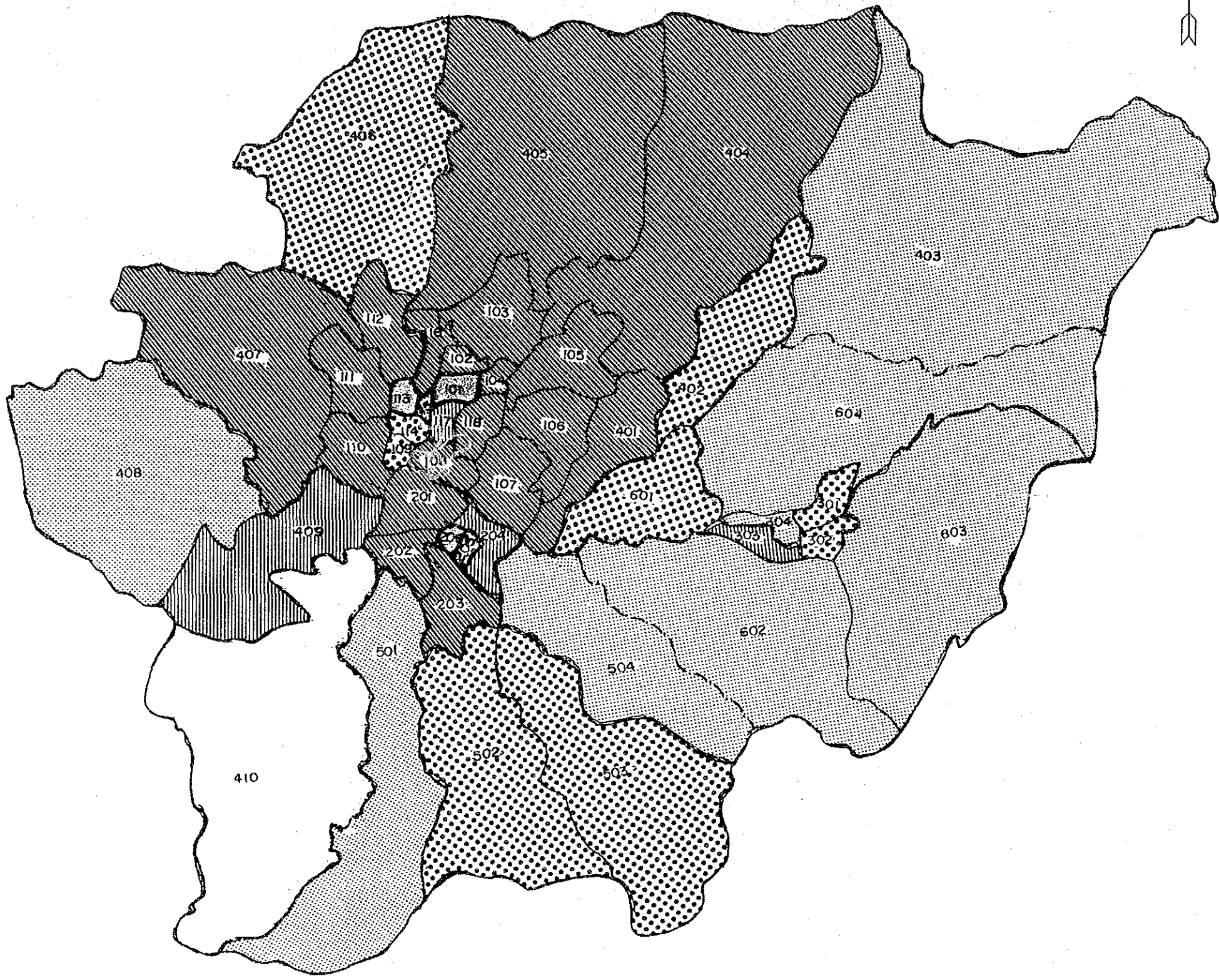
JAPAN INTERNATIONAL COOPERATION  
AGENCY (JICA)



# LEGEND

(Unit = % Per Annum in 1981 - 1991)

-  ~1
-  1~2
-  2~3
-  3~4
-  4~



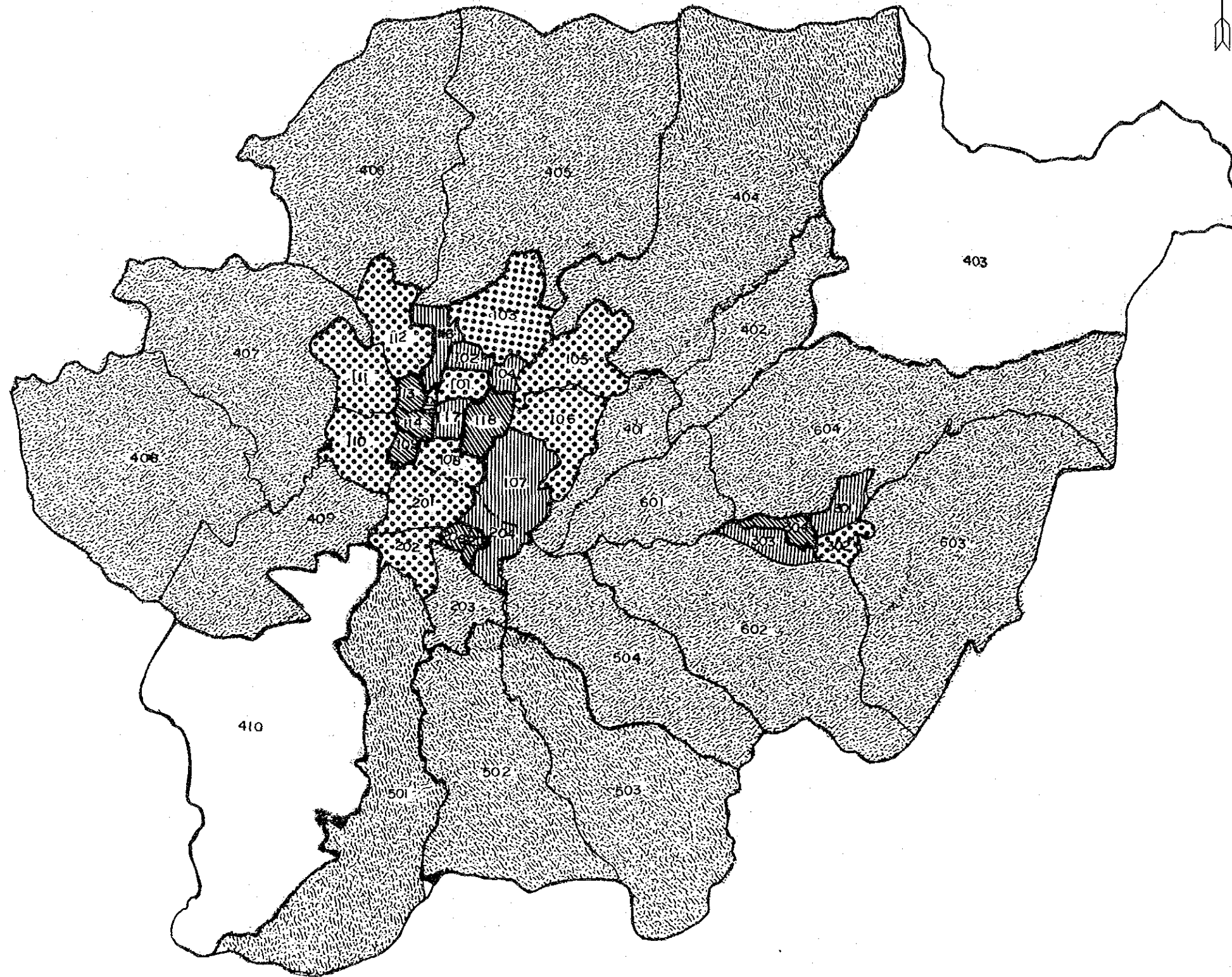
0 500 1000 2000 4000 K.M.

HIS MAJESTY'S GOVERNMENT OF NEPAL  
(H.M.G)

KATHMANDU VALLEY  
URBAN ROAD DEVELOPMENT  
POPULATION GROWTH






FIG. 7

JAPAN INTERNATIONAL COOPERATION  
AGENCY (JICA)



# LEGEND

(Unit : Persons Per Hectare)

-  ~ 5
-  6 ~ 40
-  41 ~ 80
-  81 ~ 140
-  140 ~

0 500 1000 2000 4000 K.M.

HIS MAJESTY'S GOVERNMENT OF NEPAL  
(H.M.G)

KATHMANDU VALLEY  
URBAN ROAD DEVELOPMENT

POPULATION DENSITY (1991)

FIG. 8

JAPAN INTERNATIONAL COOPERATION  
AGENCY (JICA)

LEGEND

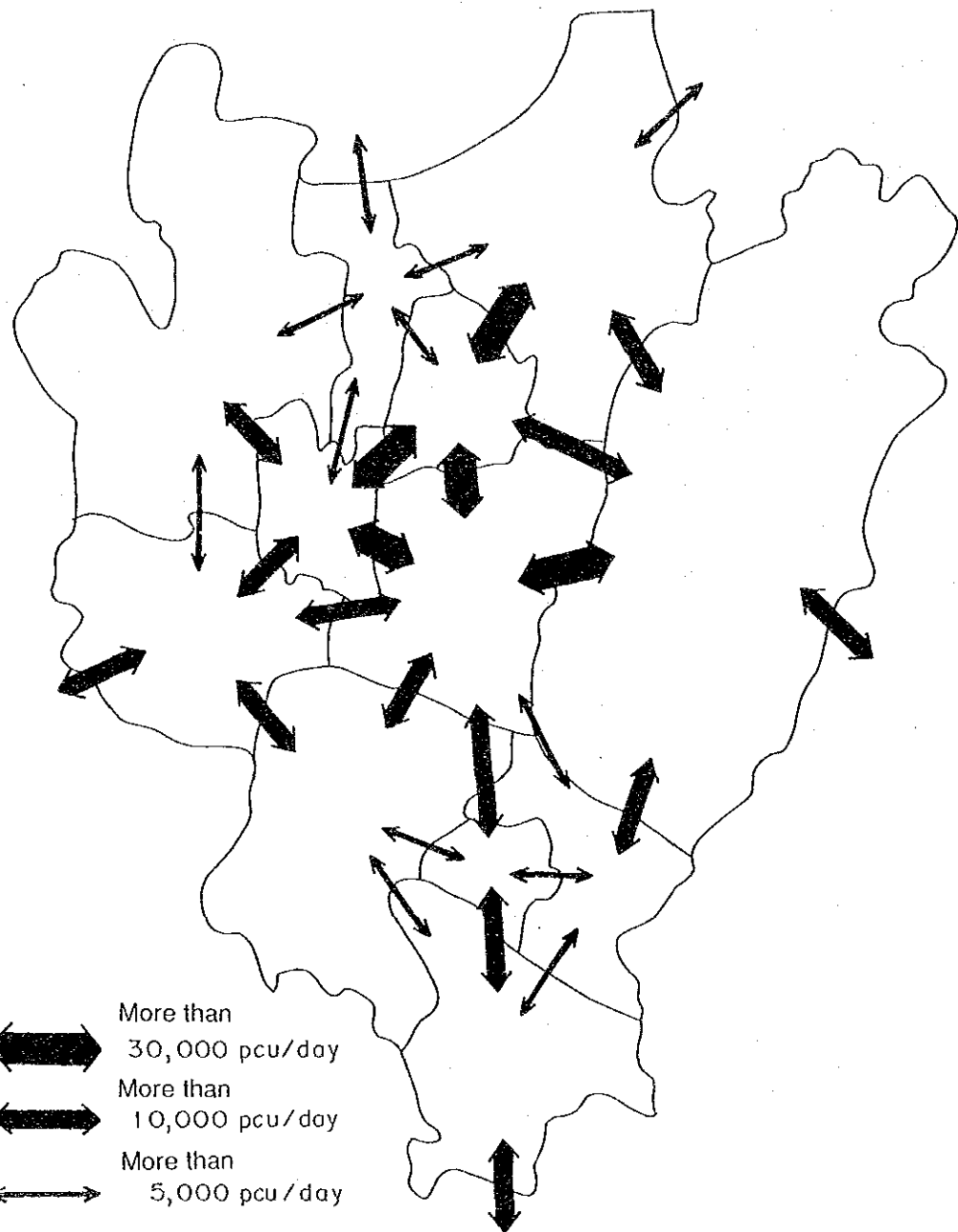


HIS MAJESTY'S GOVERNMENT OF NEPAL  
(H.M.G)

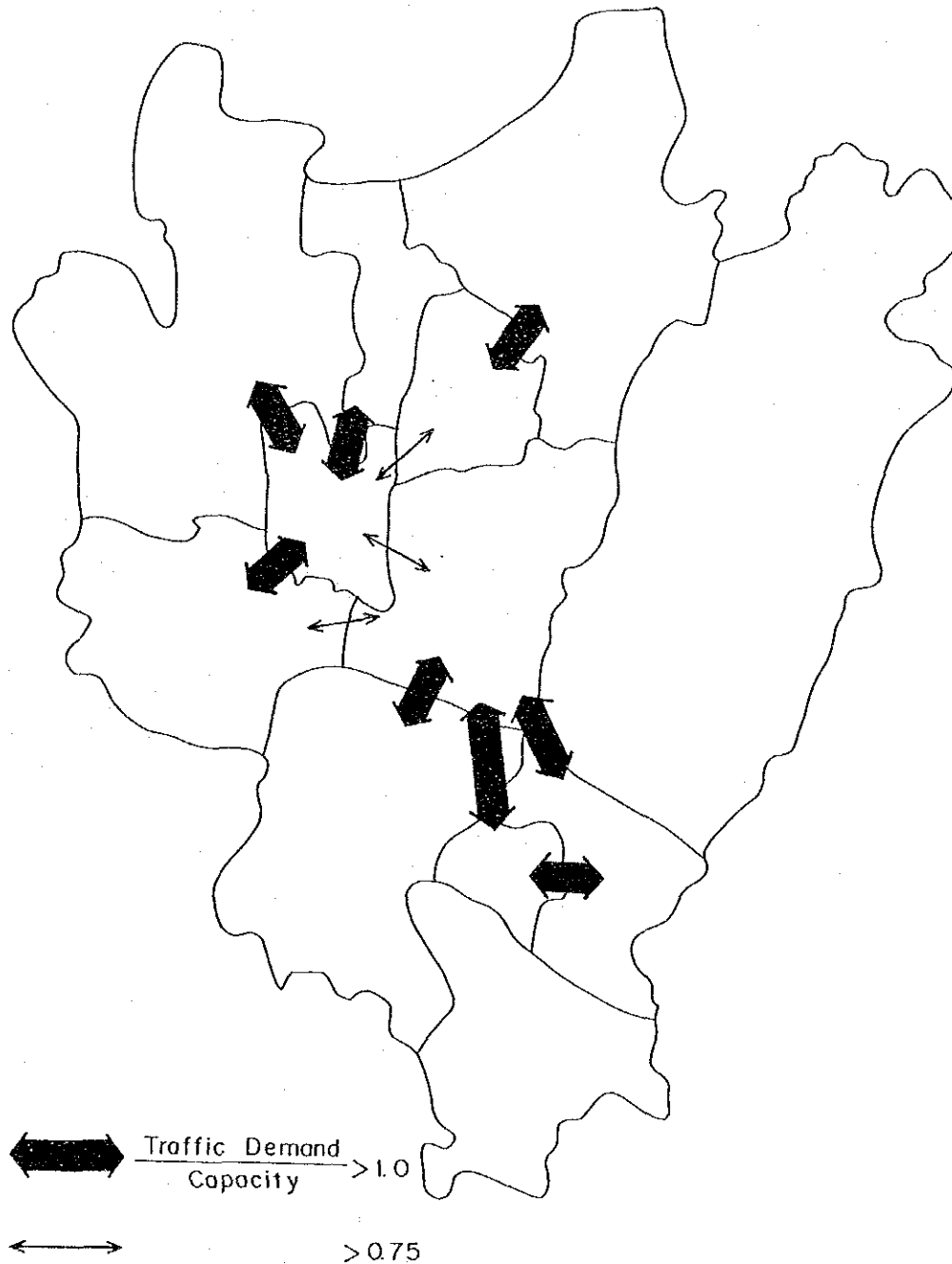
KATHMANDU VALLEY  
URBAN ROAD DEVELOPMENT  
PRESENT TRAFFIC DESIRE  
LINE (VEHICLE)

FIG. 9

JAPAN INTERNATIONAL COOPERATION  
AGENCY (JICA)



TRAFFIC DISTRIBUTION



BOTTLENECK POINT IN TRAFFIC

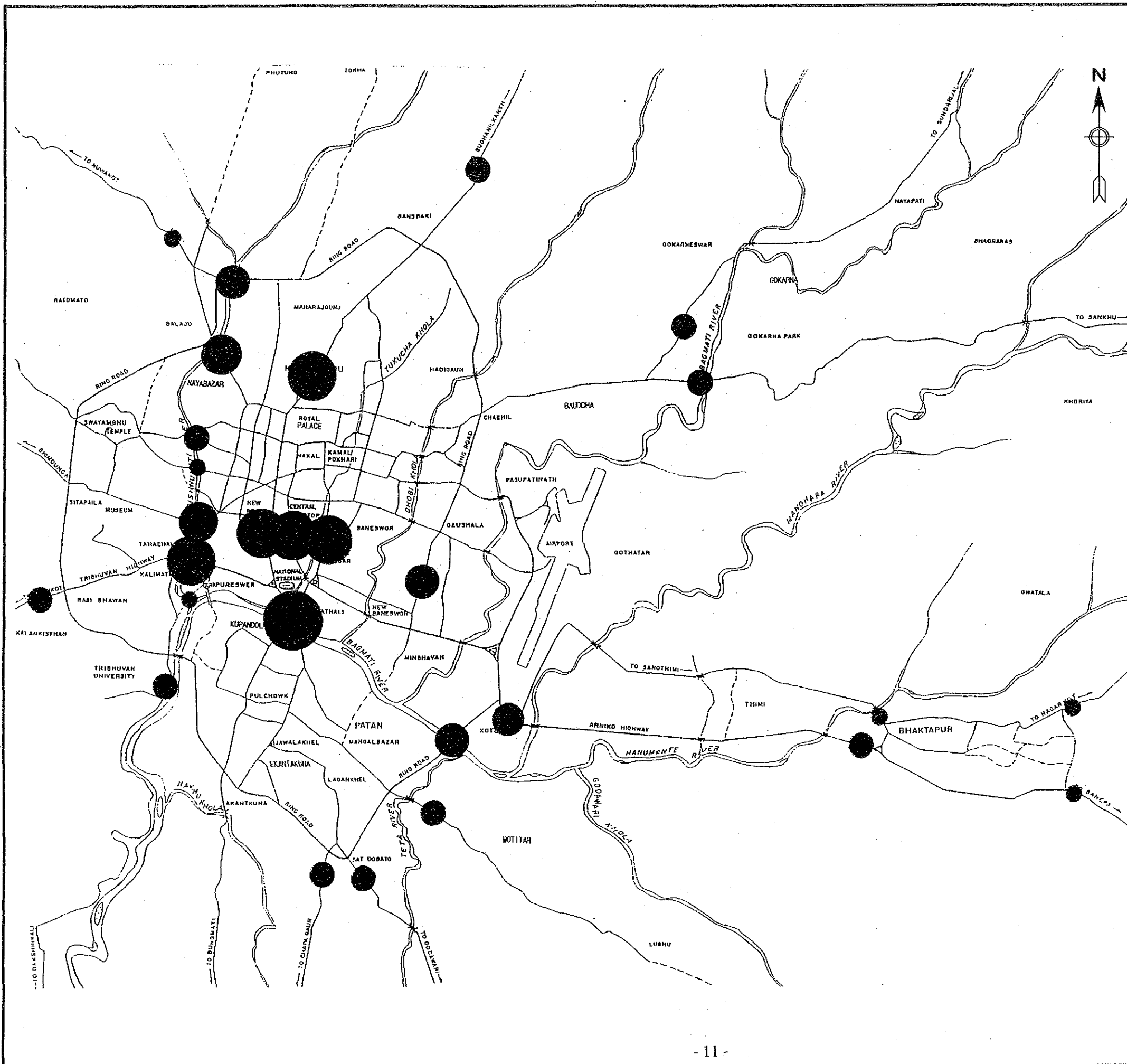
LEGEND

HIS MAJESTY'S GOVERNMENT OF NEPAL  
(H.M.G)

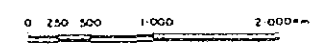
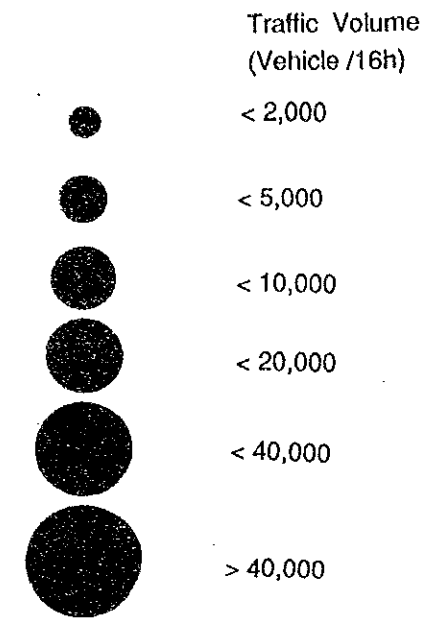
KATHMANDU VALLEY  
URBAN ROAD DEVELOPMENT  
TRAFFIC DISTRIBUTION  
IN GREATER KATHMANDU  
(PRESENT)

FIG. 10

JAPAN INTERNATIONAL COOPERATION  
AGENCY (JICA)



### LEGEND



HIS MAJESTY'S GOVERNMENT OF NEPAL  
(H.M.G)

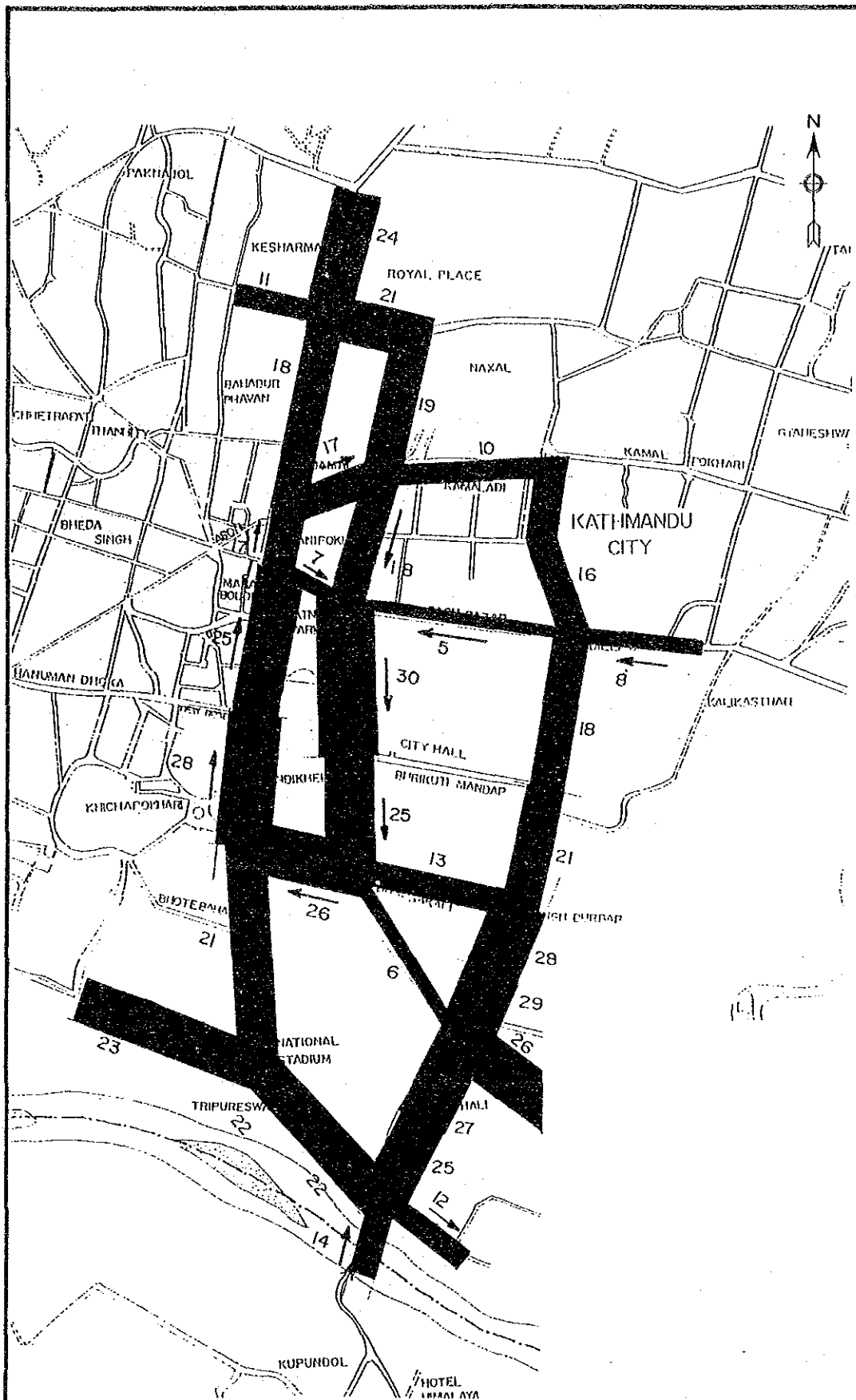
KATHMANDU VALLEY  
URBAN ROAD DEVELOPMENT

TRAFFIC VOLUME

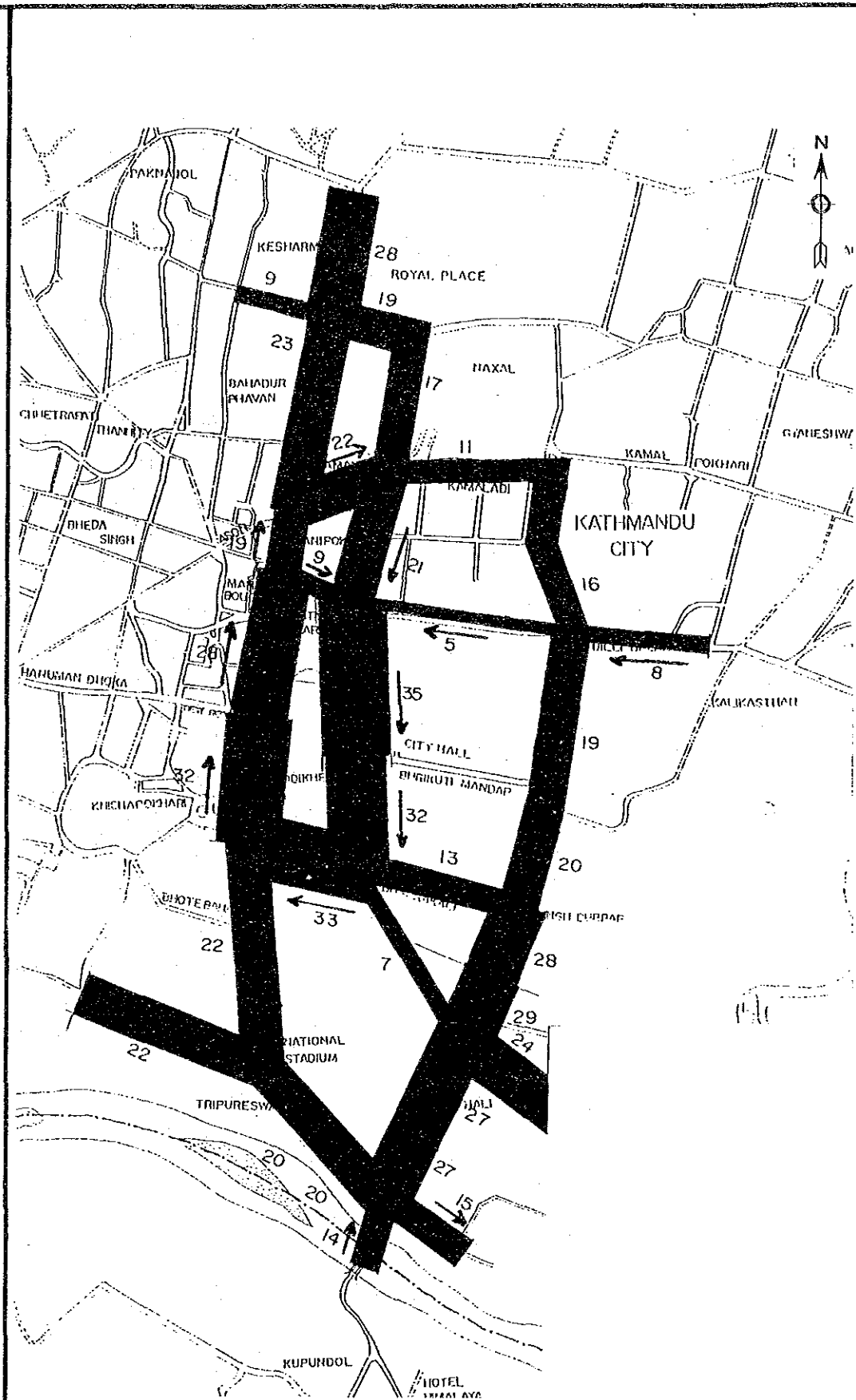
FIG. 11

JAPAN INTERNATIONAL COOPERATION  
AGENCY (JICA)



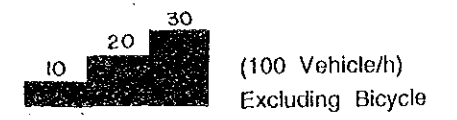


(10:00 - 11:00)



(16:00 - 17:00)

### LEGEND

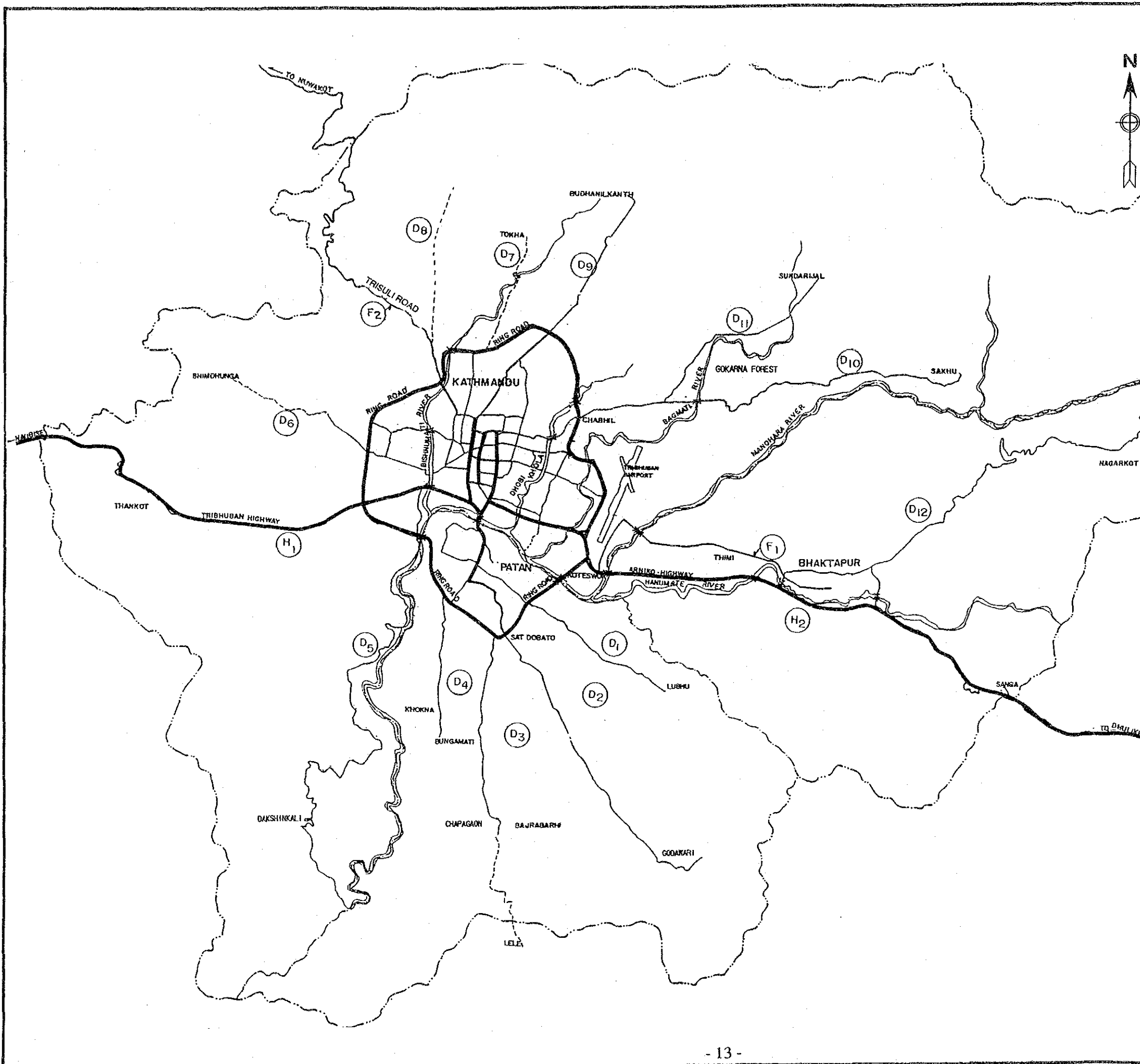


HIS MAJESTY'S GOVERNMENT OF NEPAL  
(H.M.G)

KATHMANDU VALLEY  
URBAN ROAD DEVELOPMENT  
TRAFFIC VOLUME IN CORE AREA

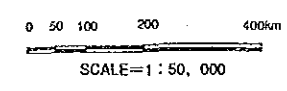
FIG. 12

JAPAN INTERNATIONAL COOPERATION  
AGENCY (JICA)



### LEGEND

- Highway
  - H1 Tribhuban Highway
  - H2 Amiko Highway
- Feeder Road
  - F1 Thimi Road
  - F2 Trisuli Road
- District Road (Primary)
  - D1 Lubhu Road
  - D2 Godawari Road
  - D3 Chapagaun Road
  - D4 Bungamati Road
  - D5 Dakshinkali Road
  - D6 Bhimdhunga Road
  - D7 Tokha Road
  - D8 Phutung Road
  - D9 Budhanikantha Road
  - D10 Sankhu Road
  - D11 Sundarjal Road
  - D12 Nagarkot Road
- Urban Road
  - R Ring Road
  - A Class A Primary
  - B Class B Secondary
  - C Class C Access
  - D Class D Access



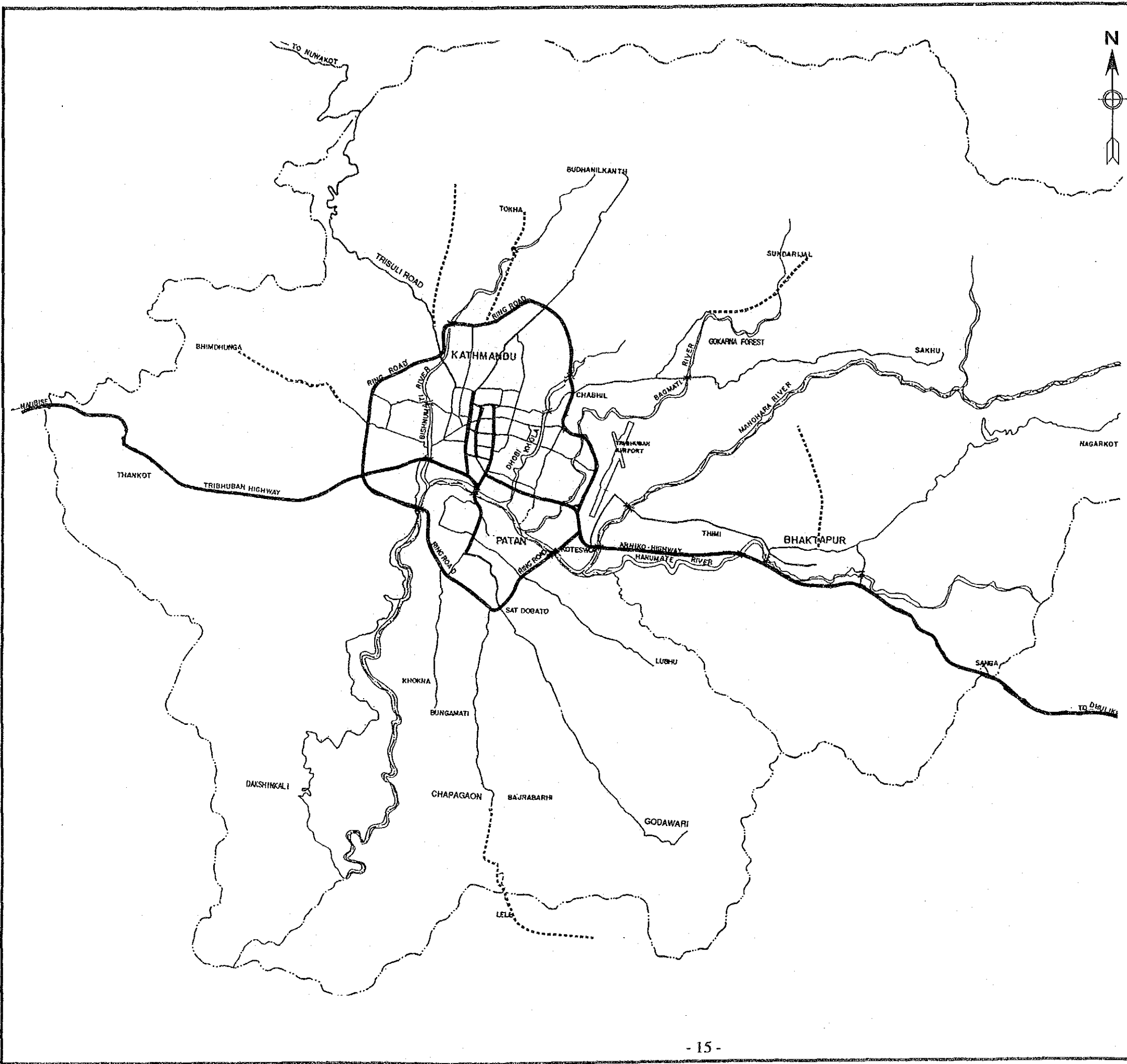
HIS MAJESTY'S GOVERNMENT OF NEPAL  
(H.M.G)

KATHMANDU VALLEY  
URBAN ROAD DEVELOPMENT  
FUNCTIONAL CLASSIFICATION OF ROAD  
NETWORK



FIG. 13

JAPAN INTERNATIONAL COOPERATION  
AGENCY (JICA)





**LEGEND**

-  Black topped
-  Gravelled and Earthen

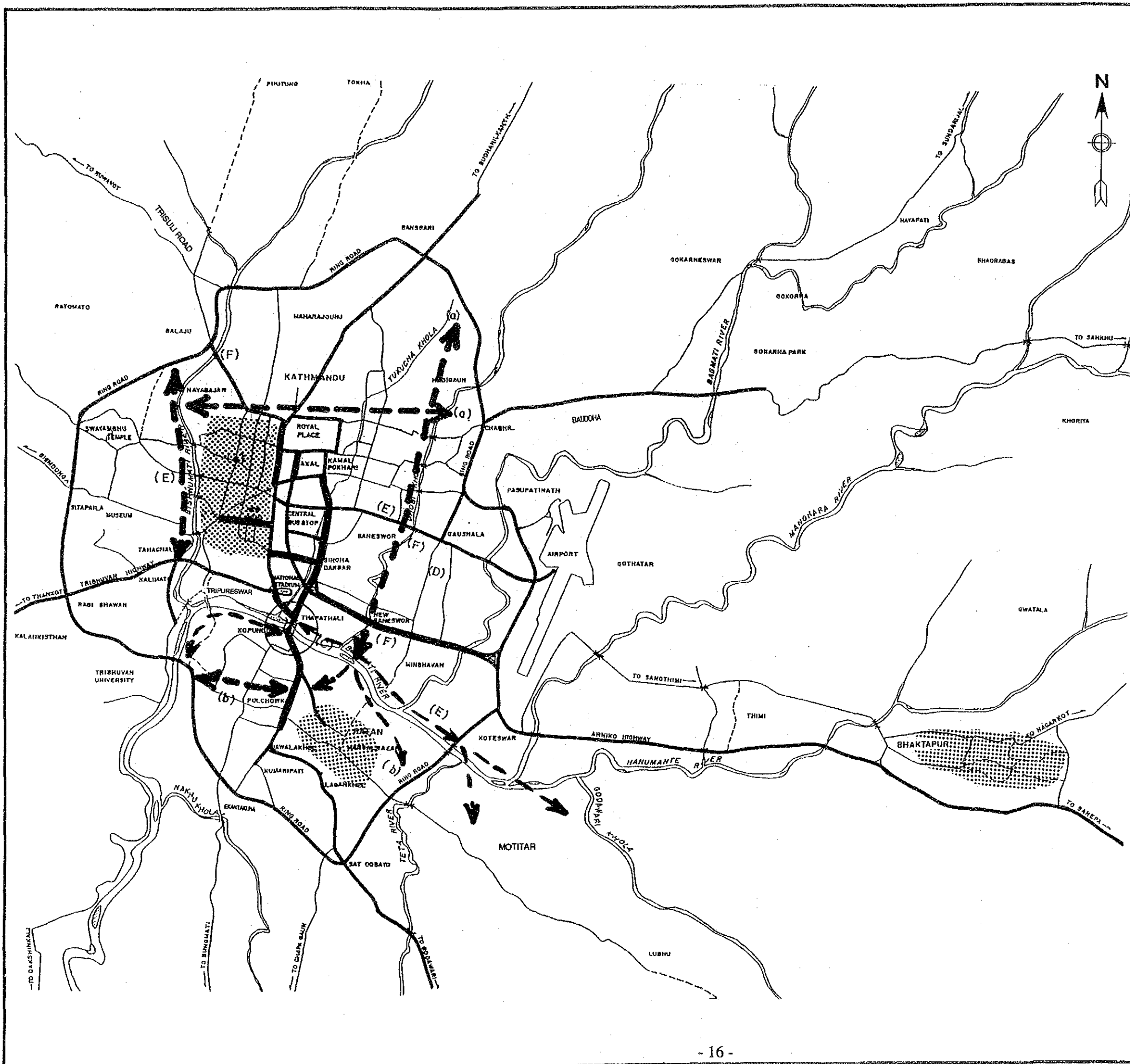
0 50 100 200 400m  
SCALE = 1:50,000

HIS MAJESTY'S GOVERNMENT OF NEPAL  
(H.M.G)


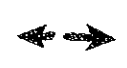
KATHMANDU VALLEY  
URBAN ROAD DEVELOPMENT  
ROAD CLASSIFICATION BY SURFACE  
CONDITION

FIG. 15

JAPAN INTERNATIONAL COOPERATION  
AGENCY (JICA)



**LEGEND**

-  Historical Core Area
-  Preferred Road Link

0 250 500 1000 2000m  
SCALE=1:25,000

HIS MAJESTY'S GOVERNMENT OF NEPAL  
(H.M.G)

KATHMANDU VALLEY  
URBAN ROAD DEVELOPMENT

MAJOR FINDINGS ON PRESENT ROAD NETWORK






FIG. 16

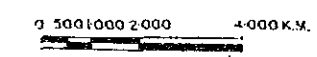
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)



# LEGEND

(Unit : m/thousand persons)

-  ~ 100 (Level 1)
-  101 ~ 200 (Level 2)
-  201 ~ 300 (Level 3)
-  301 ~ 400 (Level 4)
-  400 ~ (Level 5)



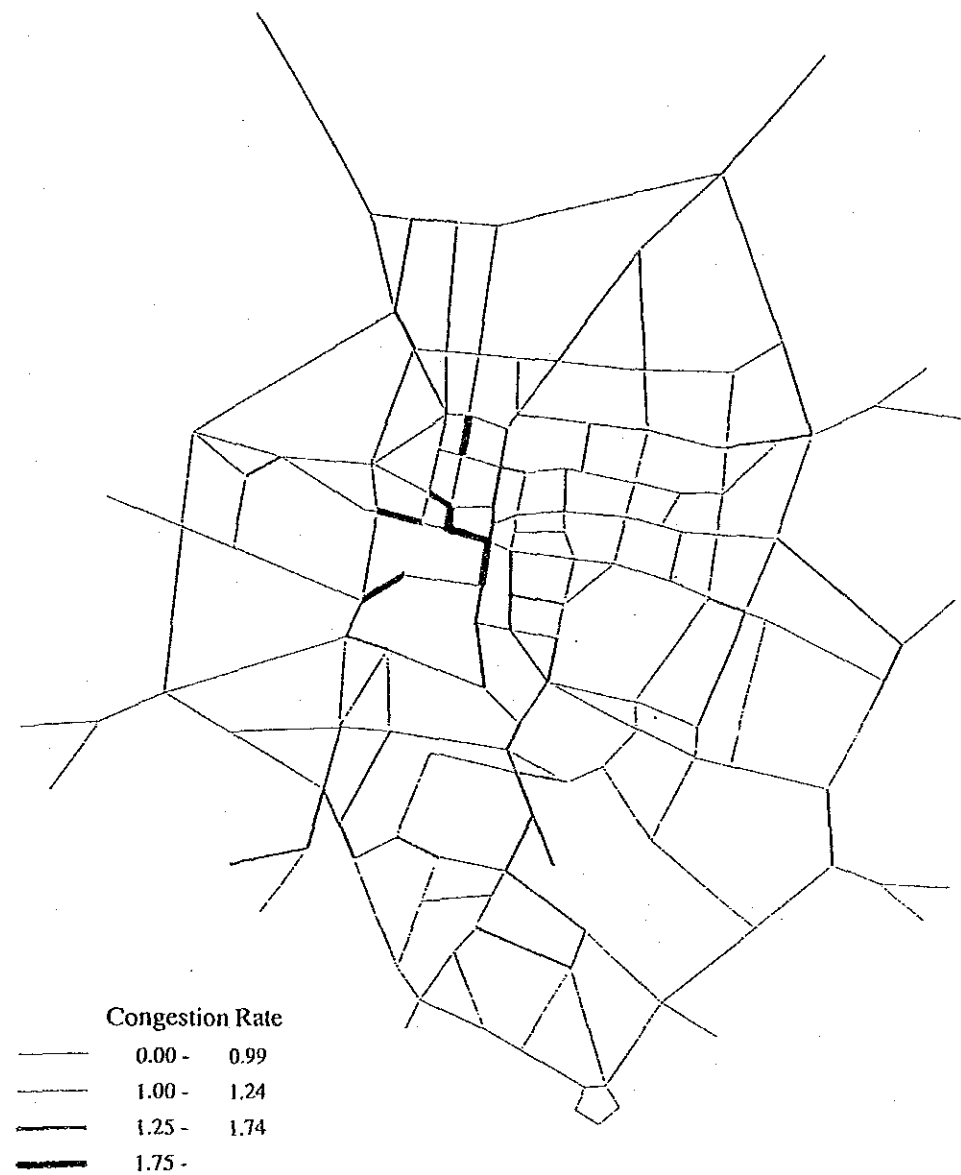
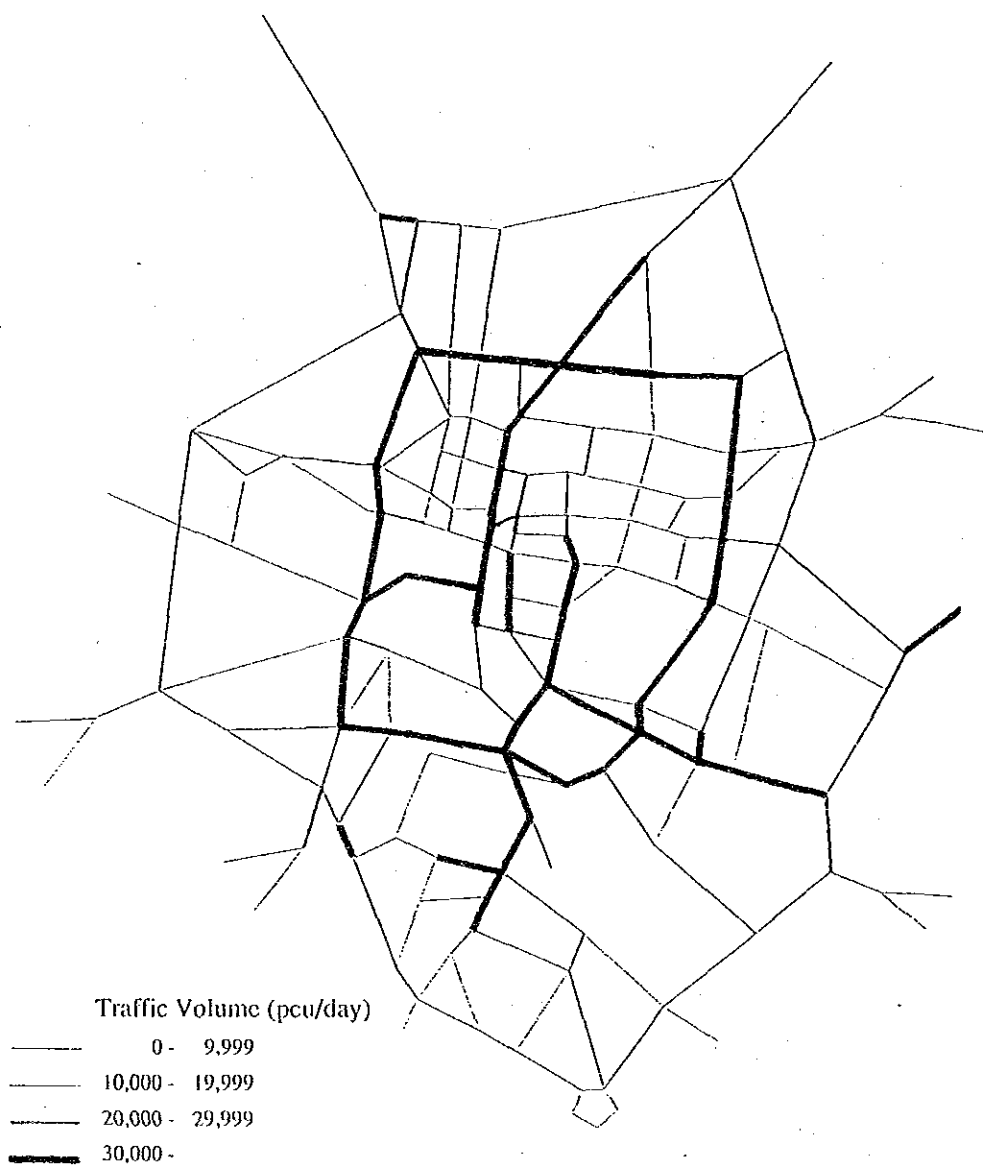
HIS MAJESTY'S GOVERNMENT OF NEPAL  
(H.M.G)

KATHMANDU VALLEY  
URBAN ROAD DEVELOPMENT  
ROAD DENSITY BY TRAFFIC ZONE

FIG. 18

JAPAN INTERNATIONAL COOPERATION  
AGENCY (JICA)

# LEGEND



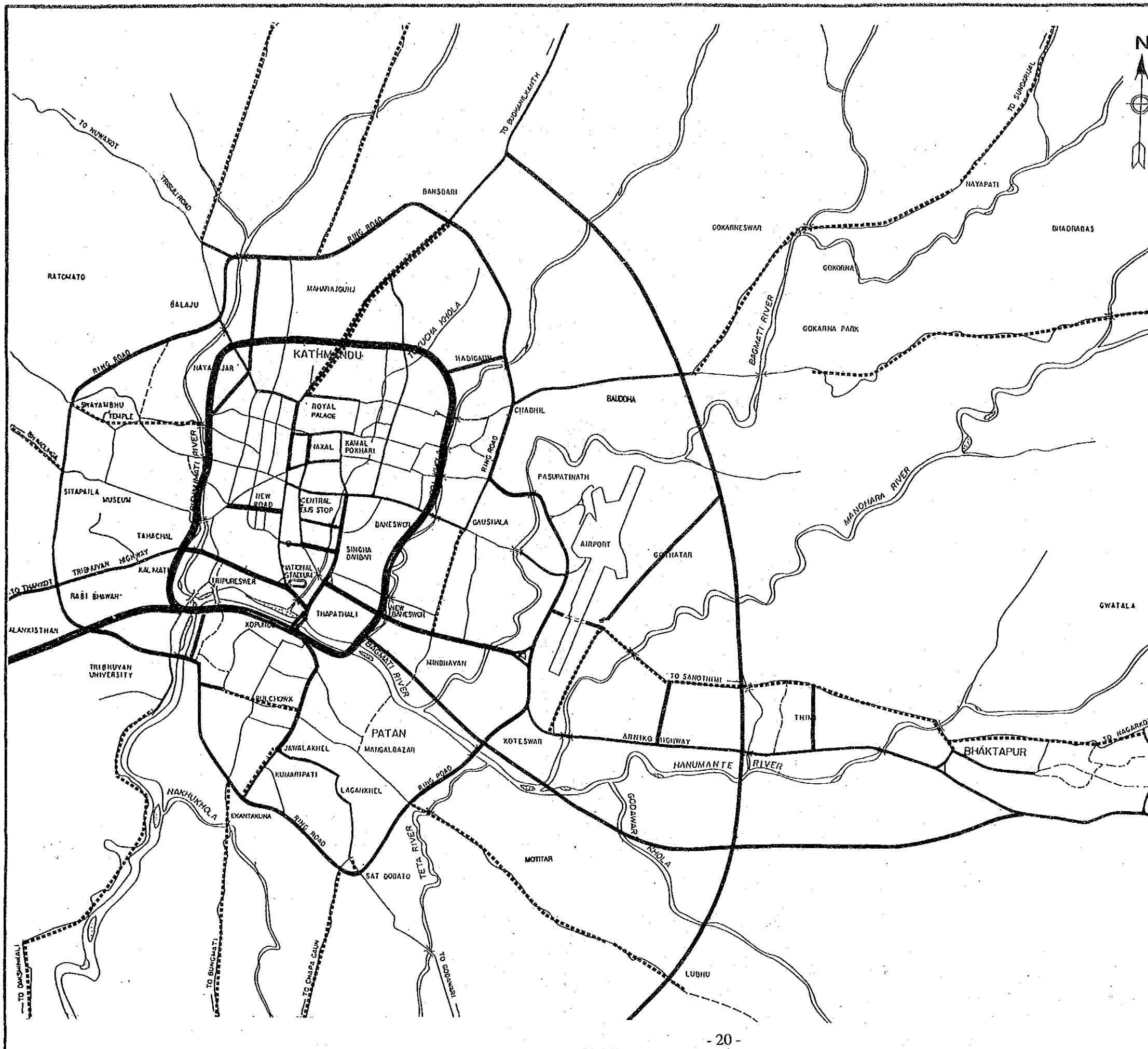
HIS MAJESTY'S GOVERNMENT OF NEPAL  
(H.M.G)

KATHMANDU VALLEY  
URBAN ROAD DEVELOPMENT  
TRAFFIC VOLUME AND CONGESTION RATE  
(2015 - PROPOSED NETWORK)





FIG. 19

JAPAN INTERNATIONAL COOPERATION  
AGENCY (JICA)





**LEGEND**

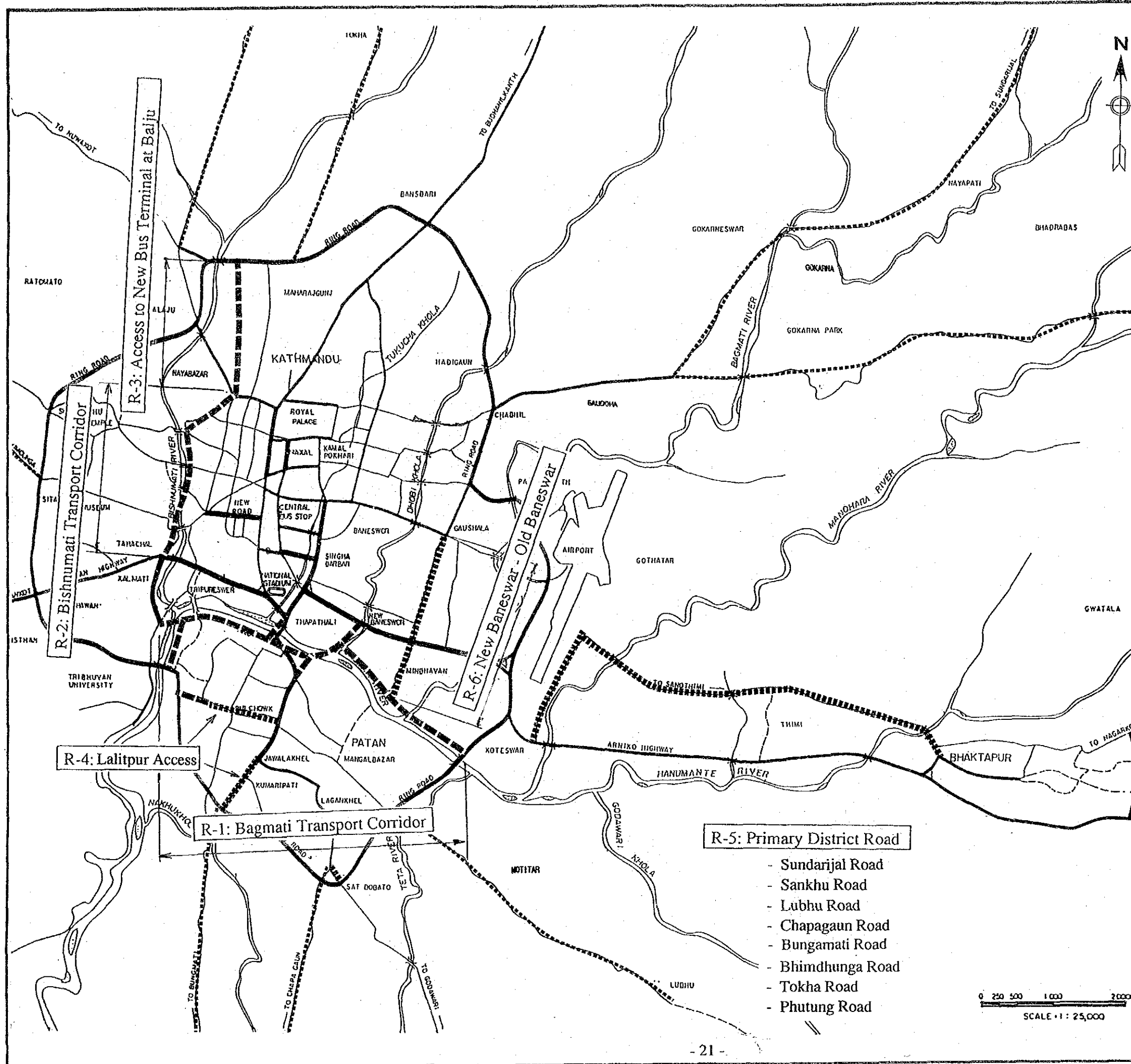
-  New Construction (4 lanes)
-  New Construction (2 lanes)
-  Widening (4 lanes)
-  Widening (2 lanes)

HIS MAJESTY'S GOVERNMENT OF NEPAL  
(H.M.G)

KATHMANDU VALLEY  
URBAN ROAD DEVELOPMENT  
MASTER PLAN OF  
ROAD NETWORK IN 2015

FIG. 20

JAPAN INTERNATIONAL COOPERATION  
AGENCY (JICA)



### LEGEND

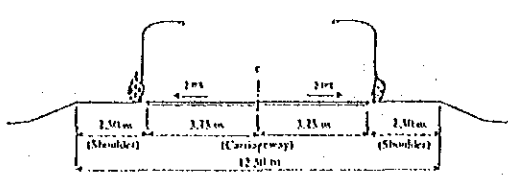
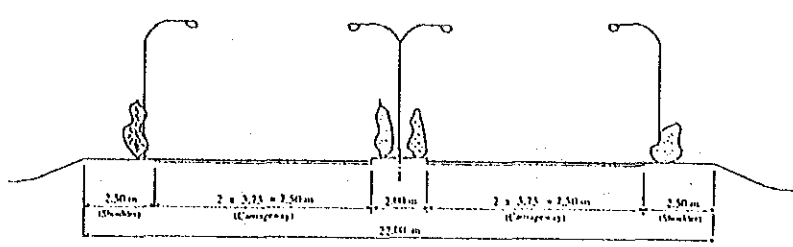
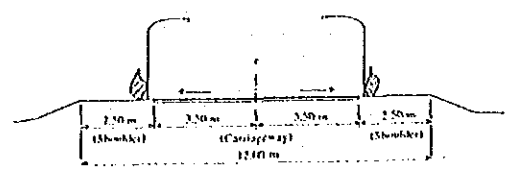
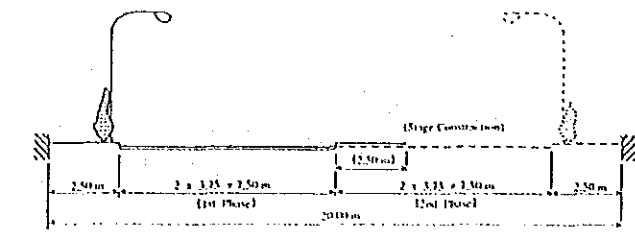
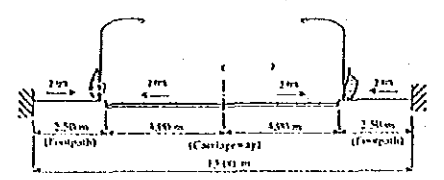
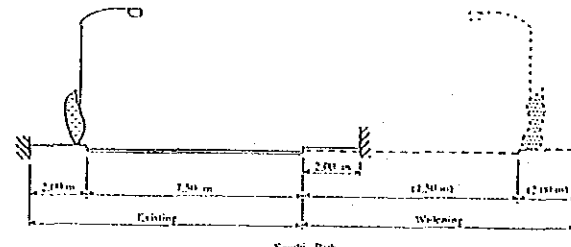
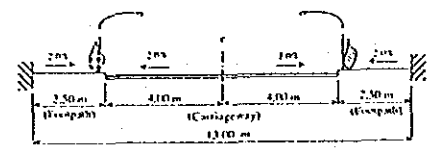
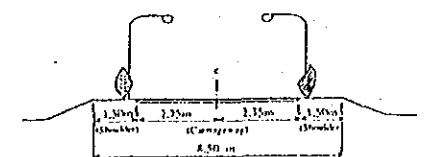
- R-1: Bagmati Transport Corridor (2 lanes)
  - R-2: Bishnumati Transport Corridor (2 lanes)
  - R-3: Access to New Bus Terminal (2 lanes)
  - R-4: Lalitpur Access (2 lanes)
  - R-5: Primary District Roads (1-lane)
  - R-6: New Baneswar - Old Baneswar
- 
- : Construction
  - : Widening
  - : Overlay & Rehabilitation

HIS MAJESTY'S GOVERNMENT OF NEPAL (H.M.G)

KATHMANDU VALLEY URBAN ROAD DEVELOPMENT SHORT-TERM ROAD DEVELOPMENT PLAN ( - 1997)

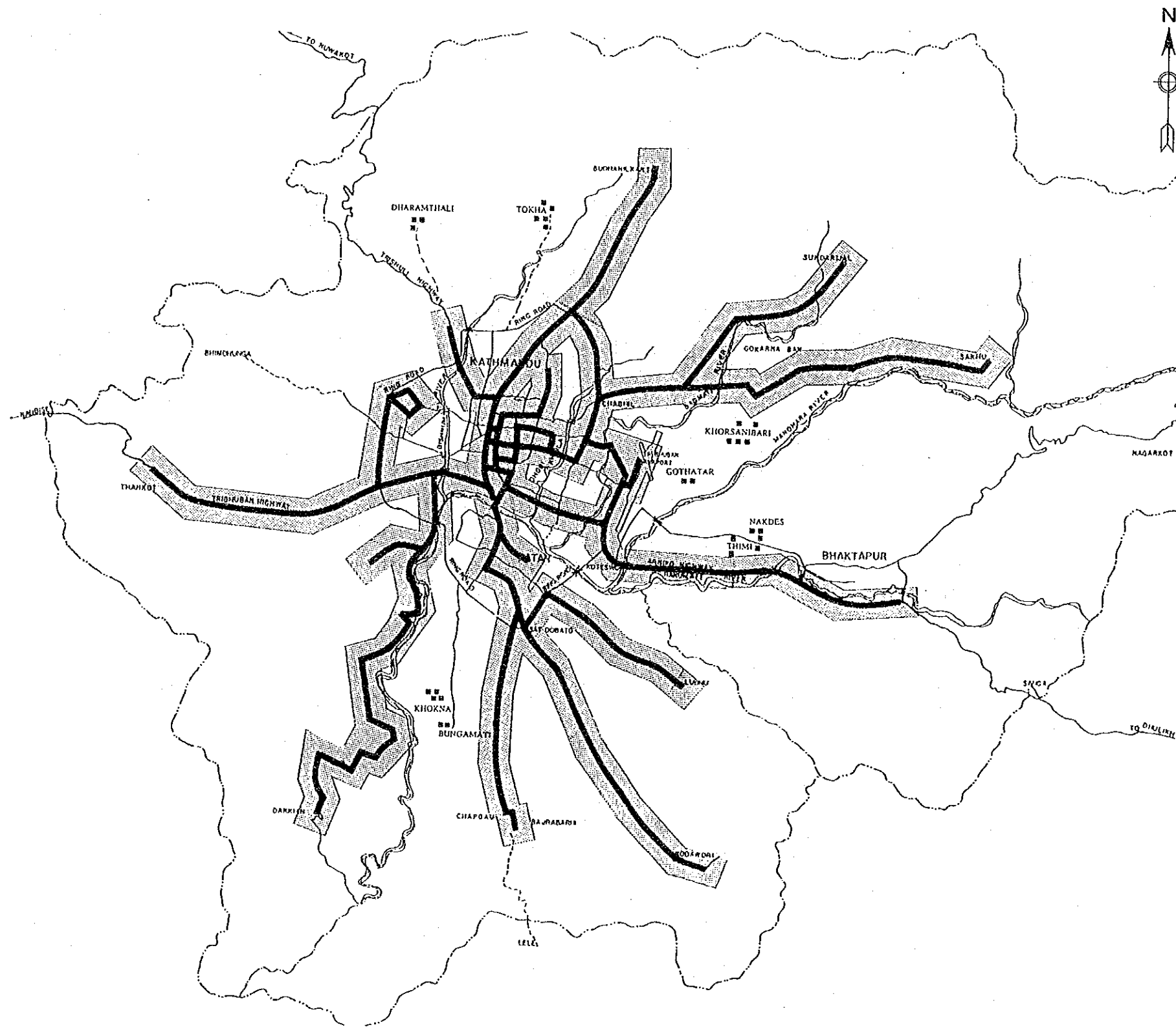
FIG. 21

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

Proposed Road	Carrigeway Width (m)	Right-of-way Width (m)	2 Lanes Road	4 Lanes Road	LEGEND
(1) National Highway - Arniko Bypass - 2nd Tribhuban Highway	2 x 3.75 2 x 2 x 3.75 (w/Median)	50 (30) 50 (30)			<p>HIS MAJESTY'S GOVERNMENT OF NEPAL (H.M.G)</p> <p>KATHMANDU VALLEY URBAN ROAD DEVELOPMENT PROPOSED STANDARD CROSS SECTIONS OF ARTERIAL ROADS</p> <p>FIG. 22</p> <p>JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)</p>
(2) Inner Ring Road Outer Ring Road Thimi Feeder Road	4 x 3.75+FP 2 x 3.50 2 x 3.50	30 (14) 30 (20) 30 (14)			
(3) City Roads (Class A) - Kantipath - New Bagmati Bridge - Bhaktapur Ring Road	4 x 4.00+FP 2 x 4.00+FP 2 x 4.00	30 (20) 30 (14) 30 (14)			
(4) City Road (Class B) - Access to New Bus Terminal - New Baneshwar-Old Baneshwar - Lalitpur Access - Teku Access - Bagmati Riverside Road - Swayambhu Road	2 x 4.0+FP 2 x 4.0+FP 2 x 4.0+FP 2 x 3.0 2 x 3.0 2 x 3.0	20 (14) 20 (14) 20 (14) 20 (14) 20 (14) 20 (14)			
(5) Primary District Roads - Sundarijal Road - Lubhu Road - Chapagaun Road - Bungamati Road - Bhimdhunga Road - Tokha Road - Phuntung Road	2 x 2.75 2 x 2.75 2 x 2.75 2 x 2.75 2 x 2.75 2 x 2.75 2 x 2.75	20 (14) 20 (14) 20 (14) 20 (14) 20 (14) 20 (14) 20 (14)			

( ) Min. Width

LEGEND



HIS MAJESTY'S GOVERNMENT OF NEPAL  
(H.M.G)

KATHMANDU VALLEY  
URBAN ROAD DEVELOPMENT  
SERVICE AREA OF EXISTING CITY  
BUS

FIG. 23

JAPAN INTERNATIONAL COOPERATION  
AGENCY (JICA)

LEGEND

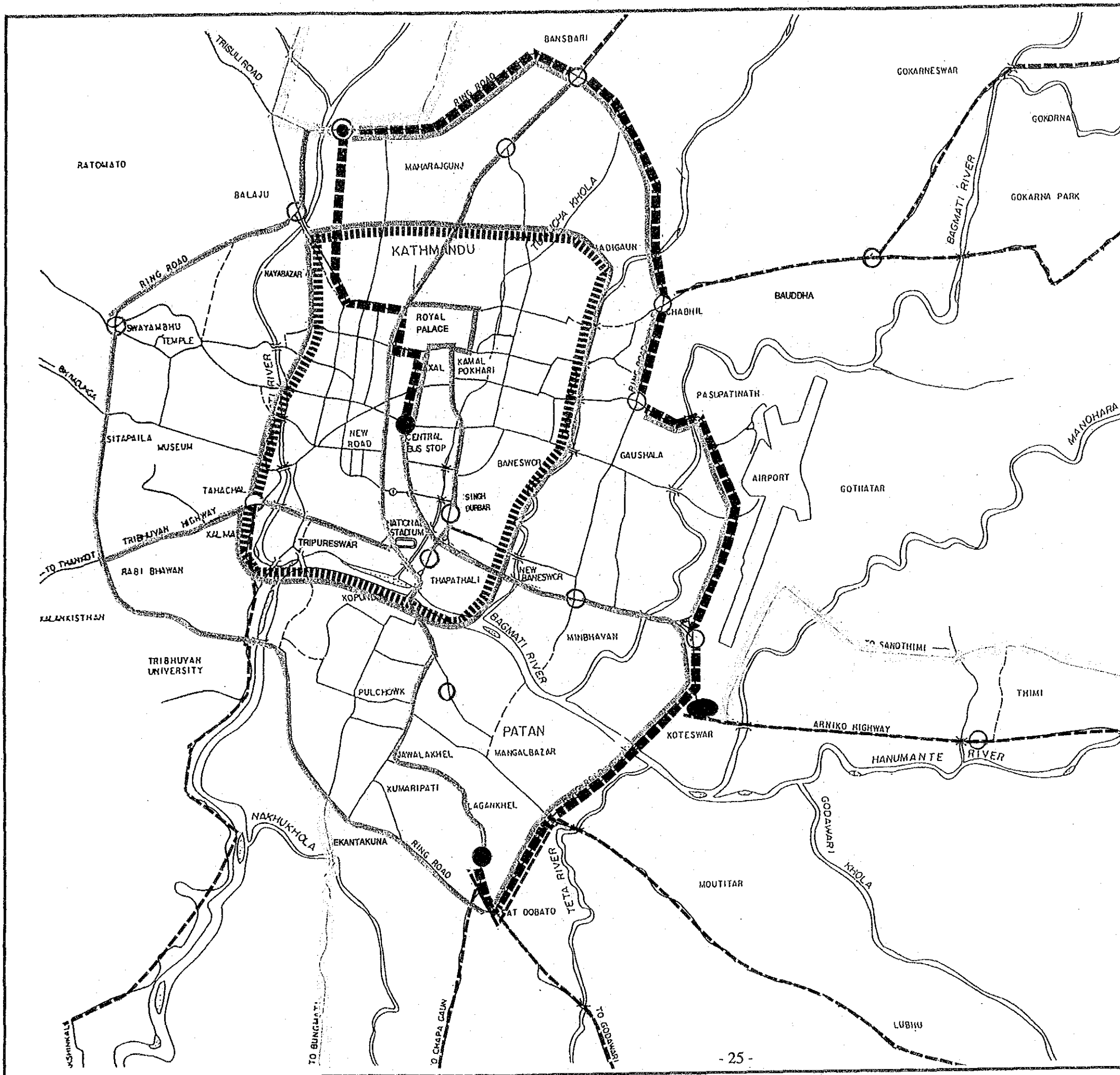


HIS MAJESTY'S GOVERNMENT OF NEPAL  
(H.M.G)









KATHMANDU VALLEY  
URBAN ROAD DEVELOPMENT  
PRESENT TRAFFIC DESIRE  
LINE (VEHICLE)  
- PUBLIC TRANSPORT -

FIG. 24

JAPAN INTERNATIONAL COOPERATION  
AGENCY (JICA)



### LEGEND

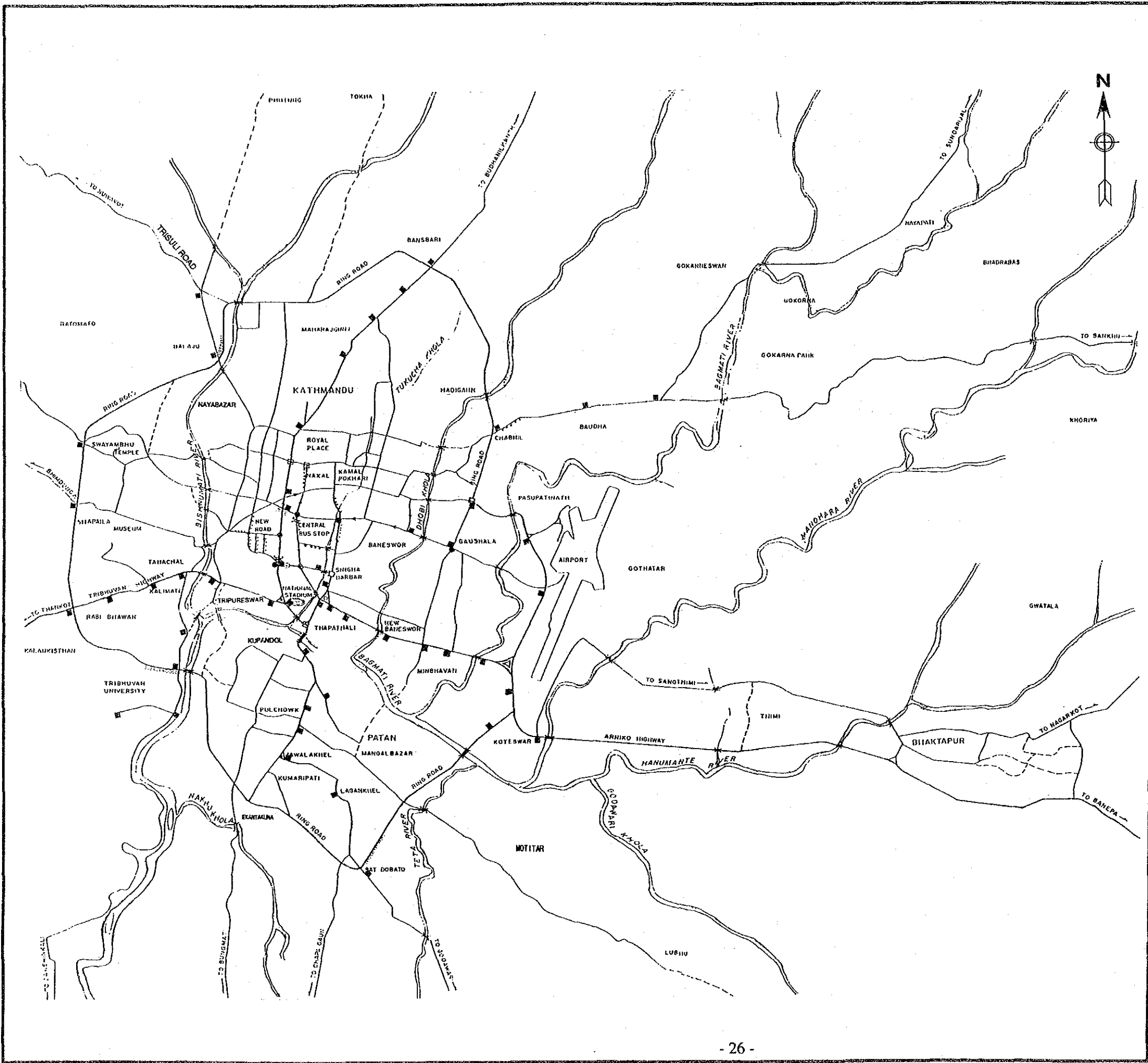
-  Shuttle Bus Route
-  New City Bus Service Route
-  Bus Service Improvement on District Road
-  Bus Priority Lane
-  Tempo Regulation Route
-  Long-distance Bus Terminal (On-going)
-  Long-distance Bus Terminal
-  Bus Stop to be Improved

HIS MAJESTY'S GOVERNMENT OF NEPAL  
(H.M.G)

KATHMANDU VALLEY  
URBAN ROAD DEVELOPMENT  
PUBLIC TRANSPORTATION DEVELOPMENT PLAN

FIG. 25

JAPAN INTERNATIONAL COOPERATION  
AGENCY (JICA)



### LEGEND

- Bus stop
- Car Parking Area
- ≡ Pedestrian Bridge
- ≡ Pedestrian Subway
- Signal Controlled Roundabout
- Signal Controlled Intersection
- ▨ Truck Parking Area
- ▨ Proposed Central Bus Park



0 250 500 1000 2000m  
SCALE=1 : 25, 000

HIS MAJESTY'S GOVERNMENT OF NEPAL  
(H.M.G)

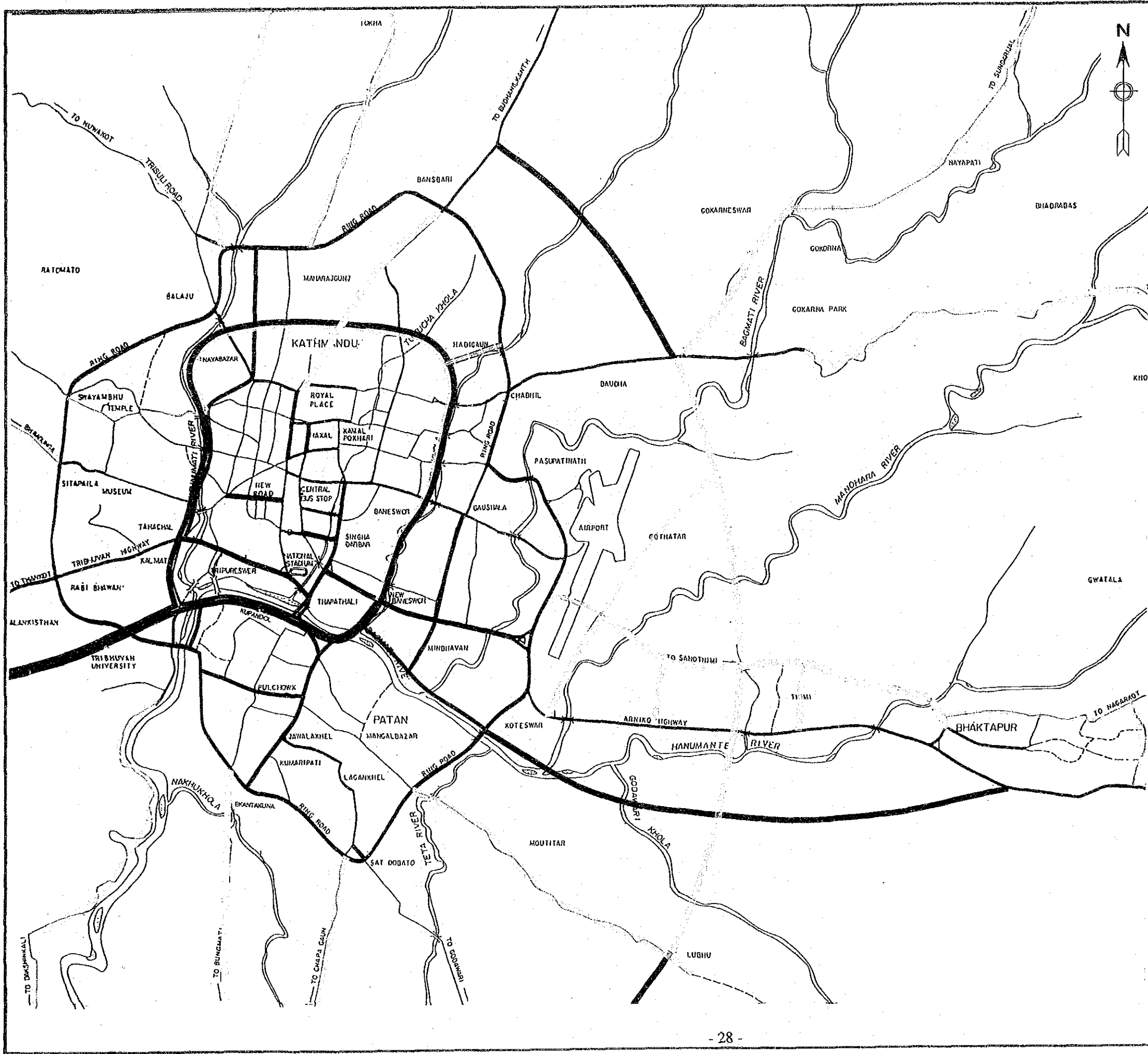
KATHMANDU VALLEY  
URBAN ROAD DEVELOPMENT  
ON-GOING TRAFFIC MANAGEMENT

FIG. 26




JAPAN INTERNATIONAL COOPERATION  
AGENCY (JICA)







**LEGEND**

-  Short-term Plan  
( - 1997)
-  Middle-term Plan  
(1998 - 2005)
-  Long-term Plan  
(2006 - 2015)

HIS MAJESTY'S GOVERNMENT OF NEPAL  
(H.M.G)

KATHMANDU VALLEY  
URBAN ROAD DEVELOPMENT  
IMPLEMENTATION PLAN  
OF ROAD DEVELOPMENT

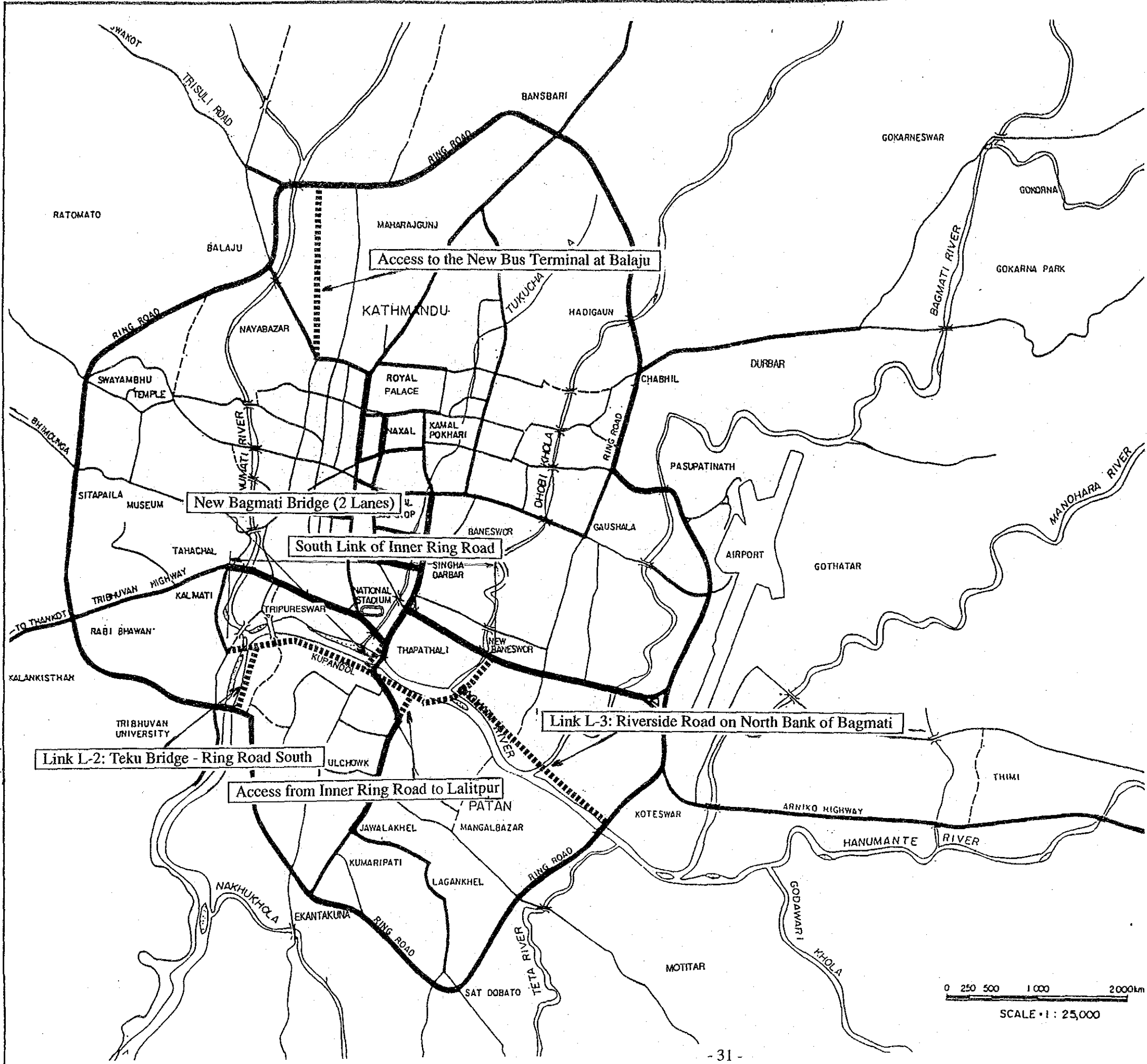
FIG. 28

JAPAN INTERNATIONAL COOPERATION  
AGENCY (JICA)

Table 1 Proposed Implementation Schedule of Short-term Urban Road Development Plan

Programme No.	Target for Development: Development Programme	Short-term Development Plan (1993 - 1997)					Remarks
		(1) Improvement of Bottlenecks in Urban Traffic Conditions (2) Improvement of Transportation-Poor Area					
		1993	1994	1995	1996	1997	
[Supporting Actions Required for Road Development Projects in the Short-term Plan]							
A. Traffic management							
A-1 Legal/Administrative Measures							
(1) Introduction of Parking Code into Building Code and Introduction of Penalty System							
(2) Enforcement of Vehicle Inspection System							
(3) Enforcement of Motor Vehicle Act							
(4) Coordination of Policies among the Concerned Agencies							
(5) Regulation on Slow Vehicles on Major Arterial Roads							
A-2 Institutional Measures							
(1) Control on Road-side Parking							
(2) Control on On/Off Loading on the Major Road							
(3) Control on Illegal Activities on Right-of-Way							
D. Land-use Development Plan							
D-1 (1) Enforcement of Zoning Act and Introduction of Penalty System							
[Proposed Projects to be Implemented in the Short-term Plan]							
Category A Traffic Management Plan:							
AS-1 (1) Construction of Public Parking Spaces (multi-storied)							
AS-2 (2) Improvement of Intersection Facilities							
AS-3 (3) Improvement of Crossing Facilities for Pedestrians on Busy Roads							
AS-4 (4) Establishment of Traffic Engineering Institute in DOR							
AS-5 (5) Construction of Truck Yards along the Ring Road							
Category B Public Transport Development Plan : Improvement of Bus Transportation-poor							
BS-1 Shuttle Bus Services at New Long-distance Bus Terminal at Balaju							
BS-2 Improvement of Bus Service Route on Primary District Roads:							
(1) Improvement of Bus Services							
(2) Pavement of Primary District Roads of Bhimdhunga, Tokha and Phutung Roads							
(3) Widening of Sundarijal Road							
(4) Overlay and Rehabilitation of Pavement for Sankhu, Lubhu, Chapagaun and Bungamati District Roads							
BS-3 Improvement of Bus Stop Facilities at Major Junctions							
BS-4 Route Regulation on Three-Wheeler Public Transport Services							
Category C Road Development Plan :							
CS-1 Improvement of Bagmati Transport Corridor							
(1) Construction of South Link of the Inner Ring Road							
(2) Construction of Linkage L-2 (Teku Bridge - Ring Road)							
(3) Construction of Linkage L-3 (Riverside Road on North Bank of Bagmati)							
(4) Expansion of Bagmati Bridge from 2 to 4 lanes							
(5) Access from Inner Ring Road to Lalitpur							
CS-2 Improvement of Access to New Bus Terminal at Balaju							
(1) Construction of Access (Nayabazar- Ring Road at Balaju)							
CS-3 Improvement of Bishnumati Transport Corridor							
(1) Construction of West Link of the Inner Ring Road							
CS-4 Widening of Old Baneswor- New Baneswor Road							
CS-5 Improvement of Lalitpur Access							
(1) Construction of Jhamsikhel - Ring Road							
(2) Widening of Jawalakhel - Ring Road							
(3) Widening of Sat Dobato - Ring Road							





# LEGEND

- High Priority Projects to be followed by a feasibility study
- (A) Improvement of Bagmati Transport Corridor
  - A-1: South Section of Inner Ring Road
  - A-2: Teku Access
  - A-3: New Bagmati Bridge with 2 lanes at Kupandol
  - A-4: East Bagmati Riverside Road along north bank of Bagmati River
  - A-5: Access from Inner Ring Road to Lalipur
- (B) Access to New Bus Terminal at Balaju

HIS MAJESTY'S GOVERNMENT OF NEPAL  
(H.M.G)

KATHMANDU VALLEY  
URBAN ROAD DEVELOPMENT  
HIGH PRIORITY PROJECTS  
TO BE FOLLOWED BY F/S

FIG. 29

JAPAN INTERNATIONAL COOPERATION  
AGENCY (JICA)

JICA