DESIGN AND LAYOUT OF ROADS IN BUILT-UP AREAS

DESIGN AND LAYOUT OF ROADS IN BUILT-UP AREAS

Report of the Departmental Committee set up by the Minister of War Transport

LONDON: HIS MAJESTY'S STATIONERY OFFICE 1946

Appointment and Terms of Reference of the Committee

The Committee was appointed in April, 1943, by the Minister of War Transport, with the concurrence of the Minister of Town and Country Planning and the Secretary of State for Scotland

"To consider the design and layout most appropriate to various types of roads in built-up areas, with due regard to safety, the free flow of road traffic, economy and the requirements of town planning, and to make recommendations."

TABLE OF CONTENTS

Appoi	intme	nt and Terms of Reference	of the	Comn	uittoe	•••	•••	•••	•••	Pa	ge	ii
Const	itutio	n of Committee	•••		•••	•••	•••	•••	•••	•	•	vi
										PARAGE		
PART	I	INTRODUCTION				•••	•••			1 -		2
PART	П	ROAD SAFETY	•			•••	••••					4
			•••	•••	•••	•••	•••	•••	•••	23 -	, 3	+
PART	Ш	GENERAL TRAFFIC CONSID	ERATION	15.								
		Section (a) Traffic Surveys	_ •••	***		•••	•••	•••	•••	35 -		
		" (b) Growth of Tra		•••	•••	•••	•••	•••	•••	47 -		
		" (c) Road Capacity	•••	· •••	•••	***	•••	•••	•••	54 -	6	3
PART	IV	TRAFFIC COMPONENTS.										
		Section (a) Public Service	Vehicles	3	•••	•••		•••	•••	64 -	. 8	2
		" (b) Goods Vehicles		•••	•••	•••	•••	•••	•••	83 -	_	
		" (c) Private Cars	•••	•••	***	•••	•••	•••	•••	89 -	•	
		" (d) Horse-drawn V	ehicles	•••	***	***	•••	•••	•••	92 -	•	
		" (e) Pedal Cyclists	•••	•••	•••	•••	•••	•••	••• '	98 -		
		" (f) Pedestrians	•••	•••	•••	•••	•••	•••	• • • •	104 -	10	7
Part	V	THE ROAD PATTERN.										
-		Section (a) General Consid	leration	s	•••	•••	•••	••		108 -	12	4
		" (b) Relation of the			Urban	Road		1		125 -	13	1
		" (c) Radial Roads	•••	•••	•••	•••		•		132 -		
		" (d) Ring Roads	•••	. • • •	•••	•••	••		•••	139 -		
		" (e) Shopping Stree	ts and A	Arcades	•••	•••	•••	•••	•••	159 -		
	•	" (f) Local Roads	 D1	•••	•••	***	•••	•••	•••	176 -		
		,, (g) Boulevards and			 	***	•••	•••	***	185 - 191 -		
_		" (h) Sub-surface and " (i) The Single-pur			uş.	•••	•••	•••	•••		20	
D	***				***	•••	•••	•••	•••			_
PART	VI	THE ROAD IN RELATION T	O DEAL	elopmen	T ·	•••	•••	•••	•••	210 -	22	6
PART	VII	ROAD DESIGN AND LAYOU	л.									
		Section (a) Traffic Segregar	tion		•••	***			•••	227 -	24	6
		" (b) Service Roads	•••	•••	•••	•••	•••	•••	•••	247 -	25	3
		" (c) Road Intersect		***	•••	•••	•••	***	•••	254 -		
		,, (d) Crossing of Ca			edestri?	ans	•••	•••	•••		. 34	
		" (e) Underground S			•••	•••	***	•••	***		35	
		" (f) Other Aspects	oi Koac			•••	•••	***	•••	351 - 368 -	- 39	
		" (g) Road Equipme		•••	***	•••	•••	•••	•••	200 -	27	U
PART	VIII	THE STATIONARY VEHICLE										
		Section (a) Vehicles on the		Highwa	ay 🐪	•••	•••	•••	•••	397 -		
)x		•••	•••	•••	•••	•••	***	416 -	43	0
PART	ΙX	AMENITY	<u>^</u>	•••		•••	•••	***	•••	431 -	- 44	9
PART	X	LEGISLATION					p = e		•••		45	
	_						,		•••		_	
APPEN	DIXE										PAC	
1.	Sur	ey of Traffic Origin and De	stinatio	on on La	ondon-	Ritmin	gnam)	LTUDK	Koad			34
2.	Sur	ey of Traffic Origin and De	sunatio	on at Le	wes in	East 5	USSCX		•••			35
3.	Sur	vey of Traffic Origin and Deking Device for Parked Cyc	SUNAUC Jee		auoiu-	оп-М	он	•••	•••			36 36
4.	LOC	ign of a Roundabout	169	***	***	•••	***	•••				37
5.	Do+	a for Design of Intersection	s Figs.	30. 32 s		•••	•••	***				X
6. 7.	Circ	ular 414—Pedestrian Cross	ngs	•••		•••	•••	•••	•••			90
8.	Circ	ular 544—Pedestrian Signal	s		•••	•••	•••	•••	•••			2
9.	Guz	rd Rails and Barriers	***	•••	:	•••	•••	•••		93	& 9	
10.	Roa	d Equipment and Facilities	in Con	aposite '	Unit	•••	•••	•••			ç	95

LIST OF ILLUSTRATIONS

	Drawings			I	PAGE
Fto. 1.	Graph showing increase in numbers of vehicles registered 1922-19) 39 .		****	5
Fig. 2.	Graph showing numbers of fatal accidents in relation to num vehicles, 1922-1939		of lice	ensed 	7
Fig. 3.	Graphical illustration showing numbers of injured and fatalities attributed to each class of road user	in bui 	lt-up a 	ігеа s	8
Fig. 4.	Diagram showing (1) Radial, (2) Gridiron, and (3) Linear towns	;	****	****	23
Fig. 5.	Drawing of radial and ring roads in town of radial pattern		••••	••••	27
Fig. 6.	Cross-section of Outer Ring Road laid out as a Parkway		••••		28
Fig. 7.	Cross-section of Outer Ring Road of minimum dimensions		••••	••••	28
Fig. 8.	Cross-section of Outer Ring Road on sidelong ground	****	••••	••••	28
Figs. 9, 10 and 11.	Cross-sections of Intermediate Ring Roads		****		29
Fig. 12.	Cross-section of Inner Ring Road 90-ft. wide	****		****	30
Fig. 13.	Cross-section of Inner Ring Road 106-ft, wide		,	••••	30
Fig. 14.	Cross-section of Shopping Street 74-ft. wide		••••		33
Fig. 15.	Cross-section of Shopping Street showing local widening at bus	stops	••••	••••	33
Fig. 16.	Cross-section of Shopping Street 84-ft. wide	••••	••••	••••	34
Frg. 17.	Cross-section of Shopping Street 60-ft. wide	••••			34
Fig. 18.	Plan of new road through existing development-New York			••••	38
Fig. 19.	Sketch of narrow central reservation planted with shrubs		••		45
Frg. 20,	Drawing showing connection between service road and dual carr	iagewa	у гоас	d	48
Figs. 21 & 22.	Plans of T junctions	••••	****		51
Fig. 23.	Plan of T junction in busy area	****		****	52
Fras. 24 & 25.	Plans of Y junctions		•		53
Figs. 26 & 27.	Plans of T junctions with refuges		.:		53
Fig. 28.	Plan of cross roads in busy area			••••	55
Fig. 29.	Plan of roundabout with pedestrian and cyclists subways			••••	58
Figs. 30 & 31.	Drawings showing two level intersection	****		59	& 60
Figs. 32 & 33.	Drawings showing two level intersection with pedestrian and cyc	:lists su	ıbwayı	š	61
Figs. 34 & 35.		••••			& 63
Fig. 36.	Drawing showing suggested positions for mains below footway		****	••••	67
APPENDIX 4.	Slot machine for securing bicycles	••••	••••		86
APPENDIX 5.	Drawings and graph for design of a roundabout	****	•••	87, 88	

93 & 94

95

Specimens of pedestrian guard rails and barriers

Road equipment and facilities in composite unit

APPENDIX 9.

APPENDIX 10.

Index

A			Рага.		Рага.
	Рага.		No.		No.
	No.	Boundary fences	443	Cloverleaf intersection	313
Accidents:		Bridges for pedestrians		Coastal towns	109
attributed to	24	105	, 341, 342	traffic to	116
in built-up areas	24	dimensions of	30 9	Commercial:	
causes of	25	Built-up area:		areas, roads in	183
to children	25, 106	interpretation of term	12, 13	vehicles, see goods veh	icles
to class of road users	24	road accidents in	23	Composite units, housin	
to cyclists	24, 99	Bus:	•	road equipment in 396,	
at intersections	25	motor	70	Congestion by slow-mo	
maps and records	33	tròlley	70	vehicles	94
and numbers of vehicles	23	· Bus services:		Construction, methods of	of 31
to passengers	24	to housing estates	76	Consultations:	_
and propaganda	15	terminii	77	with p.s.v. authorities	22, 69
responsibility of the in-	•	Bus station:			2, 33, 41
dividual	15, 23	location of	- 75	with railway compani	
Advertisements:		and parking	414	with Regional Trans	
control of 32, 4	45, etc.	and safety	32	Commissioner	69
disfigurement by	445	By-pass:		Conveniences:	
roadside, and signs 4	45, 450	elevated or sub-surface	ce 119	public	378
Alignment	433	function of	125	public, access to	32
Amenity:		to towns other than ra		Co-operation:	
and alignment	433	traffic in United Stat	es 127	between highway autl	nori-
application to road plan	I -			ties and public u	tility
ning	432			undertakers	349
avoidance of parallelis		C		between highway autl	
boundary fences	443	Cabmen's:		ties and police for tr	affic
buildings of architectura	1	shelters	379	purposes	22, 41
and historic interest	12, 434	see also taxicabs	415	with railway compa	anies
co-operation between		Camber:		and p.s.v. operators	22
planner, engineer and		excessive	71	Crossfail:	
architecț	431	standards of	359	excessive	71
and design of road equip		on waiting bays and l	anes 362	standards of	359
ment	444	Canopies over footways	174	on waiting bays and la	nes 362
effect of elevated and		Capacity:		Cul-de-sac:	
sub-surface roads or		of carriageways	54-59	as local road	184
misuse of term	431	of elevated road	191	. use of, for parking	412
and proportion and bala		of footway	60-63	Curves :	
and road layout	431	of roundabouts	303	horizontal	354, 433
use of suitable material	s 441	Car Parks:	416	vertical	355, 433
Arcades:	154	for arcades	175	Cycle:	200,
in front of shops	174	see also parking	397	strips	243
with shops	175	Carriageways:		subways, dimensions of	of 309
Arterial:	6	capacity of	54	tracks	102, 242
definition of	7	dual ,	450	track, requirements of	244
traffic	32	30 ft. wide	167	Ways	208
traffic, deflection of Association:	32	Cattle:		Cyclists Touring Club	3
Roads Beautifying	440	driving of	97	(see also Pedal Cyclist))
Associations submitting	440	Census:			,
memoranda	3	automatic recorders	43		
Automatic	,	of traffic	35	D	
traffic recorders	43	Central Area:		-	
dank icolucis	73	character and dimen		Definitions:	6, 7, 8
		p.s.v's in	147	Design and Layout:	-, -, -
В		Central magazine	148	interpretation	10, 11
Bins:		Central refuges, see Re	luges	of local roads	176
for litter	384	Central reservation, di		Development:	-,-
	383, 396	Classes:	233		151, 152
Bollards on refuges, etc.		of roads	•	at junctions and in	nter-
Boulevards	185	of traffic	6	sections 226, 256,	262, 273
	. 105	of game	7	roads, definition of	6

Para.	Para.	Para.
No.	No.	No.
Dimensions of:	Grit bins 383	Layout of roads:
central area 147, 148	Guard rails, (see pedestrian	factors to be considered 121
elevated or sub-surface	barriers)	in industrial areas 182
roads 194, 195	Gullies, drainage by 366	in office areas 183
goods vehicles 83 private cars 89	•	objects to be aimed at 122
private cars 89 rear access roads 172	H	on sidelong ground 143
service roads 218, 247, 253	Highway Code and pedes-	shopping streets 166, 403 Lighting:
shopping streets 166	trians 324	lamp standards 372
subways or overbridges 309	Horse:	of bollards 235, 373
traffic lanes 352	National Association 3	of intersections 274
waiting lanes 353, 404	riding 95	of refuges 235
waiting bays for p.s.v's. 72	vehicles 87, 92, etc.	of traffic routes 32
Distribution of population 114	Housing estates and bus	Linear town 109, 111
Drinking fountains 382	services 76	Litter baskets 384
_	Ţ	Loading and unloading of
${f E}$.	-	goods at premises 172, 408, 426
Economy, interpretation of 20	Increases in numbers:	Local roads:
Education and propaganda	of cars 18, 47	definition 6 design and layout 176
to prevent accidents 15, 34, 106	of pedal cycles 49	design and layout 176 Local-through road:
Electricity:	of p.s.v's. 18, 47, 64 Industrial area, roads in 182	definition 6
transmission poles 387	Industrial area, roads in 182 Intersections:	traffic 7
plant on the highway 388	access at 273	ti dinic ,
Elevated roads:	accidents at 25	M
advantage of 192	definition of 8	Mansion House Associa-
dimensions of 194, 195	in general 254-323	tion on Transport 3
capacity of 58, 191 inner ring road 158	kerb radii at 268	Markets:
nner ring road 158 roads 32	in neighbourhood units 292	location 164
Elevated footways 173	service roads at 250	pedestrians at 325
Equipment on roads:	shops at 162	roads to 180
defined 368	Interchange between bus and	in streets 180
design of 444	rail 32	Master plan 9,120
siting of 394-396	Investigation recommended:	Materials:
Evidence from organisations		use of suitable 441
and individuals 2, 3	automatic manie recording	Means of access definition of 8,211
•	car parks 429 intersections 275	at intersections 273
F	relation of building size to	Memoranda from individuals
Fire alarms 391, 396	road traffic 183	and organisations 2, 3
Flyover, advantages of 313	roundabouts 275	Memorials 392
rootpaths, definition of 8		Metropolitan police 3
Footway:	. J	Motor cyclists, accidents to 24
adequacy 107, 246	Innctions:	Motorway:
capacity of 60 crossfall 364	accidents at 25	capacity of 58
crossfall 364 definition of 8	definition of 8	definition of 8
inadequacy of 167	on radial roads 136, 137	1cdattettiering =-
at queue barriers 73	on ring roads 143, 145, 153	safety aspect of 29, 30 (see also single-purpose roads)
ramps at intersections 365	service road 250	Municipal and County En-
on service roads 248	staggered - 291	gineers, Institution of 3
on shopping streets 167		Municipal Passenger Trans-
riontage access:	K	port Association 3, 65
definition of 8, 211	Kerbing:	•
control of 210	at intersections on footway 365	N
Future growth of traffic 51	140103 41 11101000000	· · · · · · · · · · · · · · · · · · ·
	Oil Iciages	Neighbourhood unit:
G	at roundabouts 268, 301 standards 367	10203 111 40.
Grade separation.	Standards	Hitcisconorm —
definition of 8	•	Numbering: of premises, recommenda-
limitation of access 217	L	tions . 393
Uradient standards of 309 358	Lamp-posts, design and siting	of shops and houses 32
Gridiron town 109, 110	of 3/2	

	Para.	Para. No.	
•	No.		
0		Playing fields, location of 32 Police:	kerbs on 235
Obstruction of carriageway,		boxes 389, 396	
effect of	54	consultations with 22, 33, 41	
Obstructions on footway	395	County Chief Constables	at tram stops 238, 400
Office areas, roads in	183	Association 3	
One-way working:		County Chief Constables	Restriction of access 32, 210
at intersections	270	Conference 3	
on dual carriageways	450	supervision of pedestrian	on Town Planning 3
on inner ring road	157	and cycleways 209	
for relief of congestion	237	Population:	Right-hand turn, accidents
on service roads	252	distribution of 114	
Outer ring roads (see ring		urban 118	
roads)		Post Office letter boxes 390, 396	
		Propaganda for safety 34, 106	
\mathbf{P}		Precinct:	intermediate 144
Parking 397, etc., 416, et	c. 450	in central area 149, 164	
Parkway:	, 430	shopping 161, 164, 169	
dimensions of	186	value of 178	3 " " intermediate331
layout of ring roads as	143	Public conveniences: 32, 378	3 outer 330
reservation of land for	186	in pedestrian subway 341	Roads Beautifying Associa-
Passengers, accidents to	24	Public service vehicles:	tion 440
Pedal cycles:		definition of	Roads Improvement Associa-
accidents to	24, 99	effect on layout of ring	tion 3
increase in numbers of	49	roads 145	Roundabouts:
locking device for parks	d 430	effect on layout of shop-	design of 294, Appendix
parking of	430	ping streets 16	7 kerb radii at 268
safety of, and camber	359	increases and decreases in	Royal:
segregation of 100, 2	08, 240	numbers 64	· · · · · · · · · · · · · · · · · · ·
subways for	309	on shopping streets 169	Scottish Automobile Club
Pedestrians:		provision for picking-up	_
accidents to	24	and setting-down 399	,
Association	3	queue barriers and	S
crossing the carriageway		shelters 73, 37	
cycles at	308	waiting bays and lanes 72, 450	
and the Highway Code	324	waiting bays and lanes, camber of 36	reference 14, 1
at inner ring road junction	oci 200	Th. 1.11 Cm	
	260, 319	r done Transport Association	3 Sand bins 383
at roundabouts	307 245		Schools:
segregation of	104	•	barriers at 33
traditional rights vulnerability	104	Q	location of 3
Pedestrian:	104	Queue barriers and shelters 73	pedestrians access to 221, 33
barriers 3	327, 450	167, 37	Z Decition :
barriers, design of App		Queues at cinemas, theatres,	om . 1015 and 11adiage Con-
barriers at schools	336	etc. 33	tractors Association
barriers on service road			Road Passenger Transport Association
barriers in shopping stre	eets 168		
	375, 376	R	Segregation:
subways and overbridge		Radial roads: 13	of cyclists 10
dimensions of	309	pedestrians on 156, 33	
subways and overbridge	s,	Radial towns	
relative advantages	341, 342	Railway:	Seats, siting, etc., of 38
ways 166, 175, 2	206, 207		Seats, siting, etc., of 38 3 Service roads:
Petrol filling stations:		Companies, co-operation	camber and crossfall 36
on motorways	204	with - 2	2 restriction of access by 22
Pillar boxes	390	level crossings 17	
Places of public resort, loc		Rear access roads:	4 widths, etc. 218, 24 Shelter:
tion of 32, 151, 221, 3		widths, etc.	
Plan, master	9, 120	_ for arcades 17	
Planning, the need for fore	>	Refuges:	Shops:
sight in	263	at bends 28	8 in central area 16
Play streets for children	32, 106		6. on inner ring road 15
		 -	rmg road

ROADS IN BUILT-UP AREAS

τ	ara.		Рага.		Para.
	No.		No.	•	No.
Thomas a	140.	T	110.	Trees and shrubs:	
hops: at intersections	162	Taxicabs:		for amenity	438
	413	hackney carriage stand	s 415	on parkways	188
parking at pedestrians at 325,	334	shelters for drivers	379	Tunnels:	
in precinct	161		386	general	201
on radial roads	135	Telegraph poles	300	for roads	191
shopping streets	159	Telephone:	200 206	Turning circle:	
	107		389, 396	effect on kerb radius	268
ligns:	, 450	poles	386	effect on road design	86, 91
	, 430 32	Through road:	_	of goods vehicles	84
Committee	, 370	definition of	6	of private cars	90
	, 370	traffic on	7	- -	
Single purpose road:	450	Town:		U	
definition of 8, 203	, 430	attractive entrance to	18 9	Unilateral waiting	407
Speed:		types of	109	United States:	
on elevated and sub-surface		Town Planning, interpret	a-	Interregional Highways	£.
roads	194	tion of term	21, 22	Committee Report	127
restrictions on	118	Towns roads, definition of		pedestrian traffic on foo	t-
and safety	30	Traffic:		ways	63
Standard widths	450	automatic recorders	43		
Standards, inapplicability of	1	census	35	v	
common	9	estimating by-passable		Vehicles:	
Stationary vehicles	397	function of roads	13	comparative numbers i	'n
		future growth of	51	other countries	53
Stations, bus (see bus station	-	growth of	47	definition of	8
Statues	392	interpretation of	16	goods	83
Stopping-places:		lanes	352, 353	graph showing registra	
distances to shops from	169	origin and destination		tion of	18
for p.s.v's	72	surveys	37	loading and unloading	ıg
	3, 400	post-war	18, 51, 52	of	172, 408
Stopping up of minor side		signs	32, 370	and road accidents	23
streets 155, 215	5, 450	surveys	35	private	89
Street nameplates 32	2, 393	varying character of	115	special provisions on se	r-
Sub-surface road:	32	Traffic control signals:		vice roads	253
advantages of	192	general	317		
capacity of	57	at pedestrian crossings		W	
dimensions of	194	siting, on roads	371	Waiting:	
and inner ring road	158	on wide roads	280	bays	72, 362
Subways:	-			enforcement of regulati	ons 406
for pedestrians 105, 34	1 342	Tramways:	79	in general	397
dimensions of	309	and danger effect on layout	80	lanes 72, 353,	362, 404
for pipes	348	future location of	81, 82	for loading and unloa	ad-
Superelevation, standards of	•	at intersections	259	ing goods	408
	331	overhead equipment	374	in shopping streets 17	1,405,404
Survey:	37	at roundabouts	310	time limit	1/1, 402
origin and destination		segregation of	238	unilateral	407 381
traffic	35	in subways	239	Water troughs	201
Symmetry of plan	435	m suowajs			

ACKNOWLEDGMENTS

Thanks for permission to reproduce photographs, drawings, etc., are due to the following:

THE U.S. FEDERAL WORKS AGENCY, PUBLIC ROADS ADMINISTRATION, WASHINGTON.

THE CORPORATIONS OF BIRMINGHAM

BLACKPOOL

EDINBURGH

LEEDS

LEICESTER

MANCHESTER

NORWICH

NOTTINGHAM

OXFORD

SALFORD

THE INSTITUTION OF CIVIL ENGINEERS, LONDON (Journal Inst.C.E. No. 3, 1944-45, P. 149).

THE LONDON PASSENGER TRANSPORT BOARD

THE TRIBOROUGH BRIDGE AUTHORITY, NEW YORK, U.S.A.

THE BOROUGH OF MANHATTAN, NEW YORK, U.S.A.

THE ROYAL SOCIETY FOR THE PREVENTION OF ACCIDENTS.

Messrs. THE TEMPLE PRESS LTD. (Proprietors of "Cycling").

Photographs

			FOLLOW	INO	PAGI
PLATE 1.	Waiting bay for buses at Windsor	••••	****	••••	10
Plate 2.	Bus queue barriers below canopy—Birmingham		****	••••	10
PLATE 3.	Turning place for public service vehicles—Golders Green	****	****	****	10
Plate 4.	A play street in Salford		****	••••	10
PLATE 5.	Sketch of proposed new route through area to be redeveloped-	—Вігтіг	ıgham	****	10
PLATE 6.	Back access lane with loading bays in building—Leeds	****	••••	****	10 .
PLATE 7.	Shop windows recessed behind back of footway—Leeds	••••	••••	••••	10
PLATE 8.	Canopies cantilevered from buildings—Leeds	••••	****	••••	10
PLATE 9.	Shopping arcade—Nottingham	••••	****	••••	26
PLATE 10.	Pedestrian way with shops—Norwich	••••	••••	••••	26
PLATE 11.	Informal tree planting—Manchester	****	••••	••••	26
PLATE 12.	Sub-surface road—Detroit U.S.A	••••			26
PLATE 13.	Elevated highway with car park accommodation below-New	York		••••	26
PLATE 14.	Pedestrian way in Leicester	****	•		42
PLATES 15 & 16.	Pedestrian ways in Hampstead Garden Suburb		••••		42
PLATE 17.	Development, having no access to Ring Road, screened by shrul	bs and to	rees—Le	eds	42
PLATE 18,	Tramway in fenced reservation—Birmingham	••••	••••	••••	42
PLATE 19.	Tramway in reservation off the highway—Leeds	****	••••		42
PLATE 20.	Dual carriageway road with cycle tracks—Birmingham	••••	•		42
PLATE 21.	Service road separated from dual carriageway road by shrubb	ery and	low wall	l	
	Woolwich	••••	••••		42
PLATE 22.	Service road separated from main route by shrubbery and railing	ngs—Ed	inburgh		42
PLATE 23.	Two-level roundabout with pedestrian subways-Caterham, Su	гтеу	****		58
Plate 24.	Roundabout planted with shrubs—Birmingham	••••	****	\$	58
PLATE 25.	Sketch of pedestrian subway with ramped approaches	••••			58
Plate 26.	Lamp standard—Birmingham		****		58
PLATE 27.	Lamp standards—Leeds				58
PLATE 28.	P.S.V. passenger shelter—L.P.T.B	,	••••		58
PLATE 29.	P.S.V. queue shelter—East Ham		****		58
	Seats in suburban area—Hampstead Garden Suburb		****		58
PLATE 32.	Plantality has steed in haden. Plantiles				58
PLATE 33.	m; n	•••	••••		
PLATE 34.	Telephone boxes built into wall of building—London	****	***-		58 58
PLATE 35.	was a district of the control of the	••••			58
	Letter box built into wall—Westminster,	****			58
	Multi-storey car park building—Blackpool	****			26 74
PLATE 38.	Straight street with terminal feature—Edinburgh	••••			
PLATE 39.	Curved street, High Street, Oxford	••••			74 74
PLATE 40.	Dual carriageway layout on sidelong ground—Birmingham		-•		74
PLATE 41.	Layout adapted to preserve trees—Birmingham	****			74 74
PLATE 42.	Central reservation planted with shrubs—Leeds	, 	 and these		74
PLATE 43.	Carriageway on housing estate road divided to preserve well Birmingham	estronsi.	ed trees-		74
PLATE 44.	Footway width varied to preserve trees and shrubs—Birmingha	m			74
	- · · · · · · · · · · · · · · · · · · ·				

Constitution of Committee

Sir Frederick C. Cook, C.B., D.S.O., M.C., M.Inst. C.E., F.S.I. (Chairman).

Major H. E. ALDINGTON, M.Inst.C.E., M.Inst.T., Ministry of War Transport.

Mr. S. L. G. Beaufoy, F.R.I.B.A., M.T.P.I., Ministry of Town and Country Planning.

Col. W. S. CAMERON, T.D., M.Inst.C.E., P.P.T.P.I., City Engineer of Leeds.

Mr. W. R. DAVIDGE, F.R.I.B.A., Assoc.M.Inst.C.E., F.S.I., P.P.T.P.I.

Major C. V. Godfrey, O.B.E., M.A., Chief Constable of Salford.

Mr. R. A. Kidd, B.Sc., M.Inst.C.E., M.T.P.I., County Surveyor of Nottinghamshire.

Mr. W. A. MACARTNEY, M.Inst.C.E., P.P.Inst.M. & Cy.E., City Engineer of Edinburgh.

Mr. A. J. McIntosh, O.B.E., Chief Constable of Dunbartonshire.

Mr. H. J. B. MANZONI, C.B.E., M.Inst.C.E., M.T.P.I., City Engineer of Birmingham.

Mr. R. H. MATTHEW, A.R.I.B.A., Department of Health for Scotland.

Mr. T. G. NEWCOMEN, M.Inst.C.E., Ministry of War Transport.

Mr. THOS. S. SINCLAIR, Assoc.M.Inst.C.E., A.M.I.Struct.E., A.M.T.P.I., Ministry of War Transport (Secretary).

Mr. Sinclair succeeded Mr. R. S. F. Edwards, Assoc.M.Inst.C.E., Barrister-at-law, as secretary to the Committee in August, 1943, on the latter's promotion within another branch of the Ministry.

The total expenditure incurred by the Committee up to the date of publication of this Report is estimated at £1220 of which £690 represents the estimated cost of printing.