T255 – Firhouse Road, Dublin 24

Proposed Site Lighting Layout & Report

Date: 01/06/2022

Status S2

Revision P01

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DOCUMENT CONTROL & HISTORY

OCSC Job No.: T255	Project Code	Originator	Zone Volume	Level	File Type	Role Type	Number	Status / Suitability Code	Revision
	T255	OCSC	XX	XX	RP	E	0001	S2	P02

Rev.	Status	Authors	Checked	Authorised	Issue Date
P01	S2	G.M.	W.F.	W.F.	06/01/22
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1. SITE LIGHTING OVERVIEW

The purpose of this report is to present the lighting design aiming to achieve as follows:

- Provide adequate illumination to contribute towards the safe use of all public roads, footpaths, and cycle paths by vehicles and bicycles;
- Provide adequate illumination to contribute towards the safe use of all walkways and footpaths by pedestrians;
- Contain the lighting within the site boundary;
- Minimise light pollution and visual glare to residents and neighbouring areas; Take account of ecological factors such as local bat populations;
- Provide a visually stimulating environment; Enhance security.

This document shall be read in conjunction with the drawing number: T255-OCSC-XX-XX-SK-E-0001.

2. DESIGN CRITERIA

The predicted performance of the external lighting installation has been assessed in detail using lighting simulation software. The software used for this study is Lighting Reality[1].

The design criteria applied to the proposed street lighting installation shall be in accordance with BS 5489-1:2003 Code of practice for the design of road lighting, CIBSE Guide to the Lighting of Urban Areas, NSAI EN I.S. 13201-2 Road Lighting Performance Requirements, General Specification for Public Lighting Design and South Dublin County Council Public Lighting Guideline. Additionally, the proposed design shall be compliant with the ecology report for the site.

OCSC calculations were carried out to evaluate the light levels within the premises. The light fitting was chosen to limit any excessive light trespass that may impinge upon the residential amenity of housing units sitting next to the development.

3. DESIGN PARAMETERS

- BS 5489-1:2003 Code of practice for the design of road lighting;
- CIBSE LG 9 Lighting for communal residential buildings;
- IS 10101: 2020;
- NSAI EN I.S. 13201-1 Part 2 Road lighting. Performance requirements;
- NSAI EN I.S. 13201-1 Part 3 Road lighting. Calculation of performance;
- NSAI EN I.S. 13201-1 Part 4 Road lighting. Methods of measuring lighting performance;
- Technical Guidance Document M – Access and Use;
- South Dublin County Council Public Lighting Guideline.

[1] Lighting Reality Version 2.1 – Software for development of Outdoor Site Lighting Design.

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4. LIGHT FITTINGS

THORN

R2L2

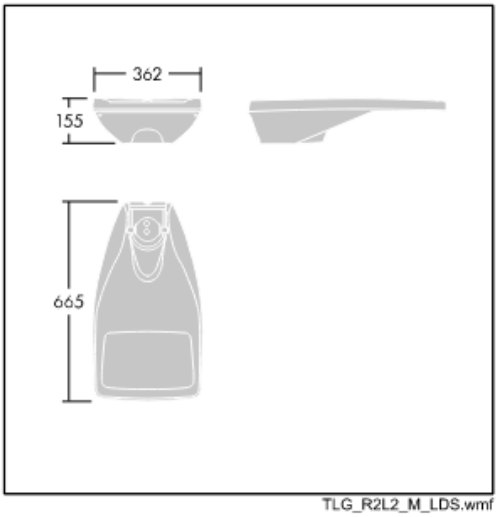
96265888 R2L2 S 12L35 730 WS BS 3550 CL2 GY

R2L2

A small size LED road lighting lantern with 12 LEDs driven at 350mA with Wide Street optic. LED driver Programmable. Class II electrical, IP66, IK08. Housing: die-cast aluminium (EN AC-44300), powder coated textured light grey. Enclosure: tempered flat glass. Screws: stainless steel, Ecolubric® treated. Post top (Ø60/76mm, tilted 0°/5°/10°) or lateral (Ø34/42/49/60mm, tilted 0°/-5°/-10°/-15°) mounting. For lateral mounting to Ø34/42mm spigots an adaptor (59005840 R2L2 MA34/42 NPA) should be ordered separately. Equipped with 50% power reduction circuit, effective 3 hours before and 5 hours after a calculated midnight. It can be deactivated at installation with an easily accessible internal switch. Complete with 3000K LED.

Dimensions: 655 x 362 x 155 mm
Luminaire input power: 15 W
Luminaire luminous flux: 1856 lm
Luminaire efficacy: 124 lm/W
Weight: 8.89 kg
Scx: 0.05 m²

TLG_R2L2_F_SPDB.jpg



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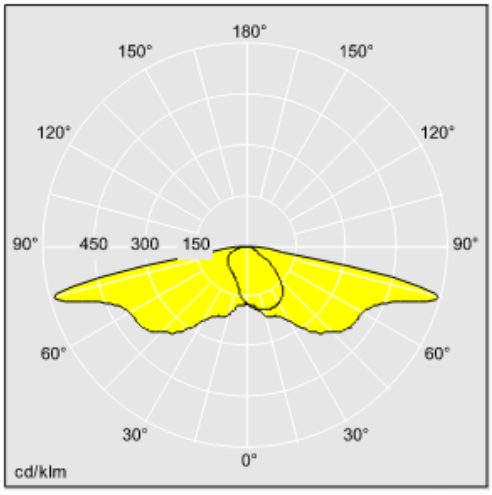

TL RS12L35WS730.ldt

Lamp position: STD - standard
Light Source: LED
Luminaire luminous flux*: 1856 lm
Luminaire efficacy*: 124 lm/W
Colour Rendering Index min.: 70
Correlated colour temperature: 3000 Kelvin

Chromaticity tolerance (initial MacAdam): 5
Rated useful life (B10)*:
L90 100000h at 25°C
Ballast: 1x LED_DRV OT 4DIM
Luminaire input power*: 15 W Power factor = 0.95
Dimming: PROG
LOR: 1,00 ULOR: 0,00 DLOR: 1,00

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EyeKon LED

THORN

92900866 EYE HA LED1050-840 COR MWS L ANT

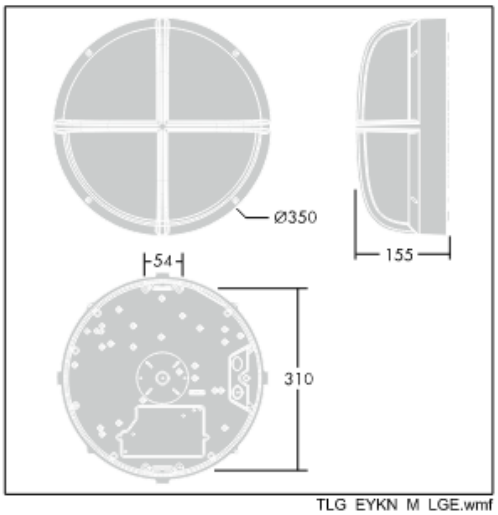
LED 16W EYKL_HALHO4K | EN 55015 | IP65 | IK10 | 850°C | T_a35

EyeKon LED

Round, impact resistant LED bulkhead luminaire. Electronic, fixed output control gear. Class I electrical, IP65, IK10. Body: large size, die-cast aluminium (LM6), powder coated anthracite. Diffuser: opal polycarbonate with die-cast aluminium halo-visor feature. Electrical connection via 3 x 2 x 2.5mm² terminal block. With integral motion sensor for corridor function control (master). Complete with 4000K LED

Dimensions: Ø340 x 155 mm
Luminaire input power: 16 W
Weight: 3.6 kg

TLG EYKN F LGHLOVSANTHOP.jpg



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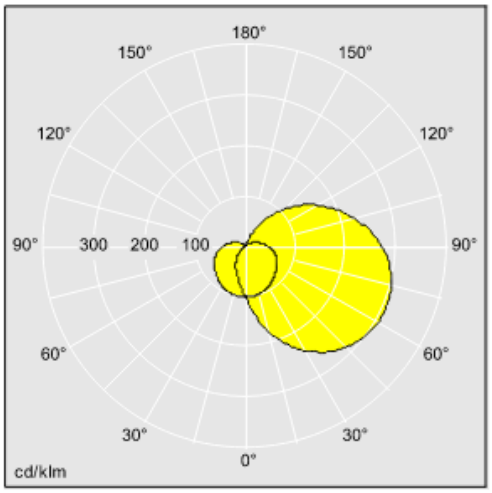

TLG_SP_0042778.ldt

Lamp position: STD - standard
Light Source: LED
Luminaire luminous flux*: 1050 lm
Luminaire efficacy*: 66 lm/W
Colour Rendering Index min.: 80
Ballast: 1 x 89800177 EMpowerLED 15W CLE CPS

Correlated colour temperature: 4000 Kelvin
Chromaticity tolerance (initial MacAdam): 3
Rated median useful life*:
L90 50000h at 25°C
Luminaire input power*: 16 W
Dimming: FO
LOR: 1,00 ULOR: 0,31 DLOR: 0,69

This product contains a light source of energy efficiency class C.

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LUMINAIRE RESIDENZA

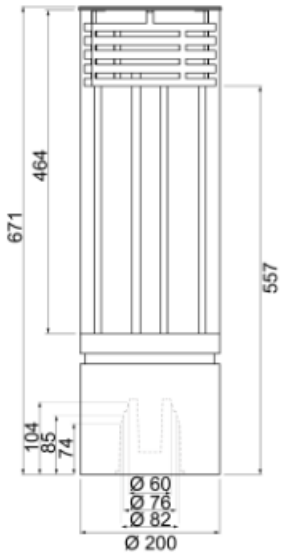
10.10951.0V078 LEVO3 15W SKII (3000K)/08

.hess

Luminaire RESIDENZA
Constructed of aluminium casting
Cover of PMMA ø 200 mm, clear
Cap made of aluminium sheet
Light distribution: rotationally symmetric
(Characteristic: For place illumination)
Elec. equip.: LED LEVO3 O8 approx. 15W (3000K)
With electronical ballast (220-240V/50-60Hz)
- with CLM (245-350mA, 15-20W)
- without CLM (245mA, 15W)
Ingress protection IP65, protection rating II
Following versions are available:
Without dimming and without CLM
(luminous output degradation compensation)
OR with dimming via DALI, StepDim or AstroDim
AND/OR with CLM (please specify on your purchase order!)
Universal housing fits pole spigot ø 60,3 - 82,5 mm
(Without requiring an adapter)
==› pre-wired (6000 mm)
Colour: DB 703 or all RAL- (classic- single shades),
Hess-DB and Hess-Glimmer-colours.
RAL pearl-mica-metallic-shades on request.

Technical data

LED Lifetime	L80 B10 / 100.000h - TA <=25° C L70 B10 / 50.000h - TA >25 - <=50°C
Rated input power	15 W
Ingress protection	IP65
Safety class	II
ULOR	2,5%
IK-Value	IK07
Variant	Without diffuseer
Glass surface	clear
Height [mm]	671
Area exposed to wind	0,005 m²
Spigot ø in [mm]	60,3-82,5



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5. RESULTS

Layout

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
1	B	29.33	65.27	4.00	288.00	0.00	0.00	0.00			
2	B	35.29	60.06	4.00	0.00	0.00	0.00	0.00			
5	A	39.98	23.36	6.00	115.00	0.00	0.00	1.00			
4	D	71.94	40.14	8.00	202.00	0.00	0.00	1.00			
7	F	20.17	66.75	10.00	326.00	0.00	0.00	0.00			
8	F	25.21	74.30	10.00	340.00	0.00	0.00	0.00			
7	B	34.86	49.84	4.00	0.00	0.00	0.00	0.00			
8	B	31.58	33.14	4.00	0.00	0.00	0.00	0.00			
11	D	-0.46	-5.02	8.00	15.00	0.00	0.00	1.00			
14	A	50.99	81.81	8.00	4.00	0.00	0.00	0.90			
15	A	46.68	90.49	8.00	287.00	0.00	0.00	0.90			
17	C	43.57	34.41	1.80	200.00	0.00	0.00	0.00			
18	C	44.45	32.02	1.80	200.00	0.00	0.00	0.00			
19	C	45.39	29.43	1.80	200.00	0.00	0.00	0.00			
20	C	41.32	32.12	1.80	20.00	0.00	0.00	0.00			
21	C	42.34	29.64	1.80	20.00	0.00	0.00	0.00			
28	B	40.81	40.86	4.50	184.00	0.00	0.00	0.00			
29	D	18.38	0.81	8.00	120.00	0.00	0.00	1.00			
30	D	51.95	17.62	8.00	121.00	0.00	0.00	1.00			
31	E	73.10	32.43	8.00	330.00	0.00	0.00	1.00			
32	A	65.74	50.23	8.00	40.00	0.00	0.00	1.00			
33	D	63.45	69.41	8.00	191.00	0.00	0.00	1.00			

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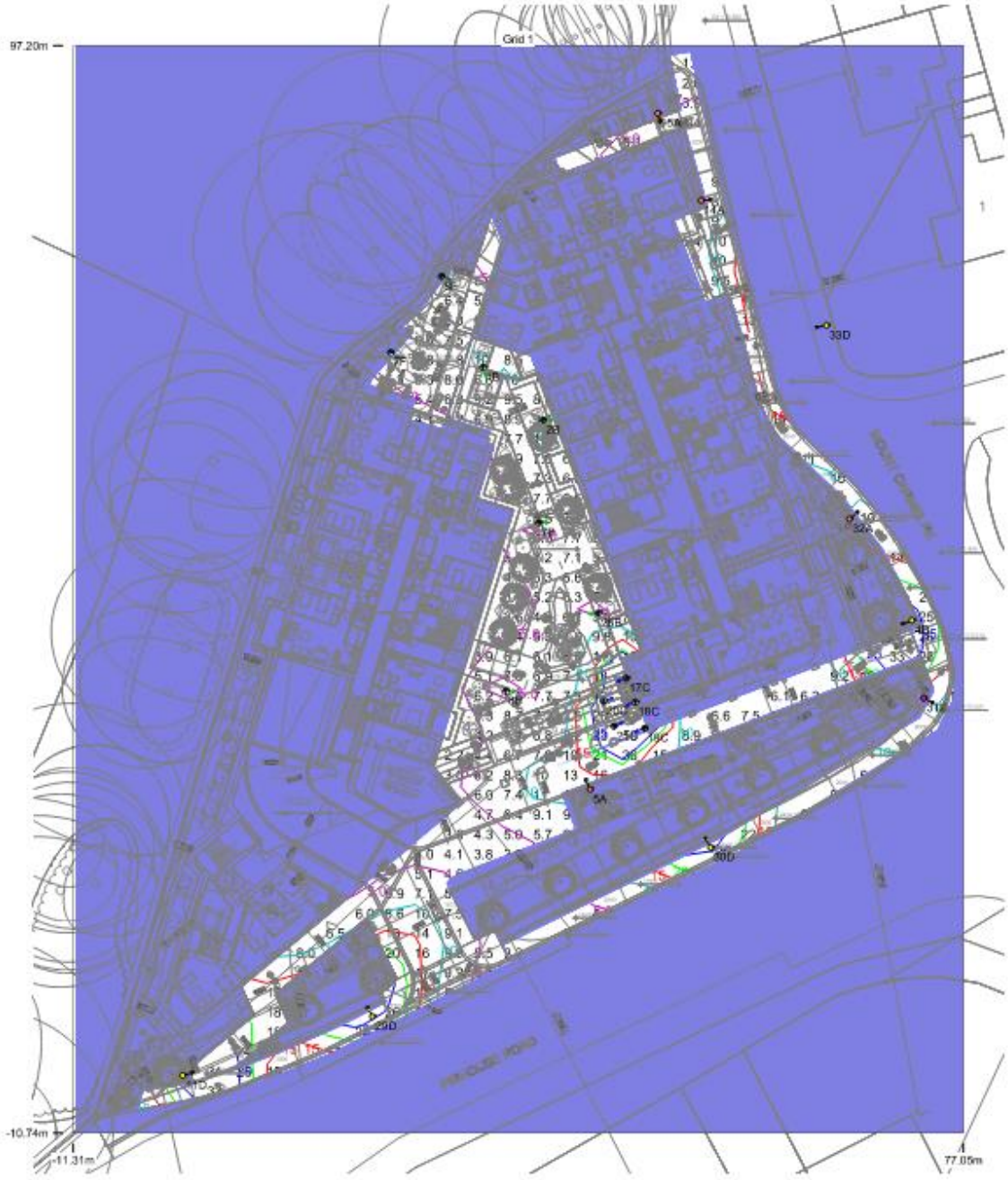
Horizontal Illuminance (lux)

Grid 1



Results

Eav	10.56
Emin	1.55
Emax	58.80
Emin/Emax	0.03
Emin/Eav	0.15

Class P4
Minimum: 1.5Lux

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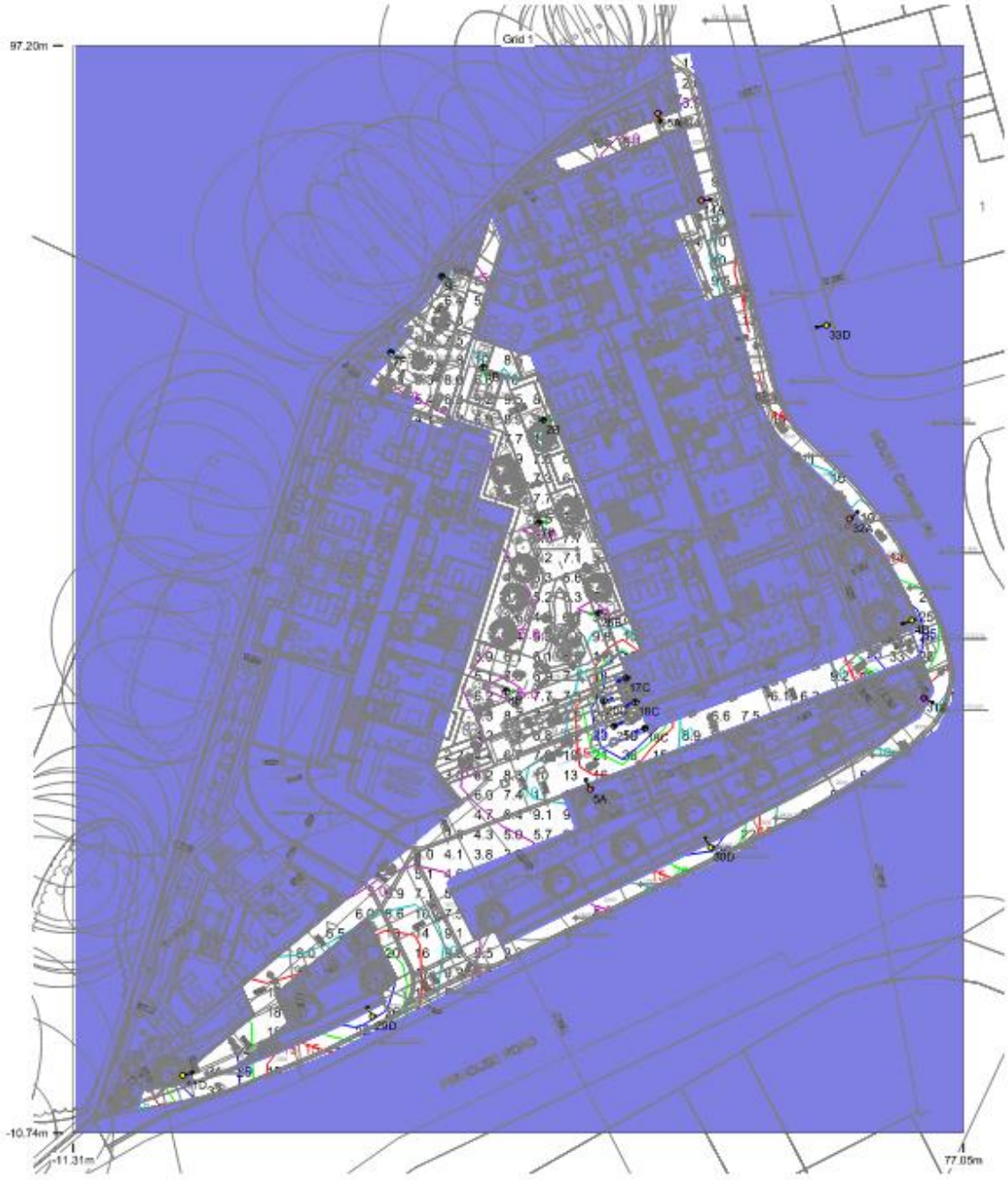
Horizontal Illuminance (lux)

Grid 1



Results

Eav	10.56
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Class P4
Minimum: 1.5Lux

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6. CONCLUSION

The scheme has been designed to comply with Class P4 of EN 13201-1-5

Table 1 – EN 13201-1-5-Table 3 – Class P Lighting Table

Class	Horizontal illuminance		Additional requirement if facial recognition is necessary	
	$\bar{E}$ [a] [minimum maintained] lx	E_{min} [maintained] lx	$E_{v,min}$ [maintained] lx	$E_{sc,min}$ [maintained] lx
P1	15,0	3,00	5,0	5,0
P2	10,0	2,00	3,0	2,0
P3	7,50	1,50	2,5	1,5
P4	5,00	1,00	1,5	1,0
P5	3,00	0,60	1,0	0,6
P6	2,00	0,40	0,6	0,2
P7	performance not determined	performance not determined		

[a] To provide for uniformity, the actual value of the maintained average illuminance shall not exceed 1,5 times the minimum $\bar{E}$ value indicated for the class.

NOTE 4 A high colour rendering contributes to a better facial recognition.

(13201-5, 2015) The P classes in Table 3 are intended for pedestrian and pedal cyclist on footways, cycleways, emergency lanes and other road areas lying separately along the carriageway of a traffic route and for residential roads, pedestrian streets, parking places, schoolyards, etc

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