

City of Portland

Technical Manual



Preamble

The Technical Standards contained herein have been promulgated by the Department of Public Works and the Planning and Urban Development Department pursuant to Sections 14-498 and 14-499 of the City of Portland's Land Use Code following a public hearing of the Planning Board on May 11, 2010.

The Technical Standards contained herein may be periodically updated and/or amended by the Planning Board pursuant to Section 14-506 of the City of Portland Land Use Code.

Table of Contents

1. Transportation Systems and Street Design Standards	1
1.1. TRAFFIC STUDIES	1
1.2. RESERVED	2
1.3. HORIZONTAL ALIGNMENT OF STREETS.....	2
1.4. STREET GRADES.....	3
1.5. VERTICAL ALIGNMENT	3
1.6. SIGHT DISTANCE.....	4
1.7. DRIVEWAY DESIGN.....	5
1.8. SIDEWALKS AND DRIVEWAY APRONS.....	8
1.9. RESERVED	10
1.10. SURFACE AND AGGREGATES.....	10
1.11. STREETS ON ISLANDS IN CASCO BAY.....	13
1.12. PARKING STUDY	13
1.13. TRANSPORTATION DEMAND MANAGEMENT (TDM)	13
1.14. PARKING LOT AND PARKING SPACE DESIGN	17
1.15. BICYCLE PARKING	17
1.16. BICYCLE ROUTES AND LANES	19
1.17. RESERVED.....	19
1.18. MOTORCYCLE / MOPED PARKING (ON-STREET)	19
1.19. TRAFFIC SIGNALS.....	20
1.20. PUBLIC CROSSWALKS	21
1.21. PUBLIC TRANSIT FACILITIES.....	26
1.22. CONSTRUCTION PERMITTING AND TRAFFIC CONTROL PLANS.....	27
1.23. INFRASTRUCTURE CONTRIBUTIONS	28

Section 1 Figures

I-1 LOCAL STREET CROSS SECTION.....	29
I-2 COLLECTOR STREET CROSS SECTION	30
I-3 ARTERIAL STREET CROSS SECTION.....	31
I-4 UTILITY LOCATIONS IN STREETS.....	32
I-5 TURNAROUND ON DEAD END STREET.....	33
I-6A PERPENDICULAR RAMP FOR WIDE SIDEWALK WITH NO ESPLANADE	34
I-6B PARALLEL ADA RAMP LAYOUT FOR NARROW SIDEWALK WITH NO ESPLANADE	35
I-6C PERPENDICULAR RAMP FOR NARROW SIDEWALK WITH ESPLANADE	36
I-6D DIAGONAL SIDEWALK RAMP LAYOUT FOR SIDEWALK WITH ESPLANADE.....	37
I-6E PREFERRED SIDEWALK RAMP LOCATION AT INTERSECTION.....	38
I-7 SIDEWALK RAMP DETECTABLE WARNING PANEL	39
I-7A SIDEWALK RAMP DETECTABLE WARNING PANEL (HISTORIC.....	40

I-8 GRANITE STREET MONUMENT	41
I-9 DRIVEWAY APRON LAYOUT	42
I-10 BRICK SIDEWALK WITH BITUMINOUS BASE	43
I-11 BRICK DRIVEWAY APRON WITH BITUMINOUS BASE	44
I-12 BITUMINOUS SIDEWALK	45
I-13 BITUMINOUS DRIVEWAY APRON	46
I-14 REINFORCED CONCRETE SIDEWALK	47
I-15 REINFORCED CONCRETE DRIVEWAY APRON	48
I-16 VERTICAL GRANITE CURB FULL DEPTH STREET CONSTRUCTION.....	49
I-17 VERTICAL GRANITE CURB INSTALLATION IN EXISTING STREETS.....	50
I-18 SLOPED GRANITE CURB FULL DEPTH STREET CONSTRUCTION	51
I-19 SLOPED GRANITE CURB INSTALLATION IN EXISTING STREETS	52
I-20 UNDERDRAIN INSTALLATION – ALTERNATIVE A.....	53
I-21 UNDERDRAIN INSTALLATION – ALTERNATIVE B	54
I-22 TYPICAL CROSSWALK MARKINGS	55
I-23 UNSIGNALIZED PEDESTRIAN CROSSWALK SIGNAGE	56
I-24 TYPICAL CROSSWALK SIGNAGE.....	57
I-25 GUIDELINES FOR CROSSWALK INSTALLATION AT UNCONTROLLED INTERSECTIONS AND MID-BLOCK CROSSINGS	58
I-26 FEDERAL STREET CLASSIFICATION	59
I-27 STANDARD PARKING SPACES 1	60
I-28 STANDARD PARKING SPACES 2	61
I-29 COMPACT PARKING SPACES 1	62
I-30 COMPACT PARKING SPACES 2	63
I-31 MOTORCYCLE PARKING	64
I-32 BICYCLE PARKING RACK PLACEMENT GUIDELINES	65
I-33a BICYCLE RACK SPECIFICATION – BIKE HITCH.....	66
I-33b BICYCLE RACK SPECIFICATION – BIKE HITCH.....	67
I-33c BICYCLE RACK SPECIFICATION BIKE HITCH.....	68
I-34a BICYCLE RACK SPECIFICATION – DOWNTOWN RACK	69
I-34b BICYCLE RACK SPECIFICATION – DOWNTOWN RACK	70
I-34c BICYCLE RACK SPECIFICATION – DOWNTOWN RACK.....	71
I-35 BICYCLE NETWORK MAP	72
I-36 CITY STREET W/BIKE LANES	73
I-37 CITY STREET W/PARKING & BIKE LANES	74
I-38 TYPICAL BICYCLE LANE PAVEMENT MARKINGS AND BICYCLE ROUTE SIGNAGE	75
I-39 BUS STOP BOARDING AREA LAYOUT FOR SIDEWALK WITH OR WITHOUT ESPLANADE	76
I-40 BUS SHELTER AND SHELTER SITING LAYOUT FOR SIDEWALK WITHOUT ESPLANADE.....	77
2. Sanitary Sewer and Storm Drain Design Standards	78

2.1. STANDARDS AND SPECIFICATIONS	78
2.2. TECHNICAL REFERENCE	78
2.3. MANHOLES.....	79
2.4. RESERVED.....	79
2.5. PIPES.....	79
2.6. BUILDING SEWER LATERALS.....	80
2.7. CATCH BASINS.....	81
2.8. AGGREGATE SPECIFICATIONS	82
2.9. RESERVED.....	84
2.10. SUBSURFACE WASTEWATER DISPOSAL	84

Section 2 Figures

II-1 PRECAST CONCRETE MANHOLE.....	85
II-2 PRECAST CONCRETE CATCH BASIN	86
II-3 TYPICAL OUTSIDE DROP MANHOLE	87
II-4 GENERAL NOTES FOR MANHOLES AND CATCH BASINS	88
II-5 CAST IRON MANHOLE COVER AND FRAME	89
II-6 MANHOLE RISER	90
II-7 CATCH BASIN FRAME AND GRATE	91
II-8 CATCH BASIN INLET.....	92
II-9 CASCO TRAP	93
II-10 TYPICAL PAVEMENT GRADING ON SLOPES FOR CATCH BASIN AND INLET	94
II-11 4' GRANITE HEADSTONE FOR CATCH BASIN INLET.....	95
II-12 TYPICAL PIPE TRENCH INSTALLATION AND NOTES.....	96
II-13 PLASTIC PIPE CONNECTION METHODS 1 & 2	97
II-14 PLASTIC PIPE CONNECTION METHODS 3 & 4	98
II-15 MASONRY PLUG.....	99
II-16 TYPICAL EXISTING LATERAL CONNECTION.....	100
II-17 TYPICAL HOUSE LATERAL TEE/WYE CONNECTION	101
II-18 FORCE MAIN CONCRETE THRUST BLOCK PLACEMENT	102
II-19 EXTERNAL GREASE TRAP DESIGN.....	103

3. Public Safety Standards 104

3.1. CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN (CPTED) PRINCIPLES	104
3.2. FIRE HYDRANT STANDARDS	105
3.3. SINGLE AND TWO FAMILY RESIDENTIAL DEVELOPMENT	105
3.4. SITE ACCESS STANDARDS	106
3.5. STANDARDS FOR EMERGENCY ACCESS LANES AND GATES.....	106
3.6. SUBDIVISION STANDARDS	107
3.7. STANDARDS FOR BLASTING AND REGULATION OF EXPLOSIVES	108
3.8. MODEL BLASTING PLAN	117
3.9. MODEL NOTIFICATION LETTER	118

3.10. MODEL OFFER OF PRE-BLAST SURVEY NOTICE 119

3.11. DOOR HANGER MODEL LANGUAGE 120

3.12. MODEL EMERGENCY ACCESS LANE MAINTENANCE AGREEMENT 121

4. Landscaping and Landscape Preservation Standards..... 123

4.1. DEFINITIONS..... 123

4.2. PRESERVATION OF SIGNIFICANT SITE FEATURES..... 123

4.3. PRESERVATION OF EXISTING VEGETATION..... 123

4.4. RESERVED..... 124

4.5. SITE LANDSCAPING..... 124

4.6. STREET TREES 127

4.7. PLANT SELECTION 128

Section 4 Figures

IV-1A RECOMMENDED TREE LIST – PAGE 1 130

IV-1B RECOMMENDED TREE LIST – PAGE 2 131

IV-2 TREE PROFESSIONAL DETAIL 132

IV-3 LANDSCAPING BETWEEN COMPATIBLE USES 133

IV-4A EXPANDABLE TREE GRATE FOR NARROW RESIDENTIAL URBAN STREETS..... 134

IV-5 INTERIOR SITE LANDSCAPING..... 135

IV-6A PARKING LOT SCREENING FROM PUBLIC VIEW 136

IV-6B PARKING LOT SCREENING FROM PUBLIC VIEW 137

IV-7 SCREENING OF ACCESSORY SITE ELEMENTS 138

5. Portland Stormwater Management Standards, ME DEP Ch 500 Stormwater Management 139

*(*Formatting of original Maine DEP standards has been retained for ease of cross referencing State statute)*

I. INTENTION 139

II. APPLICABILITY IN PORTLAND 139

III. STORMWATER MANAGEMENT STANDARDS 141

IV. SUBMISSION REQUIREMENTS 142

6. Erosion and Sedimentation Control Standards for Single and Two-Family Homes 143

6.1. STANDARDS..... 143

7. Soil Survey Standards 144

7.1. APPLICABILITY 144

7.2. STANDARDS..... 144

7.3. RESERVED..... 145

7.4. SUBMISSIONS..... 145

8. Standards for Development In and Adjacent to Wetlands..... 148

8.1. APPLICABILITY 148

8.2. STANDARDS.....	148
8.3. RESERVED.....	148
8.4. SUBMISSIONS.....	148
9. Water Supply Standards	150
9.1. APPLICABILITY	150
9.2. STANDARDS.....	150
9.3. RESERVED.....	151
9.4. SUBMISSIONS.....	151
10. Municipal Street Lighting Standards	153
10.1. APPLICABILITY	153
10.2. GENERAL STANDARDS.....	154
10.3. ACCESSORIES & BOLLARDS	156
10.4. STANDARDS FOR DECORATIVE LIGHTING.....	158
10.5. CITY OF PORTLAND VERSUS CONSTRUCTION CONTRACTOR RESPONSIBILITIES.....	164
10.6. RESERVED.....	165
10.7. SUBMISSION REQUIREMENTS.....	165

Section 10 Figures

X-1 STANDARD RESIDENTIAL LIGHT	166
X-2A STANDARD COBRAHEAD LIGHT (TYPE A)	167
X-2B STANDARD COBRAHEAD LIGHT (TYPE B)	168
X-2C STANDARD COBRAHEAD LIGHT (TYPE C)	169
X-2D STANDARD COBRAHEAD LIGHT (TYPE D)	170
X-2E STANDARD COBRAHEAD LIGHT (TYPE E)	171
X-2F STANDARD COBRAHEAD POLE – WATERFRONT	172
X-2G STANDARD COBRAHEAD POLE – NON-WATERFRONT	173
X-3 LIGHTED BOLLARD	174
X-4 MAP – DECORATIVE LIGHTING AREAS.....	175
X-5A MAP – DECORATIVE LIGHT (DOWNTOWN PED 1).....	176
X-5B FIXTURE – DECORATIVE LIGHT (DOWNTOWN PED 1)	177
X-5C FIXTURE – DECORATIVE LIGHT (DOWNTOWN PED 2)	178
X-5D MAP – DECORATIVE LIGHT (DOWNTOWN STREET)	179
X-5E FIXTURE – DECORATIVE LIGHT (DOWNTOWN STREET)	180
X-5F FIXTURE – DECORATIVE LIGHT (DOWNTOWN COMBO)	181
X-6A MAP – DECORATIVE LIGHT (OLD PORT)	182
X-6B FIXTURE – DECORATIVE LIGHT (OLD PORT)	183
X-7A MAP – DECORATIVE LIGHT (PENINSULA MEDIUM STREET)	184
X-7B FIXTURE – DECORATIVE LIGHT (PENINSULA MEDIUM STREET)	185
X-7C MAP – DECORATIVE LIGHT (PENINSULA LARGE STREET)	186
X-7D FIXTURE – DECORATIVE LIGHT (PENINSULA LARGE STREET)	187

X-7E FIXTURE – DECORATIVE LIGHT (PENINSULA PEDESTRIAN)	188
X-8A MAP – DECORATIVE LIGHT (TRAILS / WATERFRONT)	189
X-8B FIXTURE – DECORATIVE LIGHT (TRAILS / WATERFRONT)	190
X-9A MAP – DECORATIVE LIGHT (OFF-PENINSULA PED)	191
X-9B FIXTURE – DECORATIVE LIGHT (OFF-PENINSULA PED)	192
X-10A MAP – DECORATIVE LIGHT (HISTORIC LANDSCAPE STREET)	193
X-10B FIXTURE – DECORATIVE LIGHT (HISTORIC LANDSCAPE STREET)	194
X-11A MAP – DECORATIVE LIGHT (HISTORIC LANDSCAPE PED)	195
X-11B FIXTURE - DECORATIVE LIGHT (HISTORIC LANDSCAPE PED)	196
X-12 FIXTURE – DECORATIVE LIGHT (DEERING OAKS PARK BRIDGE LIGHT).....	197
11. Shadow Standards	198
11.1. DEFINITIONS.....	198
11.2. APPLICABILITY	198
11.3. REQUIRED SUBMITTALS	198
11.4. DETERMINING SIGNIFICANCE OF SHADOW IMPACT	200
11.5. RESERVED.....	200
11.6. ALTERNATIVES AND MITIGATION	201
12. Site Lighting Standards	202
12.1. PURPOSE	202
12.2. APPLICABILITY	202
12.3. GENERAL STANDARDS.....	202
12.4. RESERVED.....	205
12.5. ARCHITECTURAL AND SPECIALTY LIGHTING AND UPLIGHTING.....	205
12.6. SUBMISSION REQUIREMENTS, PHOTOMETRIC PLANS	206
13. Boundary Survey Requirements.....	207
13.1. LEVEL I MINOR RESIDENTIAL GENERAL STANDARDS.....	207
13.2. LEVEL I SITE ALTERATION, LEVEL II AND III GENERAL STANDARDS.....	208
13.3. ADDITIONAL BOUNDARY SURVEY STANDARDS FOR LEVEL II AND III SITE PLANS	2010
13.4. WAIVER OF BOUNDARY SURVEY REQUIREMENTS.....	211
14. Standards for Local Site Location of Development Review	212
14.1. INTENTION	212
14.2. APPLICABILITY	212
14.3. STANDARDS.....	214
15. Solar Energy Generation Technical Standards	216
15.1. APPLICABILITY	216
15.2. TECHNICAL STANDARDS.....	216

15.3. SAFETY STANDARDS 218

15.4. MAINTENANCE STANDARDS 218

Appendices 214

A. CITY SIDEWALK REPLACEMENT MATERIALS MAP 220

B. CONSISTENCY WITH RELATED MASTER PLANS..... 222