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SECTION 8 – TRANSPORTATION
DESIGN CRITERIA

8.01 INTRODUCTION

.1 Scope:

The City ~~of Nanaimo~~ has adopted a Complete ~~Streets~~ Street framework in an effort to create a more Complete Community and Complete Network and developed the ***Complete Street Design Guide***. This design philosophy prioritizes 'universal design' and the need for streets to be designed for all users, regardless of mode, age, or ability. This includes, but is not limited to, pedestrians, cyclists, transit riders, commercial vehicles and motorists. ***(REVISE? TBD 2025)***

All transportation infrastructure shall be designed in accordance to the following design criteria. The construction shall be in accordance to the outlined specifications and installation requirements captured throughout all sections of the ***Manual of Engineering Standards*** ~~and~~***&*** ***Specifications***. ***(REVISE? TBD 2025)***

.2 Objectives:

The objectives of this section are to:

(a) Improve safety and comfort for all modes.

(b) Provide accessibility for people of all ages and abilities through 'Universal Design'. ***(REVISE? TBD 2025)***

(c) Accommodate larger vehicles and turning radii where needed, to account for truck routes, transit routes and emergency vehicles.

(d) Improve travel time reliability on the street network for all modes, with emphasis on transit and goods movements.

(e) Incorporate 'smart infrastructure' opportunities to support emerging transportation technologies.

(f) Encourage attractive streetscapes that respond to surrounding land uses, providing opportunities for place-making, social interaction, and art.

(g) Improve local ecology through stormwater management and vegetation.

.3 City Initiatives:

This manual should be used in accordance with the most recent version of other City guidelines, policies, and bylaws including, but not limited to, the most recent versions of those listed below: ***(REVISE? TBD 2025)***

(a) ***Official Community Plan***

(b) ***Nanaimo Transportation Master Plan***

(c) ~~***Nanaimos***~~***Nanaimo Complete*** ~~***Streets Guidelines***~~ ***Street Design Guide*** ***(REVISE? TBD 2025)***

(d) ***Nanaimo Curbside Management Guide*** ***(REVISE? TBD 2025)***

.4 Government Resources:

In addition, this manual should be used in accordance with other applicable government policies, guidelines, and documents, including but not necessarily limited to, the most recent versions of the following: *(REVISE? TBD 2025)*

(a) Ministry of Transportation and ~~Infrastructure (MoTI):~~ Transit (MoTT): ~~-~~*(REVISE? TBD 2025)*

(i) ~~BC~~B.C. Supplement to Transportation Association of Canada (TAC) ***Geometric Design Guide for Canadian Roads*** *(REVISE? TBD 2025)*

(ii) ~~British Columbia~~ ***B.C. Community Road Safety Toolkit*** *(REVISE? TBD 2025)*

(iii) ***British Columbia Active Transportation Design Guide*** *(REVISE? TBD 2025)*

(b) BC Transit:

(i) ***Regional District of Nanaimo Transit Redevelopment Strategy*** *(REVISE? TBD 2025)* ~~Transit Future Plan~~

(ii) ~~Bus Stop~~ ***Infrastructure Design Summary*** *(REVISE? TBD 2025)*

(iii) ***On-Street Infrastructure Design*** ~~***Guidelines***~~ ***Guide*** *(REVISE? TBD 2025)*

.5 Industry Resources: *(REVISE? TBD 2025)*

In addition, this manual should be used in accordance with other applicable guidelines and documents, including but not necessarily limited to, the most recent versions of the following:

(a) Transportation Association of Canada (TAC):

(i) ***Geometric Design Guide for Canadian Roads***

(ii) ***Manual of Uniform*** ~~Transportation and~~ ***Traffic Control Devices (MUTCD)*** *(REVISE? TBD 2025)*

(iii) ***Pedestrian Crossing Control*** ~~Manual~~ ***Guide*** *(REVISE? TBD 2025)*

(iv) ***Bikeway Traffic Control Guidelines for Canada***

(v) ***Canadian Guide to Traffic Calming***

(b) Institute of Transportation Engineers (ITE) ***Transportation Planning Handbook***.

(c) National Association of City Transportation Officials (~~NATCO~~ NACTO): *(REVISE? TBD 2025)*

(i) ***Urban Street Design Guide***

(ii) ***Urban Bikeway Design Guide***

(iii) ***Transit Street Design Guide***

.6 Design Non-Conformance: ~~Deviation:~~ *(REVISE? TBD 2025)*

The City ~~of Nanaimo~~ mobility networks have been constructed over many years using design criteria and practices that were in place at the time. The current criteria and best practices are to be used when designing all new infrastructure. When retrofitting existing corridors, limitations will create challenges with design and compromises may be necessary. Existing pedestrian and cycling facilities will be evaluated on a case-by-case basis and upgraded as resources permit. When replacing existing infrastructure, should the existing system not meet current criteria, the ~~Engineer~~ Professional of Record will be responsible to ensure the design is appropriate, founded on solid engineering principles and practices, and approved by the City Engineer. *(REVISE? TBD 2025)*

.7 Development and Non-Conformance ~~Deviation~~ Requirements: *(REVISE? TBD 2025)*

(a) Responsibilities:

(i) It is the ~~Engineer's~~ Professional of Record's responsibility to ensure that all applicable guidelines, standards, bylaws and other regulations and policies are strictly followed. *(REVISE? TBD 2025)*

(b) Reporting:

(i) The City may require various studies to be submitted to the City Engineer for approval. These could include, but are not limited to a:

(ii) Transportation Impact Assessment

(iii) Parking Study

(iv) Transportation Demand Management Plan

(v) Road Safety Audit

(vi) If design standards cannot be met due to the existing conditions, it shall be documented and a design non-conformance ~~deviation~~ memo shall be submitted to the City Engineer for approval. *(REVISE? TBD 2025)*

8.02 DEFINITIONS *(REVISE? TBD 2025)*

~~.1 For the purpose of this specification, the following definitions apply, unless otherwise noted:~~

~~(a) Curb refers to concrete curbs with or without integral gutters.~~
~~(b) Curb Ramp refers to the transitional grade between two surfaces (typically a sidewalk and a street crosswalk).~~
~~(c) Tactile Walking Surface Indicator (TWSI), also referred to as detectable warning surfaces or tactile attention indicators, are standardized walking surfaces that convey information to people with vision loss through texture.~~

~~(i) Attention TWSIs – sometimes called warning TWSIs, call attention to key hazards such as vehicle-pedestrian conflict zones, the start of a staircase, or the edge of a platform.~~

~~(ii) Guidance TWSIs – also known as wayfinding TWSIs, provide information about the direction of travel through open spaces. They are designed to guide a person on a designated path of travel.~~

~~(d) Sidewalk refers to concrete sidewalks located within a road right-of-way accommodating pedestrians.~~
~~(e) Walkway refers to asphalt or concrete sidewalks located outside a road right-of-way accommodating pedestrians.~~
~~(f) Multi-use path refers to an asphalt, concrete, or gravel pathway accommodating pedestrians, cyclists, and other wheeled modes.~~
~~(g) Bike path refers to asphalt pathways located within a road right-of-way accommodating cyclists and other wheeled modes.~~
~~(h) Elephants' Feet markings refer to a series of white painted squares that delineate a crosswalk where cycling is permitted and dismounting is not required.~~
~~(i) Design Vehicle refers to the least maneuverable vehicle that routinely uses a street or a facility to prevent the overdesign of a street.~~
~~(j) Control Vehicle refers to the least maneuverable vehicle that is ever planned to use a street, but potentially at very low speeds or with multi-point turns.~~
~~(k) Woonerf refers to a shared street with various modes utilizing the same space in a traffic calmed environment.~~

.1 For defined terms refer to Section 2.01 []. ***(REVISE? TBD 2025)***

8.03 STREET TYPES AND CLASSIFICATIONS

.1 Mobility Streets:

(a) The Mobility classification includes specifically selected nodes ~~or~~ and corridors where higher density development is present or expected ~~to occur~~. These streets focus on increased public space and accommodation ~~for~~ of all modes, with an emphasis on sustainable transportation. ***(REVISE? TBD 2025)***

(b) Mobility Local:

(i) Mobility Local Streets ~~can~~ should be ~~considered~~ designed as a destination. ~~People will come here to visit commercial destinations, and will arrive on foot from higher density mixed use development nearby, or via bicycle, transit or car from further afield~~. The street design will encourage lower speeds where ~~bicycles~~ cycles can safely mix with motor vehicle traffic. Wide sidewalks will provide opportunities for seating and activity ~~to spill out on the sidewalk~~ turning the street into a vibrant public space. ~~Like the urban local roads, entry and exit from such streets should be across continuous and raised crosswalks that slow vehicles down entering or leaving these Mobility Local Streets.~~ Intersections between Local Streets and Collector or Arterial Streets should be designed with continuous and raised crosswalks perpendicular to the Local Street to slow vehicles down. Where on-street parking is provided, it should be in a style that blurs the line between roadway and sidewalk, making the street more pedestrian friendly and encouraging slower speeds. Street trees are recommended at frequent spacing between parked vehicles. ~~Shared use designs such as the Woonerf concept may be applicable here.~~ ***(REVISE? TBD 2025)***

(c) Mobility Collector:

(i) ~~The~~ Mobility Collector ~~provides~~ Streets provide a connection for all modes between Mobility Local Streets and Mobility Arterial Streets. This classification is multi-functional providing land access, on-street parking where it supports adjacent land uses, and typically accommodates higher volumes of traffic than a Local Street. Commercial activity is still expected to be a priority on these streets and sidewalks are wide to ~~accommodate spillover uses from adjacent properties and~~ add vibrant life to the street. Parking is provided in parking pockets which then provide space for landscaping or furniture or bicycle parking. Street trees are provided between the ~~bike path~~ cycle track and sidewalk, helping to separate ~~bicycles~~ cycles from pedestrians on these ~~activity~~ streets. ***(REVISE? TBD 2025)***

(d) Mobility Arterial:

(ii) Mobility Arterial ~~streets~~ Streets carry traffic for all modes between the principle areas of traffic generation. Pedestrian activity on the street is expected to be lower relative to vehicular traffic. Mobility ~~arterial streets~~ Arterial Streets shall be designed to minimize direct access to development with access provided by adjoining streets of lower classifications. Parking is prohibited on these streets. Their location within ~~mobility hubs~~ Urban Centres will generally mean that while ~~these~~ they carry higher volumes, vehicle speeds should be lower than more suburban environments and less separation is required between opposing directions of traffic. Median islands are generally not present on these streets. ~~Bicycles~~ Cycles are accommodated on ~~bike paths~~ cycle tracks between the sidewalk and boulevard. Intersections have protected facilities. ***(REVISE? TBD 2025)***

.2 Urban Streets:

(a) The Urban classification includes all areas outside of mobility hubs or industrial areas. It forms the majority of the City's streets and is typically associated with lower density development, single ~~family homes~~ residential, or smaller scale commercial areas. ***(REVISE? TBD 2025)***

(b) These streets try to balance the needs of all modes, providing less pedestrian accommodation than streets classified in the Mobility category, while providing increased traffic capacity.

(c) Urban Local:

(i) Urban Local Streets primarily carry traffic with an origin and/or destination along its length. It is not intended to carry large volumes of traffic or through traffic other than to immediately adjoining streets. They are intended to be lower volume, slower streets where it is safe for cyclists to share the ~~road~~ roadway with motor vehicle traffic. In some cases, they may be supplemented by measures to create neighbourhood bikeways. ~~Road~~ Travel Lane widths are ~~relatively narrow~~ designed to encourage slower vehicle speeds.~~,~~ ~~on-street~~ On-street parking is provided in pocket parking adjacent to residential driveways where practical, and where it can be integrated with boulevards and street trees. ~~Pedestrians take priority on such streets and, as such, intersection designs favour pedestrian priority through raised and continuous sidewalks at the intersections with Collector Streets. This aims to calm traffic as it enters the neighbourhood and reinforce a change in priorities.~~ Pedestrians take priority on such streets and intersections with collector or arterial streets should favour pedestrian priority through raised and continuous sidewalks to calm traffic as it enters the neighbourhood and reinforce a change in priorities. ***(REVISE? TBD 2025)***

(d) Urban Collector:

(i) ~~The~~ Urban Collector Streets provide a connection for all modes between Urban Local Streets and Urban Arterial Streets. This classification is multi-functional, providing land access, some on-street parking where it supports adjacent land uses, and typically accommodates higher volumes of traffic than a Local Street. Direct access to developments should be provided from lower classification streets where available. Narrow roadway lane widths that still support bus and truck movements are recommended to manage vehicle speeds. Curb extensions at frequent intervals along the street add further friction, particularly where parking is underutilized and provide space for street trees. ~~Bike paths~~ Cycle tracks between the sidewalk and parking/boulevard provide safety for cyclists. Intersections with other Collector Streets or Arterial Streets shall provide protected intersection designs for cyclists. Where on-street parking is provided, there must be a suitable door zone buffer between vehicles and the ~~bike path~~ cycle track. Intersection corners may require the use of compound curves to accommodate the appropriate design vehicle. ***(REVISE? TBD 2025)***

(e) Urban Arterial:

(i) Urban Arterial ~~streets~~ Streets carry traffic for all modes between the principle areas of traffic generation. They are intended to carry large volumes of all ~~types of traffic.~~ transportation modes. Urban arterial streets shall be designed to minimize direct access to development with access provided by adjoining streets of lower classifications. Parking is prohibited on these streets. These streets may often feature multiple travel lanes, and, as such, the design vehicle and the control vehicle may differ. Like Collector Streets, cyclists are accommodated on ~~bike paths~~ a cycle track between wide boulevards and sidewalks, and intersection shall be designed as protected intersections. ***(REVISE? TBD 2025)***

.3 Industrial Streets:

(a) The Industrial classification includes specifically selected streets that serve industrial development. These streets focus on the accommodation of larger vehicles~~;~~ however, employees and customers still have to get to work in these locations and this can be done by sustainable modes, if designed appropriately. ~~It is not anticipated that there would be industrial arterial roads~~ There will not be Industrial Arterial Streets, rather Industrial Collector Streets would connect to Urban or Mobility Arterial Streets or Provincial Highways. ***(REVISE? TBD 2025)***

(b) Industrial Local:

(i) Industrial Local ~~streets~~ Streets will provide direct access to industrial businesses. They will typically be used by employees, customers, and delivery vehicles. The street design features wider travel lanes and parking ~~lanes~~ zones more suited to larger vehicles. Multi-use paths are separated from vehicles by a boulevard helping separate pedestrians and cyclists from large vehicles. ***(REVISE? TBD 2025)***

(c) Industrial Collector:

(i) ~~The~~ Industrial Collector Streets provides a connection for all modes between ~~Urban~~ Arterial Streets and Industrial Local Streets. This classification is multi-functional providing land access, on-street parking, and typically accommodates higher volumes of traffic than a Local Street. ~~Bike paths~~ Cycle tracks are provided to provide employees with sustainable transportation choices. It is important that these be separated from the parking ~~lane~~ zone by a door zone. Sidewalks are provided adjacent to the ~~bike path~~ cycle track, separated by a small buffer. ***(REVISE? TBD 2025)***

.4 Half Street Road Dedication and Construction:

(a) ~~Half road~~ Half street construction shall be limited to situations where future development of surrounding properties will result in full road dedication and construction of the full ~~road~~ street. ***(REVISE? TBD 2025)***

(b) All design parameters shall match those specified as per Section 8.04 [→] and associated standard drawings for Street Types ~~the City's Road Classification Network~~ and Cross ~~Sectional Standard Drawings.~~Sections []. ***(REVISE? TBD 2025)***

(c) The road width requirements will be to construct the lesser of 1 m beyond the opposing back of curb, or 4.6 m past the centerline, unless otherwise determined by the City Engineer.

(d) Parking is not supported where ultimate weekday traffic volumes are anticipated to exceed 300 veh/day.

(e) Half ~~road~~ street construction for lanes is not supported in new development. *(REVISE? TBD 2025)*

(f) Drainage must be contained and conveyed to the storm system within the pavement surface. Open channel drainage may be considered along the interim ~~road~~ roadway edge with additional dedication for a drainage swale. *(REVISE? TBD 2025)*

(g) For half street ~~roads~~ roadways with no exit, a temporary turnaround must be designed and constructed, as per Standard Drawing No. R-TT. *(REVISE? TBD 2025)*

(h) Parking must be restricted through signage where not accommodated.

.5 Cul-de-Sac:

(a) Use of cul-de-sacs shall be limited to situations where in the opinion of the City Engineer, there is no possibility of future ~~road~~ roadway connection, such as abutting an environmentally sensitive area or topographic barrier. Abutting land with potential for further subdivision under the current zoning, will not be considered an impediment to future connections. *(REVISE? TBD 2025)*

(b) Cul-de-sacs shall be limited to 90 m in length and shall be constructed to the applicable ~~local road~~ Urban Local Streets standard. *(REVISE? TBD 2025)*

(c) Cul-de-sacs shall terminate with a 6 m wide road dedication suitable for use as a future pedestrian and cycling connection. ~~Final development and construction of the connection will be the responsibility of the City.~~ *(REVISE? TBD 2025)*

.6 Temporary Turn-a-Rounds:

(a) Temporary asphalt turn-a-rounds shall be required for all temporary dead end streets and designed as per Standard Drawing No. R-TT [].

(b) Extent of works is to be determined on a site specific basis and approved by the City Engineer.

.7 Other:

(a) Streets that do not conform to the above classifications, such as rural streets and ~~laneways~~ lanes, shall be designed in collaboration with the City Engineer and in accordance to the cross-sections provided within the Standard Drawings. *(REVISE? TBD 2025)*

8.04 GEOMETRICS

.1 Horizontal and vertical alignments including horizontal curvature, stopping sight distances, vertical curvature, and intersection geometry shall be based on the ***TAC Geometric Design Guide for Canadian Roads***.

.2 Dimensions:

(a) Dimensions are to be designed according to the requirements outlined in the Standard Drawings, unless otherwise approved by the City Engineer.

(b) Travel lane ~~Lane~~ widths include gutter measurements, unless otherwise specified. ***(REVISE? TBD 2025)***

(c) Large variations in travel lane widths are to be avoided. Where extra width exists, priority is to be given to active transportation, boulevards, or medians. ***(REVISE? TBD 2025)***

(d) Where ~~urban local roads~~ Urban Local Streets are constructed in a reduced road dedication right-of-way, in no case shall the pavement width be less than 6.6 m. ***(REVISE? TBD 2025)***

(e) Right-of-way widths: ***(REVISE? TBD 2025)***

~~Road~~Street **Class**	**Minimum ~~R/W~~Right-of-Way Width (m)**	**STD. DWG. No.**
Mobility Arterial	30.0	MA-XS1
Mobility Collector	28.4	MC-XS1, MC-XS2
Mobility Local	20.0	ML-XS1
Urban Arterial	34.5	UA-XS1
Urban Collector	25.0 – 26.7	UC-XS1, UC-XS2
Urban Local	20.0	UL-XS1
Industrial Collector	25.0	IC-XS1
Industrial Local	22.0	IL-XS1
Rural Local	20.0	RL-XS1
Lane ***(REVISE? TBD 2025)***	~~8.0~~7.0	L-XS1
~~Half Road~~	~~<14.0~~	~~HR-XS1~~

(f) In constrained corridors, with approval from the City Engineer, a statutory right-of-way may be utilized to achieve the required width needed to achieve the cross-sectional elements.

.3 Alignment and Curvature:

(a) ~~Minimum radius of curb returns at street intersections shall be 6.0 m for mobility and urban streets, and 8.0 m for industrial streets.~~ Corner radii will be the minimum appropriate to accommodate the design and control vehicles approved by the City Engineer. Turning movement diagrams are to be submitted for all street intersections. ***(REVISE? TBD 2025)***

(b) Corner radii will be the minimum appropriate to accommodate the design and control vehicles approved by the City Engineer.

(c) Smaller corner radii can be implemented on ~~roads~~ streets where there are multiple turn lanes. ***(REVISE? TBD 2025)***

(d) Compound curves may be needed to accommodate turn movements into narrower receiving lanes.

(e) Intersections that require large turn radii for larger design vehicles, shall utilize mountable truck aprons to reduce the asphalt surface.

(f) Radius of curbs forming ~~nodes at intersections or mid-block~~ curb extensions and pocket parking per Standard Drawing No. CS-27 shall be a minimum 3.0 m concave or 5.0 m convex radius.

.4 Grades:

(a) Longitudinal:
All longitudinal grades shall meet the following criteria, unless approved by the City Engineer:

Classification	Minimum	Maximum
Gutter	0.5%	
Curb Return	1.0%	12%
Pedestrian Facilities	0.5%	12%
Residential driveway		20%
Lane	0.5%	12%
Local ~~Road~~ Street *(REVISE? TBD 2025)*		10%*
Collector/Arterial		8%**
Intersection		5%
Cul-de-sac *(REVISE? TBD 2025)*		5%
*The City Engineer may grant a relaxation up to 12% for sections of streets less than 100 m in length that have met all other geometric criteria and have identified a location for sanitation and recycling receptacles elsewhere. Further consideration for street grades will be considered for comprehensive land developments with challenging topography.		
**Under exceptional circumstances, the City Engineer may relax the maximum.		

(b) Vertical Curves at Intersections (K Values)

(i) Providing the minor intersecting street is marked as a STOP, the following K values must be used for the minor street, unless otherwise approved by the City Engineer:

Classification	Crest	Sag
Local	4	4*
Collector	6	6
*The minimum may be reduced to 2 where the speed limit is 30 km/h or less		

(c) Crown and Crossfall:

(i) All streets shall normally be a crown section. Crossfalls shall require prior approval from the City Engineer.

(ii) Pocket parking that utilizes a reverse crossfall must not exceed 4%.

(iii) Pedestrian and cycling crossfalls:

Minimum	1.0%
Recommended	2.0%
Maximum	4.0%*

*Pedestrian and cycling crossfall grades in excess of 4.0% shall only be permitted for short sections at driveway or lane crossings, subject to approval by the City Engineer.

(d) Earthwork:

(i) All earthwork shall meet the following cut/fill requirements:

Classification	Desirable	Maximum
Gravel	4H:1V	2H:1V
Earthwork	4H:1V	2H:1V
Rock		1H:4V

8.05 INTERSECTIONS

.1 Protected Intersection:

(a) Every intersection is site specific and detailed geometry will be approved by the City Engineer. The layout of a protected intersection shall use Standard Drawing No. R-PI [] as guidance.

(b) ~~Bike paths~~ Cycle tracks will be offset sufficiently from the curb at the pedestrian crossing location to allow suitable space for a pedestrian sidewalk ramp between the curb and ~~bike path~~ cycle track; 2.5 m is preferable. ***(REVISE? TBD 2025)***

(c) Corner protection islands with raised barrier curb will be provided unless otherwise approved by the City Engineer and only in constrained retrofit situations may exceptions be permitted.

(d) Space will be provided between the pedestrian sidewalk ramp and the ~~bike path~~ cycle track ramp to accommodate placement of a signal pole. ***(REVISE? TBD 2025)***

(e) Crosswalk markings and elephant's feet markings on the roadway will be suitably offset from the intersection to permit the inclusion of the corner protection island in the design.

(f) Narrow pedestrian crossing markings (0.3 m width, 0.3 m gap) will be provided on the ~~bike path~~ cycle track to indicate to cyclists that pedestrians have priority. ***(REVISE? TBD 2025)***

(g) A stop bar for cyclists will be provided where cyclists approach the roadway.

(h) Where the ~~bike path~~ cycle track transition from or to the roadway, flat or valley curb will be used to smooth the transition. ***(REVISE? TBD 2025)***

(i) A Road Safety Audit is a mandatory requirement for any protected intersection designs.

.2 Roundabouts:

(a) ~~Roundabouts shall be used as directed by the Nanaimo Transportation Master Plan and at the discretion of the City Engineer~~ Roundabouts and traffic circles are effective at providing traffic calming and improving traffic safety. Where a roundabout or traffic circle is equivalently warranted with a signalized or signed treatment, a roundabout or traffic circle will be preferred subject to review by the City Engineer. ***(REVISE? TBD 2025)***

(b) When a roundabout is required, the extent of the works shall be determined on a site specific basis and approved by the City Engineer.

(c) The layout of a protected roundabout shall use Standard Drawing R-PRI []as guidance.

(d) A Road Safety Audit is a mandatory requirement for any roundabouts designed.

.3 Raised Local Intersections and Crosswalks: ***(REVISE? TBD 2025)***

(a) At ~~raised~~ intersections ~~with local roads~~ involving Urban and Mobility Local Streets, the ~~bike path~~ cycle track and sidewalk grades will continue across the intersection without interruption. The intent is that vehicles cross the ~~bicycle~~ cycle and pedestrian space rather than pedestrians and cyclists crossing the vehicle space. The layout of a protected intersection shall use Standard Drawing No. ~~R-LRI~~R-RLI [] as guidance***.*** ***(REVISE? TBD 2025)***

(b) Where pedestrian sidewalk ramps are provided, they will be separated from the local ramp by a barrier curb and bollards to reduce the likelihood of vehicles turning in the pedestrian ramp.

(c) At the transition to the crosswalk, flat or valley curb will be used to provide a smooth path for people in wheelchairs or mobility devices as per Standard Drawing No. CS-4 []. ***(REVISE? TBD 2025)***

(d) The ramp from the local street to the sidewalk will be 2.0 m in length, and the drainage requirements are to be approved by the City Engineer.

8.06 CURBS

.1 All ~~roads~~ streets shall require curb and gutter unless otherwise approved by the City Engineer. ***(REVISE? TBD 2025)***

.2 All curbs shall be non-mountable concrete barrier curbs, unless detailed in ~~a~~ Standard Drawing No. CS-1 [] or otherwise approved by the City Engineer. ***(REVISE? TBD 2025)***

.3 Pocket parking delineation curb to be optional where there is no grade break between the abutting roadway lane and the pocket parking. Rollover or valley curb to be used as a grade break for drainage purposes as per the Standard Drawings. ***(REVISE? TBD 2025)***

.4 Where intersecting streets have both mountable roll-over and non-mountable barrier curbs, non-mountable barrier curbs shall be required for the curb returns and along the tangent to the first driveway or lane crossing.

.5 Curbs within raised local ~~road~~ street intersections, lane crossings, commercial driveways, or industrial driveways require an additional concrete footing or reinforcing steel as shown on Standard Drawing No. ~~CS-1.~~ CS-2 []. ***(REVISE? TBD 2025)***

.6 Asphalt curbs only to be used to provide a transition from new concrete curbs to existing roadworks, if required.

8.07 MEDIANS AND ISLANDS

.1 Medians:

(a) Designs should first consider raised and planted medians.

(b) Centre medians for divided ~~roads~~ streets shall be designed as per Standard Drawing No. CS-7 []. ***(REVISE? TBD 2025)***

.2 Traffic Islands:

(a) Traffic Islands require approval from the City Engineer.

(b) Traffic Islands shall aim to provide ~~at~~ continuous grade crossings. ***(REVISE? TBD 2025)***

8.08 BUFFERS

.1 Buffers are lateral spaces of ~~varying~~ contrasting colour and texture to separate one mode from another. ***(REVISE? TBD 2025)***

.2 Buffer widths shall be in accordance with the cross-sections found in the Standard Drawings.

.3 Alternative treatments~~, such as~~ may include painted gore areas, different material types, curbs, landscaping or other physical features ~~may be used~~ if approved by the City Engineer. ***(REVISE? TBD 2025)***

8.09 FLEX ZONES

.1 The Flex zone is a fixed width within the cross-section that remains flexible in nature, so that various competing requirements can be achieved.

(a) Landscaping and street trees.

(b) Transit stops and bus shelters.

(c) Bike and vehicle pocket parking.

(d) Furniture & planters.

(e) Utility boxes, cabinets, and hydrants.

(f) Power poles and streetlights.

(g) Stormwater management.

(h) Waste receptacle placement.

.2 Cross-sectional elements between the curb and the property line may be ~~reorganized~~ modified to meet the needs of the corridor with approval from the City Engineer. ***(REVISE? TBD 2025)***

.3 In constrained corridors, with approval from the City Engineer, a statutory right-of-way may be utilized to achieve the required width needed to achieve the cross-sectional elements.

.4 Flex Zone features to be provided in accordance with the City's ***Complete Street Design Guide.*** ***(REVISE? TBD 2025)***

8.10 PEDESTRIAN FACILITIES

.1 Sidewalks and Walkways:

(a) Sidewalks, pedestrian pathway, pedestrian trail and walkways shall be generous, unobstructed, and accessible. They shall be designed to the requirements outlined in this section and ***TAC's Geometric Design Guide for Canadian Roads***, unless otherwise approved by the City Engineer. ***(REVISE? TBD 2025)***

(b) Sidewalks and ~~walkways~~ pedestrian pathways adjacent to trees shall have structural soil composite or soil cells to achieve the soil volume required for trees in accordance with Section 14.0 – Landscape []. ***(REVISE? TBD 2025)***

(c) Hydro and/or telecommunications underground vaults shall not be located in the sidewalk unless approved by the City Engineer. ***(REVISE? TBD 2025)***

.2 Tactile Walking Surface indicators (TWSI):

(a) Attention TWSIs are to be arranged in a ~~square~~ grid pattern, parallel to the main direction of travel. ***(REVISE? TBD 2025)***

(b) Attention TWSIs to ~~measure a minimum 0.61 m wide and 1.5 m long. They are to measure across the entire width of a hazard, as per the Standard Drawings~~ be designed to cover the maximum amount of hazard by using a combination of TWSI standard lengths without physical modification or extension into the flares.

(c) Attention TWSIs should be used along tactile guidance paths to identify turns and other decision-making points.

(d) Guidance TWSIs should consist of a pattern of parallel, fat-topped, elongated bars that extend in the direction of travel.

.3 Crosswalks:

(a) Crosswalk locations shall be determined in accordance with the most current version of the ***TAC Pedestrian Crossing Control Guide*** or as required by the City Engineer.

(b) ~~If~~ When sidewalks cross local streets, ~~laneways~~ lanes, or high-volume accesses, designs ~~should first consider~~ will include raised and continuous sidewalks, as per Standard Drawing No. R-RLI []. ***(REVISE? TBD 2025)***

(c) Mid-block crosswalks on collector and arterials must be approved by the City Engineer. Where possible, medians shall be utilized to accommodate a two-stage protected at-grade crossing.

.4 Curb Ramps:

(a) Ramps shall be designed to the requirements outlined in this section and the Standard Drawings.

(b) Ramps should land users safely in the crosswalk and in the desired direction of travel, lining up with the ramp across the street.

(i) Score lines will be provided on the curb ramp directing visually impaired users to the appropriate opposing curb ramp.

(ii) Safety yellow TWSIs will be placed across the sidewalk or curb ramp where pedestrians will cross the conflict area with vehicles or cyclists on arterial, collector, or local streets. ~~***(REVISED JULY 2022)***~~

(c) Ramp orientations are dependent on sidewalk variations, as per Standard Drawing No. CS-12 [].

(d) Catch basins are not permitted within curb ramps ~~let-downs~~ and will be located to intercept drainage upstream ~~should be located up-stream~~ of the crosswalk. ***(REVISE? TBD 2025)***

(e) Constrained curb ramp details are only to be used where obstructions or geometry prevent the preferred design from being utilized.

.5 Termination and Transitions:

(a) Sidewalks, pedestrian pathway and pedestrian trail shall be terminated in a manner that is safe for pedestrians as follows: ***(REVISE? TBD 2025)***

(i) At the beginning of the curb return if construction of the intersection is not required.

(ii) At the end of the curb return if construction of the intersection is required.

(iii) At the end of the development phase or property line.

(iv) At other specified locations as required by the City Engineer.

(b) Extend and terminate sidewalks as required to allow wheelchair access to pedestrian pushbuttons.

(c) Transition sidewalk refers to all portions of concrete or asphalt placed as “fill-in” sidewalk between existing curbs and sidewalk, sidewalks and inset building walls, sidewalks, and paved parking area. Ensure transition sidewalks allow for egress and connectivity for wheelchair users to adjacent sidewalks and destinations. ***(REVISE? TBD 2025)***

(d) Transition sidewalk, pedestrian pathway, pedestrian trail or walkway shall be constructed at all locations designated by the ~~Professional Engineer~~ Professional of Record and shall be edged and finished in a manner compatible with the adjacent ~~sidewalk or walkway~~ facility and shall be to the satisfaction of the City Engineer. ***(REVISE? TBD 2025)***

8.11 ~~BICYCLE~~ CYCLE FACILITIES ***(REVISED TBC 2025)***

.1 Bike ~~paths~~ lanes and cycle tracks shall be designed in accordance with the ~~road~~ street classification of the adjacent street, unless otherwise approved by the City Engineer. ***(REVISE? TBD 2025)***

.2 Crossings:

(a) Crossing locations shall be determined in accordance with the most current version of the ***TAC Geometric Design Guide for Canadian Roads*** or as required by the City Engineer.

(b) If a cycling facility on a collector or arterial street ~~crossing~~ crosses a local street, raised and continuous ~~bike paths and~~ cycle tracks should first be considered. ***(REVISE? TBD 2025)***

(c) If a fully separated intersection crossing is not achievable, coloured bike boxes or a shared crossing with elephant's feet should be considered.

.3 Hydro and/or telecommunications underground vaults are not permitted in the cycle track unless approved by the City Engineer. ***(REVISE? TBD 2025)***

8.12 TRAILS AND MULTI-USE FACILITY ***(REVISE? TBD 2025)***

.1 ~~Walkway and multi-use path~~ Hard surface facilities pavement widths shall be a minimum of 3.0 m. A minimum unobstructed width of 4.0 m is required where vertical obstructions exist. ***(REVISE? TBD 2025)***

.2 ~~Walkway~~ Trails and Multi-Use Pathway right-of-ways width shall be a minimum of 6.0 m unless otherwise approved by the City Engineer. ***(REVISE? TBD 2025)***

.3 To prevent vehicles from entering a multi-use facility, splitter islands, bollards, or barrier posts may be utilized.

8.13 TRANSIT FACILITIES

.1 Bus stops and bus pullout locations will be determined by the City Engineer and the Regional District of Nanaimo Transit.

.2 Transit stops and pullout configurations will adhere to the most current standards in ***BC Transit's*** ~~Bus Stop~~ ***Infrastructure Design Summary and On-Street Infrastructure Design*** ~~Guidelines.~~ ***Guide***. ***(REVISE? TBD 2025)***

.3 Reinforced bus slabs shall be designed as per Standard Drawing No. CS-23 [].

8.14 MOTOR VEHICLE FACILITIES

.1 ~~Lane~~ Travel lane and pavement widths shall be designed to the requirements outlined in this section, the Standard Drawings, and ***TAC Geometric Design Guide***, unless otherwise approved by the City Engineer. ***(REVISE? TBD 2025)***

.2 Parking:

(a) On-streets within mobility hubs or other high density areas, on-street parking shall be provided within parking pockets between curb extensions.

.3 Driveways and ~~Laneways:~~ Lanes: ***(REVISE? TBD 2025)***

(a) Driveways and ~~laneways~~ lanes shall be designed in accordance with Standard Drawing No. CS-24 [], No. CS-25 [] and No. CS-26 []. ***(REVISE? TBD 2025)***

(b) A boulevard should be provided between the roadway and sidewalk, pathway, or ~~bike path~~ cycle track to provide separation of users and to provide suitable space for a driveway or ~~laneway~~ lane ~~crossing~~ letdowns. ***(REVISE? TBD 2025)***

(c) The sidewalk, multi-use path, or ~~bike path~~ cycle track are to remain at a level grade past the driveway or ~~laneway.~~lanes. ***(REVISE? TBD 2025)***

(d) Driveways and ~~laneways~~ lanes shall be located in accordance with the City ~~of Nanaimo's~~ *Crossing Control Bylaw*. ***(REVISE? TBD 2025)***

~~(i) Maximum driveway width for single family residential lot shall be 6.0 m.~~ ***(Removed? TBD 2025)***

~~(ii) Maximum driveway width for all other zoned lots shall be 9.0 m, unless otherwise approved by the City Engineer.~~ ***(Removed? TBD 2025)***

(e) Where a property has multiple frontages, access shall be provided on the lower classification street. ***(REVISE? TBD 2025)***

8.15 BOLLARDS

.1 To prevent vehicles from entering a pedestrian, cycling, or multi-use facility, the design may require bollards, splitter islands, or barrier posts.

.2 Decorative bollards are the preferred treatment if required curbside.

.3 Splitter Islands are the preferred treatment at the entrances of multi-use facilities ~~walkways and paths~~, and shall be designed in accordance with Standard Drawing No. CS-20 []. ***(REVISE? TBD 2025)***

.4 Barrier posts shall be designed in accordance with Standard Drawing No. CS-30 [] and should be placed no closer than 1.5 m apart, and must be installed in odd numbers (one, three or five) so that the centre post is positioned on the centerline of the pathway.

8.16 HANDRAILS AND STAIRWAYS

.1 Handrails:

(a) ~~Sidewalks or walkways adjacent to~~ Any facility within 1.5 m of retaining walls or other vertical drops exceeding a slope of 1.5H:1V or height of 0.6 m shall require a handrail. Alternatively, a chain link fence may be installed, if approved by the City Engineer. ***(REVISE? TBD 2025)***

(b) Other unsafe areas, as determined by the City Engineer, may also require the installation of a handrail or chain link fence as per Standard Drawing No. CS-31 []. ***(REVISE? TBD 2025)***

.2 Stairways:

(a) Where ~~walkway~~ pedestrian use facilities approach grades that exceed 12%, stairways ~~shall be installed~~ will be designed to suit adjacent topography, unless otherwise approved by the City Engineer. ***(REVISE? TBD 2025)***

(b) ~~Walkways requiring s~~Stairways ~~shall have~~ will have a minimum of three stairs, and landings ~~at all entrances to the walkway~~. ***(REVISE? TBD 2025)***

(c) Landings at a 2% grade are required at the top and bottom of all stairways. Stairways shall have a maximum of 12 risers between landings.

(d) At stairs and landings, attention TWSIs should commence one tread depth back from the leading edge of the nosing at the top step and extend across the width of the stairs. ~~The attention TWSI alerts a person with vision loss that there is a set of stairs ahead and to seek the support of a handrail for safe navigation.~~ ***(REVISE? TBD 2025)***

(e) Concrete stairways shall be designed in accordance with Standard Drawing No.'s CS-32 [] and CS-33 [].

(f) Wooden stairways shall be designed in accordance with Standard Drawing No.'s CS-34 [] and CS-35 [].

8.17 FENCES AND GATES ***(REVISE? TBD 2025)***

.1 Fences shall be designed in accordance with Standard Drawing No.~~'s~~ CS-36 [] and No. CS-37 [], unless otherwise approved by the City Engineer.

.2 Park swing gates and concrete bases are a site-specific design by a Professional of Record and use Standard Drawing No. CS-38 []. ***(New Ed 15)***

8.18 PAVEMENT MARKINGS

.1 The design and construction of all ~~roads~~ streets shall include the design and application of pavement~~, hazard, and delineation~~ markings in accordance with the most current standards contained in the ***MUTCD***. ***(REVISE? TBD 2025)***

.2 When particular design criteria is not specified in the ***MUTCD***, the ***Manual of Standard Traffic Signs and Pavement Markings*** distributed by the Ministry of Transportation and Transit ~~Infrastructure~~ may be considered. ***(REVISE? TBD 2025)***

.3 Green conflict paint applications to be evaluated by the City Engineer, but are to be used:

(a) At any intersection where a cycling facility crosses a collector or arterial street. ***(REVISE? TBD 2025)***

~~(a)~~(b) Where ~~bicycle~~ cycling facilities cross ~~major~~ high-conflict driveways and lanes, or local roads as required by the City Engineer. ~~laneways intersections with permissive left and right turn motor vehicle conflicts, or where there is poor compliance with turn restrictions.~~ ***(REVISE? TBD 2025)***

(c) Where cycling facilities cross permissive left and right turn motor vehicle conflicts. ***(REVISE? TBD 2025)***

(d) Where cycling facilities are bordered by dashed white lines, due to merging/turning motor vehicles. ***(REVISE? TBD 2025)***

~~(b) Where bicycle lanes approach an intersection away from the curb, either due to a bicycle only turn lane or where a dedicated right turn is located to the right of a bicycle lanes.~~

~~(c)~~(e) In bike boxes and two-stage turn boxes.

8.19 TRAFFIC SIGNAGE

.1 The design and construction of all ~~roads~~ streets shall include the design and installation of traffic signs (regulatory and warning) and traffic signals, in accordance with the most current standards contained in the ***MUTCD***. ***(REVISE? TBD 2025)***

.2 Round stock sign poles are the preferred pole type.

.3 Perforated steel sign poles shall be installed in soil and not set in concrete.

.4 Street name signs shall be provided at all intersections. Where possible, the street name sign shall be located above a traffic sign at one corner of the intersection.

.5 Address signage must be visible from the street. Where a common driveway accesses multiple properties or where homes are not visible from the street, address signs may be located within road right-of-way.

SECTION 8 – TRANSPORTATION SPECIFICATIONS

8.20 SCOPE

.1 All transportation infrastructure shall be constructed in accordance to the outlined specification requirements captured throughout all sections of the ***Manual of Engineering Standards*** ~~and~~***&*** ***Specifications***.

.2 Only those products approved by the City Engineer and listed in the City ~~of Nanaimo~~ Approved ***Products List*** [] will be accepted for installation. ***(REVISE? TBD 2025)***

8.21 INTERSECTIONS

.1 Intersections that require truck aprons shall be constructed with concrete that is pigmented brick red and stamped using a brick pattern.

8.22 TACTILE WALKING ~~WARNING~~ SURFACE INDICATORS (TWSI) ***(REVISE? TBD 2025)***

.1 Attention TWSIs Cast-in-place or recessed installations are the preferred installation method. Surface application are only considered if cast-in-place cannot be achieved.

(a) Surface retrofit applications are to be installed with beveled edges to decrease the likelihood of tripping and attached firmly to prevent edges from lifting.

(b) Preferred colour for attention TSWIs to be used on platforms, staircases, and curb ramps where pedestrians will cross paths with vehicles or cyclists, is safety yellow. ~~***(REVISED JULY 2022)***~~

~~(c) Stamped or metal attention domes may be used alternatively where pedestrians will be crossing paths with cyclists, as per the Standard Drawings.~~

~~(d)~~(c) Circular truncated domes installed on a walking surface should have the following measurements: ***(REVISE? TBD 2025)***

(i) The height of the domes should be four to five millimetres.

(ii) The ~~diametre~~ diameter of the top of the domes should be between 12 and 25 mm. ***(REVISE? TBD 2025)***

(iii) The ~~diametre~~ diameter of the lower base of the domes or cones should be 10 mm (+/- 1 mm) more than the ~~diametre~~ diameter of the top. ***(REVISE? TBD 2025)***

.2 Guidance TWSIs

(a) ~~To clearly differentiate warning information from guidance information, safety~~ Safety yellow ~~should not be~~ is used for guidance TWSIs. ***(REVISE? TBD 2025)***

(b) Guidance ~~Bars~~ TWSIs installed on a walking surface should have the following measurements: ***(REVISE? TBD 2025)***

(i) The height of the bars should be four to five millimetres.

(ii) The top of the elongated bars should have a width between 17 and 30 mm.

(iii) The width of the base of the bars should be ~~10mm~~10 mm (+/- 1 mm) wider than the top.

(iv) The top length of the bars should be at least 270 mm.

(v) If drainage is a concern, a space of 10 – 30 mm should be provided at the ends of the bars.

(vi) Where possible, ensure guidance TWSIs direct pedestrians to facilities with braille or auditory wayfinding messages. ***(REVISE? TBD 2025)***

8.23 MEDIANS AND ISLANDS

.1 Medians and islands are to have concrete infill with a brushed finish, stamped finish, public art, or landscaping as directed by the City Engineer. ***(REVISE? TBD 2025)***

8.24 BUFFERS

.1 Buffers and curb-side landings are to utilize colour and/or texture to ~~demarkate~~ demarcate the separation of modes. This can be achieved through stamped concrete, coloured concrete, or concrete pavers. ***(REVISE? TBD 2025)***

8.25 PAVEMENT MARKINGS

.1 All ~~road~~ yellow and white roadway lane markings shall be thermoplastic with a minimum thickness of 3 mm. ***(REVISE? TBD 2025)***

.2 Conflict paint or other area markings use materials on the Approved Products List or will be approved by the City Engineer. ***(REVISE? TBD 2025)***

8.26 TRAFFIC SIGNAGE

.1 Posts and Bases:

(a) Street name and traffic sign posts and anchors shall be roll formed from strip steel (structural quality) in accordance with ASTM A653, Grade 33.

.2 Fasteners:

(a) Non-corrosive metal fasteners shall be used for attaching all signs to their supports to avoid discolouration.

.3 Street Name Signs:

(a) Street name signs shall be double sided and constructed of 3 mm x 200 mm flat sign grade aluminum with rounded corners.

(b) Signs shall consist of diamond grade reflective sheeting with transparent blue Electro Cut vinyl. Letters shall be 150 mm ~~Helvetian~~Helvetica Med font and shall be upper and lower case. ***(REVISE? TBD 2025)***

(c) The abbreviations, St., Dr., Pl, Rd., etc., are to be the same height as the street name.

.4 Traffic Signs:

(a) Traffic sign shapes, colours, dimensions, symbols and wording shall be in accordance with the standards detailed in the most current *Motor Vehicle Act Regulations*.

(b) Illumination or reflectorization of signs shall also be in accordance with the standards detailed in the most current *Motor Vehicle Act*.

(c) ~~Signs shall be made on 12 gauge (3 mm) sign grade aluminum.~~Traffic signs shall be made on sheet aluminum with nominal thickness of 2 mm (0.081") flat sheet tension leveled, on sign grade aluminum alloy 5052-H38, conforming to the requirements of ASTM B209M, Specifications for Aluminum and Aluminum-Alloy Sheet and Plate. ***(REVISE? TBD 2025)***

(d) Reflective sheeting shall be diamond grade. ~~Signs for Parking Restrictions, Loading Zones, Bus Stops and No~~ Signs for curbside regulatory signs shall be engineering grade and no more than 300 mm wide. ***(REVISE? TBD 2025)***

8.27 FENCES AND GATES ***(New Ed 15)***

.1 Park Gate shop drawings are required prior to fabrication for review and approval by the Professional of Record and are to be included with the documentation for the works. ***(New Ed 15)***

.2 Park Gate Steel Pipe and Plates: ***(New Ed 15)***

(a) Steel pipe to ASTM-A53, Grade B, standard weight, seamless, black. ***(New Ed 15)***

(b) Steel plate to CAN/CSA-G40.21 GRADE 300W. ***(New Ed 15)***

(c) Steel surfaces shall be blast cleaned in accordance with manufacturer's recommendations prior to painting. ***(New Ed 15)***

(d) Exposed steel surfaces shall be painted with a base coat of enamel rust paint and a top coat of bright yellow enamel rust paint. ***(New Ed 15)***

.3 Park Gate concrete bases are CLASS F-1 and conform to Section 11.0 - Cast in Place Concrete Works []. ***(New Ed 15)***

SECTION 8 – TRANSPORTATION INSTALLATION

8.40 SCOPE

.1 All transportation infrastructure shall be installed in accordance to the requirements captured throughout all sections of the ***Manual of Engineering Standards*** ~~and~~***&*** ***Specifications***.

8.41 REMOVALS

.1 Removals shall be done in accordance with Section 4.0 – Excavation, ~~Bedding~~ Trenching and Backfill [] ***(REVISE? TBD 2025)***

.2 Existing asphalt pavement, sidewalk, curb and gutter shall be cut in a straight line parallel to the line of the proposed work.

.3 Existing concrete pavement, sidewalk, curb and gutter shall be removed by cutting the concrete at the nearest joint or other location designated by the City Engineer. ***(REVISE? TBD 2025)***

.4 The top surface of the remaining concrete section shall have a neat vertical face with a straight edge for a minimum of ¼ the depth of the section.

.5 All material removed shall be disposed of ~~as waste material.~~ in accordance with the Regional District of Nanaimo (RDN) ***Construction Waste Best Practices Guide***. ***(REVISE? TBD 2025)***

8.42 BACKFILL AND GRADING

.1 Backfill and grading shall be done in accordance with Section 4.0 – Excavation, ~~Bedding~~ Trenching and Backfill []. ***(REVISE? TBD 2025)***

.2 The gravel road base adjacent to the curb shall be filled tight to the curb, graded, compacted, and left in a neat condition.

.3 The boulevard area adjacent to the curb or sidewalk shall be cleared of construction debris and raked clear of all rock exceeding 50 mm in its largest dimension.

.4 The boulevard area shall be backfilled to within 50 mm of the top of the curb for a minimum width as shown on the drawings, such that ~~the~~ water does not undermine the curb installation. Backfill shall be compacted to 90% of Modified Proctor Density (ASTM D1557).

.5 Boulevards shall be graded and prepared suitable for placement of topsoil, or as otherwise directed by the City Engineer. ***(REVISE? TBD 2025)***

.6 Sod, plants, and trees to be installed as per Section 14.0 – Landscape [].

8.43 TACTILE ~~WARNING~~ WALKING SURFACE INDICATORS (TWSI) *(REVISE? TBD 2025)*

.1 TWSIs are to be installed in accordance with the manufacturer's ~~recommendations.~~ specifications. *(REVISE? TBD 2025)*

8.44 PAVEMENT MARKINGS

.1 Layout of markings shall be as per the construction drawings or as per direction from the City Engineer.

.2 Thermoplastic shall be applied in accordance with the manufacturer's ~~recommendations.~~ specifications. *(REVISE? TBD 2025)*

8.45 TRAFFIC SIGNAGE

.1 Posts and Bases:

(a) Sign post bases installed within concrete, shall be installed as per Standard Drawing No. CS-40B [].

(b) Sign post bases installed within soil, shall be installed as per Standard Drawing No.'s CS-40B [] or CS-41 [].

(c) Anchor posts shall be provided for sign base installations where native soils are unable to hold the sign rigidly in its proper and permanent position and to prevent it from swaying in the wind, from being turned, or otherwise displaced.

(d) Sign installation shall not impede on the clear zone of a pedestrian or cycling facility. A minimum 1.2 m must be accommodated on pedestrian facilities and 1.5 m on cycling or multi-use facilities, as per Section 8.11 [→] and Section 8.12 [→]. *(REVISE? TBD 2025)*

.2 Signs:

(a) All signs to conform to the most current standards in the ***MUTCD***.

(b) Signs shall be installed as per the Standard Drawings.

(c) Street name and traffic signs shall be as per the construction drawings or as per direction from the City Engineer.

(d) All signs shall be mounted perpendicular to the direction of traffic, facing the direction of traffic they are intended to service, except in the case of No Parking and No Stopping signs.

(e) Reflectorized signs shall be placed at a slight angle away from approaching traffic.

(f) Unless otherwise specified, street signs shall be supplied by the City ~~of Nanaimo~~ at the ~~Developer~~ Applicant's expense. *(REVISE? TBD 2025)*

~~8.46 CLEAN UP~~

~~.1 The construction site shall be kept clean and safe throughout the duration of the project.~~

~~.2 Special precautions shall be made for sites that experience heavy pedestrian, cycling, and motor vehicle volumes.~~

~~.3 Fire hydrants shall be left clear for hose connections at all times.~~

~~.4 Prior to completion of construction, all existing and newly constructed drainage ditches, waterways and culverts shall be cleaned to restore their full effectiveness.~~

~~.5 All areas affected by the construction operation shall be cleaned of all loose rock, boulders, and debris.~~