# Attachment #4

**Summary of Major Proposed Updates to the City of Langley Subdivision and Development Servicing Bylaw 2008, N0.2744.**

## Table 1: Summary of Major Updates in the Proposed Bylaw

| Section in the *Proposed Bylaw* | Section in the Current Subdivision Bylaw | Why Change Needed | Description of the Change | Expected Outcome/Benefit |
|---|---|---|---|---|
| **Introduction** | | | | |
| **Latecomers Agreement**<br>Section 8.6 | Page 10, Section 11.0 | Per Local Government Act (LGA), section 702(4), a latecomer charge must include interest calculated annually at a rate established by bylaw, payable for the period beginning when the excess or extended services were completed, up to the date that the connection is made or the use begins.<br>The Current bylaw did not set an interest rate. | To establish a rate of interest, when the City exercises its power contained in Section 702(4) of the LGA and for the purposes of section 702(4), the City establishes a rate of interest equal to the Municipal Finance Authority of BC lending rate for 15 years plus 2%. | Compliance with the Local Government Act requirement. |
| **Public Convenience, Access, and Cleanup**, Section 9.0 | Not included in the current bylaw | To address the construction related concerns of the neighbouring property owners, and to provide safe access for vehicles and pedestrians during construction. | Prior to the commencement of work, the Developer will meet with all neighbouring property owners affected by the work to inform them of the project and schedule. | To identify conflicts early in the construction phase and address them proactively. |
| **Power and Telecommunications Distribution**, Section 10.5.4 | Schedule A, GR6.6, Page 31 | To facilitate undergrounding power and telecommunication in the future without having to dig and/or damage City infrastructures in the future. | The Developer shall pre-duct the frontage of their Subdivision/Development parcel based on a BCHydro approved plan and pay the City a cash in lieu amount for the remaining works plus 5% engineering fees to have the undergrounding work be completed in the future, when BCHydro and the City Engineer deem this feasible. | Avoids removing sidewalks and other already installed infrastructures to install underground conduit to connect power or telecommunication cords from the nearest pole to the property line, hence reduces the cost of underground. The 5% engineering fee payable to the City would cover the City's engineering administration cost to implement the remaining works. This item is not required in the current bylaw, which results in the City paying the associated costs from its own budget. |

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| **Traffic Control, Barriers, and Lights**, Section 10.10 | Not included in the current bylaw | To address neighbouring residents' frequent complaints regarding the ways some construction contractors are handling traffic and lights during construction periods. | The Developer must, at their own expense, provide, erect, and maintain all required barriers, fences or other proper protection, and must provide, keep and maintain operating lights with amber globes or provide watchmen as may be necessary, in order to ensure safety to the public as well as to those engaged about the premises or works. | Addresses potential tensions between contractors and residents, during construction, which would result in spending less City staff time to resolve tensions. |
| **Parkland Conveyance,** Section 10.11 | Not included in the current bylaw | There is currently no language in the bylaw that covers this issue.<br>The process has been relatively informal to date with no explicit standards for the protection of natural assets or the preparation of site improvements. | Identifies how parklands are to be conveyed to the City. | Takes away some of the inconsistencies on what is being asked for during Subdivision/Development application process. |
| **Protection of Offsite Trees during Construction,** Section 10.12 | Not included in the current bylaw | There is currently no language in the bylaw that covers this issue. Some municipalities such as the City of Coquitlam and District of North Vancouver address this issue in their Development Bylaw and some others as a part of their tree management bylaws.<br>Currently, the City advises Developers of the requirements to protect City owned trees at pre-construction meetings, with no formal language in the bylaw to mandate it. The process has been relatively informal to date and has been causing damages from time to time to City and/or neighbours' mature trees which often time resulted in removing them. | Requirement to submit a survey of all trees located on adjacent properties (City's and neighbours'), submission of Arborist's report that sets out the condition, size, and species of trees on adjacent properties, and the recommended construction practices to protect those trees during and after construction. | Save trees located in the City and immediate neighbouring properties. |

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| **Letter of Credit as a Security Deposit**, Section 11.2 | Page 9, Section 10.1.1 | There are no historical and/or procedural reasons for requiring a 10% increase in the required deposit when a Developer, instead of cash, is offering a Letter of Credit. | The current bylaw requires Developers to provide security deposit in the amount of 110% of the estimated construction cost. | Asking for 100% of the construction cost is fair to Developers and will remove unnecessary financial commitments from them. It also is in line with what most other municipalities in BC are asking for. |
| **Property Taxes and Utility Fees,** Section 13.0 | Not included in the current bylaw | To make sure all the due fees and taxes are paid to the City before the land title and/or property address is changed. | The Owner shall, prior to final approval of a proposed Subdivision/Development, pay all property taxes, utility fees, rates, and applicable local improvements and charges assessed and levied against the lands to be developed/subdivided | The Owner shall pay all property taxes, fees, and charges. This would avoid the City staff to spend extra times later to keep track of unpaid taxes and fees, when land title or address is changed as a part of subdivision or consolidation of parcels. |
| **Schedule A- Typical Engineering Services Requirements** | | | | |
| **Schedule A- An overview of Engineering Plan and Work Requirements** | Not included in the current bylaw | To make sure Developers know what plans and criteria they will be expected to provide. | To list the minimum engineering requirements for a typical subdivision/development application | • Provides more convenience to Developers and minimizes misunderstandings and surprises.<br>• should allow a faster development application approval |
| **Schedule B- General Requirements** | | | | |
| **Security Deposit components Amount**, Section 4.1.5 | Not included in the current bylaw | The current bylaw does not account for potential extra costs when in the opinion of the City, additional environmental studies and/or subconsultant services are required to assess Contractor's construction practices. | This is a new addition to the required security deposit in the amount of 10% of the construction cost that may be used for engineering works, including environmental studies, testing and/or sub-consultant services. | If in the opinion of the City Engineer and as a result of owner's contractor construction practices, there are environmental concerns and/or more tests are required to assess the environmental condition of the site and its immediate areas, then, the "environmental assessment" portion of the security deposit will be used to hire an independent subconsultant to evaluate contractor's construction practices without having to dip into the rest of the security deposit that is meant to be used only to rectify construction damages and deficiencies. |
| **Survey Monument and** | Not referenced in the | To protect the existing monuments and to add new coverage to the survey | Section 5.2 will require Developers to have a British Columbia Land Surveyor (**BCLS**) install Survey | This will make sure Developers will establish brass |

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| **Legal Postings,** Section 5.2 | current bylaw | monument network in the City. | Monuments and forward the geodetic elevations (City of Langley Datum) and the UTM coordinates to the City. | caps for survey control. |
| **Testing/Confirmation of Completed Works & Services**, Section 6.3 | Not included in the current bylaw | To make sure the construction materials, and methods are not sub-standard and will not fail a few years later. | The City Engineer may conduct independent testing of any or all works for the purpose of ensuring that the works (that are considered to be accepted by the City Engineer) meet the minimum requirements, standards and specifications of this Bylaw. | Prevents the City to fix the problems using taxpayers' money a few years later. |
| **Maintenance Period - For Offsite Landscaping (Street Trees & Boulevard Plantings)**, Section 11.2 | Schedule A, GR4.20, Page 26 | To address ongoing problems with cases that trees die shortly after the one-year maintenance period is over | The landscaping maintenance period was extended from one year to two years. During this 2-year maintenance period, the Developer will take care of the trees. | The additional one-year maintenance period for trees would give assurance to the City that those trees are mature enough to survive most adverse weather conditions. This approach has been adopted by some other municipalities as well and the intent is to make sure the planted trees have passed the test of time and will not be a financial burden to the City later to replace them. |
| **Equivalent Development Units,** Section 14.0 | Not included in the current bylaw | To estimate parcel-based population under OCP scenario | To facilitate estimating total number of units and their populations in each parcel. | Enables the City to:<br>• Estimate cost sharing for Latecomers, where applicable; and<br>• Provides more accurate hydraulic modeling to identify water and sanitary system deficiencies under OCP land use scenario. |
| **Schedule C- Standards for Designing and Preparing Lot Grading** | | | | |
| **Lot Grading Design Standards** | Not included in the current bylaw | to provide consistent guidelines, standards, specifications and ideas for Subdivision/Development of steeper sloping areas within the City of Langley | To be sure that Developers, Consulting Engineers, designers, and builders utilize existing topography without creating negative impacts on surrounding or adjacent lands. | • Reduces the use of retaining walls where long term maintenance is potentially difficult and where the visual and physical impact on neighboring lands is a potential problem or conflict.<br>• Enhances environmental protection by reducing erosion and siltation, and keeps and maintain the |

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| | | | | natural vegetation on slopes. |
| **Schedule D- Standard Forms** | | | | |
| **A List of the Development Services Department (including the Building Division) Forms** | Not included in the current bylaw | To make sure Developers know what forms the Development Services Department may ask them to fill out and present during their application. | Lists the Development Services Department forms that might be used during subdivision and/or development application. | • Provides more convenience to Developers and minimizes misunderstandings and possible confusion on what forms need to be filled out and where to find them.<br>• Should allow a faster development application approval |
| **Schedule E – Site Information and Assessment Forms** | | | | |
| **Forms to Provide Detailed Onsite Information** | Not included in the current bylaw | A standard approach to provide site specific information is required to provide the required information to the City staff during the preliminary stage of the subdivision and/or development application | provides general information and site-specific assessment (e.g., topography, onsite creek, invasive vegetations, bird nests, etc.) during the Preliminary Layout Approval (PLA) process to the Development Services Department. | • Provides a better picture to the City staff of the requirements and areas that need to be covered during the application approval process.<br>• Will improve communications between staff and Developers and their consulting engineers.<br>• Should allow a faster development application approval. |
| **Schedule F – Recycling and Waste Management Design Requirements** | | | | |
| Recycling and Waste Management Standards for Multifamily, Institutional, Commercial, and Industrial Developments | Not included in the current bylaw | No standards are explicitly required in the current bylaw to assure recycling and waste management targets are included in the onsite design and construction process. | Development permit applications for multi-family, institutional, commercial, and industrial (ICI) developments must specify locations and sizes for recycling and waste enclosures or compounds to accommodate all recycling and waste streams generated. | • The assure effective recycling and garbage arrangements for developments to:<br>• Provide efficient recycling and garbage services and<br>Achieve targeted waste diversion while minimizing contamination in recycling. |

## Table 2: Summary of Major updates in the Design Criteria Manual

| Section in the Draft Design Criteria Manual | Section in the Current Subdivision Bylaw | Why Change Needed | Description of the Change | Expected Outcome/Benefit |
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| **Sections 1.0 to 15.0** | Minimum engineering standards have not been updated since 2008. | • The existing bylaw has somewhat outdated minimum engineering standards and they are not grouped together for simple quick reference.<br>• Contractions and design requirements are based on “MMCD Gold Edition” that was published in 2000. | • In general, these sections adopt widely accepted engineering design and drawing standards.<br>• The design requirements are now set more clearly.<br>• Construction and design requirements are based on “MMCD 2019 Edition” that was published in late 2020. | • This will result in better designs and less back and forth submissions between staff and consulting engineers.<br>• Would result in consulting engineers to submit more detailed designs in the early stages of the work, which in turn would free up City staff time and allow them to deal with more projects at a time. |
| **Introduction** | | | | |
| **Scope and Use of the Design Criteria Manual**. | Not referenced in the current bylaw | To explicitly state when and where the Design Criteria Manual is applicable. | Underlines the fact that the Design Criteria Manual shall be applicable to all Works and Services within the City of Langley properties, statutory Right of Ways (SRW), and Subdivisions and Developments. | Clarifies its applicable areas. |
| **Section 1.0 - General Information** | | | | |
| **Rim Elevation for Two Lift Pavement System**<br>Section 1.6 | Not referenced in the current bylaw | There has always been safety and infrastructure maintenance issues when top lift of asphalt is scheduled to be poured later. | Depending on the road classification and the expected delay time, different temporary construction methods have been required. | Minimizes potential damages to manhole rims during the time top lift asphalt has not been poured yet. |
| **Deep Excavation/Shoring Plan Requirements**<br>Section 1.7 | Not referenced in the current bylaw | To protect City’s underground utilities when underground anchors are installed | The City of Langley’s requirements with respect to shotcrete removal and soil anchors on public property is outlined. Where in the opinion of the City Engineer, the proposed excavation poses a risk to public property, a Security Deposit will be required prior to an excavation permit to cover all costs associated with the repair of damage to City infrastructure. | Protects City’s underground utilities when Contractors install anchors to support shotcretes/excavations. |

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| **Section 3.0 - Water Distribution System** | | | | |
| **Demand** (Design Flow)<br>Section 3.3 | W2 Domestic Demands | Average Daily Demand (ADD), Maximum Daily Demand (MDD), and Peak Hour Demand (PHD) in the current bylaw are too high and do not reflect recent standards or actual consumption rates. | ADD and MDD Demands was reduced almost by half and PHD to approximately 2/3 of what the current bylaw is requiring. The updated numbers are commonly used these days among consulting engineering firms to design water distribution systems and are in line with 2014 MMCD Design Guidelines. | • The new criteria are based on the collected data in the Lower Mainland and reflect water usages in metered cities.<br>• The new standard would avoid unnecessary construction costs due to oversized watermain designs. |
| **Hydraulic Modeling - Water**<br>Section 3.8 | Section 8.0, Water Distribution System, Page 9 | The current bylaw states that water modeling may be necessary to determine if the existing water in the area is adequate for fire flow. It does not elaborate under what circumstances this requirement will be mandatory and what the model parameters shall be. | The Design Criteria Manual set minimum developable number of units beyond which water modeling would be required to assess system capacity. It also sets minimum acceptable fire flows for water modeling for better design and consistencies in water modeling analyses. | • Better clarifications and consistencies in water modeling analyses.<br>• Saves staff time to negotiate with consulting engineers, as modeling standards are explicitly set. |
| **Dead Ends (Watermains)**<br>Section 3.9.7 | Hydraulic Networks, W5, Page 45 | There are no clear provisions in the current bylaw to address water quality at dead end watermains. | • Requires a blow-off or fire hydrant installed at the end of the system for flushing.<br>• May also allow for an auto flushing device, when in the City Engineer's opinion noise is not a concern. | Improves water quality |
| **Reservoir and Pump Capacity Analyses**<br>Section 3.9.10 | Not referenced in the current bylaw | The current bylaw does not address design requirements when the water distribution system is fed by the City's reservoir. | The Design Criteria Manual requires City-owned water pump station capacity analysis for all developments that are fed by the City's reservoir. | The new pump capacity analysis requirement would let the City know whether the City's current water pump needs an upgrade and if so, it would give the opportunity to fund the upgrade cost through Developers' direct financial contributions and/or DCC bylaw updates. |

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| **Section 4.0 - Rainwater Collection & Disposal** | | | | |
| **Integrated Rainwater Management Plan (IRWMP)** Section 4.3 | Not referenced in the current bylaw | To state explicitly what Developers and their consulting engineers need to address in their design submission to make sure all the City's important IRWMP goals are met. | The Design Criteria Manual elaborates subjects (e.g., storage facilities, lot grading, erosion and sediment control, etc.) that need to be address in the design drawings and requires a 2-phase IRWMP submissions that include preliminary and detailed design. | Clearly states the expected subjects to be addressed in design submissions, which should allow for a faster development application approval. |
| **Drainage Systems, Climate Change-adjusted IDF Curves** Section 4.4.5 | Not referenced in the current bylaw | Climatic change is expected to alter the magnitude and frequency of peak flows over the service life of drainage infrastructures, resulting in more frequent flooding of storm sewers and surcharging of culverts. | Engineers, planners, and policy makers use IDF curves in municipal planning and infrastructure design. Following Metro Vancouver's year 2050 Moderate Climate Change model, the City will require a 20% increase be applied to all the City's Rainfall IDF (Intensity, Duration, Frequency) curve readings. | Increases in future rainfall due to climate change in combination with sea level rise could cause flooding in storm sewer networks. Adaptation measures are key to ensuring the levels of service of drainage infrastructure are maintained. |
| **Hydraulic Modeling** Section 4.9 | Not referenced in the current bylaw | Hydraulic modeling is a more accurate approach to sizing rainwater infrastructures such as storage detentions, culverts, pipes, etc. | This Section sets standards for rainfall hyetographs for different rainfall durations from 1 hour to 24 hours. It also provides different land use imperviousness numbers for modeling. | Sets drainage modeling parameters that are acceptable to the City and as such, saves staff/consultants' time, and accelerate development review process. |
| **Section 5.0 - Integrated Rainwater Best Management Practices** | | | | |
| **Integrated Rainwater Management, Best Management Practices - Amended Soil** Section 5.3.1 | Not referenced in the current bylaw | Metro Vancouver stormwater source control guidelines involve limiting the volume, frequency and magnitude of runoff delivered to downstream conveyance infrastructure, streams and receiving bodies. Reducing runoff generation at or near its source limits stormwater impacts to stream health by minimizing the hydrologic alteration generally associated with urban development. It also minimizes the | When the native soil is not porous enough to allow for rainfall runoff infiltrating into ground at a an acceptable rate to infiltrate runoffs due to extreme rainfall events (required Soil specifications are given in Section 5.3 of the Design Manual), a minimum of 450 mm of amended soil shall be imported and placed over the entire footprint of single-family residential subdivision applications that are not covered by the building and driveway areas, on all boulevards, planted medians, and other vegetated areas within municipal road allowances, and on dedicated park areas. | • Amended soils have higher infiltration rates, which would result in having less runoff leaving the area and hence, requiring smaller storm pipes to carry runoffs to downstream. The increase in runoff infiltration would also result in a healthier ecosystem, less irrigation water, herbicides, and fertilizers requirements.<br>• The estimated cost of this new requirement to the single-family subdivision applications is expected to be less than $3,000 per subdivided lot. |

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| | | need for the City to upsize its storm sewer infrastructures. | Note:<br>Subdivision applications at the South Langley (located roughly at the south of Grade Crescent) may not require importing Amended Soils, as their native soil is already porous and meet the Design Criteria Manual's requirement to promote rainfall runoff infiltration. Single family subdivisions outside of South Langley however, may need to import Amended Soils. | |
| **Integrated Rainwater Management** (**Downspouts & Pervious Pavement**)<br>Sections 5.3.1 | D8.9, Roof Drainage, Page 96 | The current bylaw allows roof drainage (downspout) to discharge directly into the City's storm sewer system. This practice is not in line with Metro Vancouver's "Low Impact Drainage" system concept that encourages designs that mimic the natural water cycle in nature. | The Design Criteria Manual requires all downspouts at single-family residential subdivision applications to discharge to a splash pad and then drain its unobstructed flows to the Amended Soil to increase infiltration to the ground and reduce runoffs to downstream storm sewer system/creeks.<br>The Design Criteria Manual also requires developers to use pervious pavements for their paved areas, parking lots, etc. to increase onsite infiltration. | • Same as above.<br>• The estimated cost of this new requirement to the single-family subdivision applications is expected to be about $23,500 per subdivided lot. |
| **Integrated Rainwater Management (Water Quality Performance Target)**<br>Section 5.4 | Not referenced in the current bylaw | Rainwater best management practices (**BMPs**) are incorporated to minimize the impact of development on the environment and the downstream conveyance system. This approach is in line with the latest standards in this business. | The Design Criteria Manual requires consulting engineers to employ design techniques that would prevent point source pollution and reduce non-point source pollution. This shall be achieved by draining rainfall runoffs to where permeable surfaces (such as boulevards, etc.) within the property are to infiltrate runoffs and/or reduce their flows to downstream storm sewer system.<br>It also prohibits commercial and industrial lands to discharge substances harmful to environment by including oil/gasoline interceptors upstream of their onsite detention storage facilities. | • Redirecting runoff and increasing onsite infiltration will recharge groundwater and hence attenuate runoff peak rate in downstream creeks. Less flows to downstream creeks will in turn help the City to alleviate creek flooding problems during major storms.<br>• Increasing groundwater recharge is also consistent with the Department of Fisheries and Ocean (DFO) guidelines and recommendations. |

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| **Erosion and Sediment Control (ESC)**<br>Section 5.5 | References to ESC are scattered throughout the current bylaw | The current bylaw, though requires a sediment/siltation control plan be submitted in all construction projects, it lacks the necessary details on inspection/reporting procedure to verify its implementation during construction. | The Design Criteria Manual:<br>1. Connects the requirements in this Section to the City's Watercourse Protection Bylaw No. 3152;<br>2. Requires contractors to hire a Qualified Environmental Professional (QEP) to verify ESC implementation as planned and immediately report ESC deficiencies, and maintenance requirements to the City; and<br>3. Provides Supplementary Specification Design Drawings to elaborate sediment control plan requirements. | Provides a mechanism that guarantees correct implementation of the proposed ESC plan during construction by requiring weekly and daily "deficiency report" submissions during dry and wet weather by a QEP. |
| **Rainwater Management - Peak Flow Control Performance Target**<br>Section 5.6 & 5.6.7 | D6.1, Release Rates, Page 81 | The current bylaw requires post development runoff rates due to 2-year, 5-year, and 100-year rainfall evens be equal to their pre-development rates. The current bylaw also allows a 100-year flow to be discharged without flow control, "where justified on the basis of a risk analysis or in consideration of adequate downstream capacities for major runoff".<br>By setting a 100-year post-development runoff rate to its pre-development rate, the current bylaw is accepting the "status quo" with regards to managing flooding due to extreme rainfall events. Moreover, these requirements are not in line with DFO's guidelines to protect downstream creeks. | The proposed peak flow control requires a 5-year post-development rainfall runoff to match its pre-development rate when discharging to the City's storm sewer pipes.<br>To control major flows due to rainfall events of up a 100-year rainfall, the Design Criteria Manual allows overland flows when it can safely be conveyed to downstream and if its Hydraulic Grade Line (HGL) is at least 0.35 m below the Minimum Building Elevation (MBE) of all the buildings along its route. If this cannot be met, then the Design Criteria Manual has set two separate requirements to control a 100-year rainfall runoff; one for single family subdivision applications and another one for other types of development applications such as multifamily, townhouses, commercials, etc. More details are provided in the following sections of this table.<br><br>For all development and/or subdivision applications, the Design Criteria Manual also includes an additional flow restriction, based on the DFO's guidelines in that, | Prevents flooding at the downstream infrastructures and protects the environment better. |

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| | | | the post-development runoff release rates from detention facilities at areas that would likely impact fish and fish habitat (i.e., area within 500 m of a creek) shall match 6-month, 2-year, and 5-year pre-development rates. | |
| **Rainwater Management - Peak Flow Control Performance Target - Single Family Subdivisions**<br>Section 5.6.5 | D6.8 Onsite Detention Storage, Page 84 | The current bylaw does not allow for onsite detention tanks in single family lots. Instead, it allows for onsite exfiltration trenches (perforated pipe), drywells, rockpits, and overland flows via properties' frontage roads to convey excess runoffs to downstream creeks. No specific design requirements are provided in the current Bylaw. This has often caused misunderstanding regarding the minimum design requirements among consulting engineers, which has resulted in under-designing the rainwater runoff collection system in many single-family subdivision applications in the past. | Following Metro Vancouver's "Region-wide Baseline for On-site Stormwater Management, February 2017" guidelines, the required approach in the Design Criteria Manual requires rainwater BMPs that promotes onsite infiltration of runoffs. The amended soil, pervious driveway and disconnected downspout will also collectively capture rainfall runoffs on site and infiltrate them to recharge groundwater.<br>Depending on whether a lot is already serviced by City's storm sewer pipes, a single-family residential subdivision application may also be required to install either an "onsite infiltration facility" or a "storage manhole" to capture and control the rest of the runoffs due to extreme rainfall events.<br><br>For all areas with an existing storm sewer pipe connection, peak flow control at single family subdivisions shall depend on a one-meter-deep onsite storage manhole. The storage manhole is to collect onsite excess rainfall runoffs and discharge them to the City's downstream storm sewer pipes at a 5-year pre-development rate.<br>For all areas without an existing storm sewer pipe connection, an onsite infiltration facility will be required to capture the excess runoffs (that were not already | • Better onsite infiltration of rainfall runoffs and reducing the frequency of runoffs leaving the site due to extreme rainfall events.<br>• The estimated cost of a storage manhole per subdivided lot is expected to be between $4,000 (for smaller lots with 360 $m^2$ area) to $8,000 (for larger lots with areas up to 600 $m^2$).<br>• The estimated cost of an onsite infiltration facility is expected to be between $5,000 to $10,000, which is lower than the cost of a typical rockpit (i.e., from $15,000 to $20,000). |

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| | | | captured and absorbed by the amended soil and pervious driveway) and infiltrate them to the ground. The proposed infiltration facility is a low maintenance system that is pre-manufactured and works more efficiently than the traditional rockpits. | |
| **Rainwater Management - Peak Flow Control Performance Target – All Types of Developments (e.g., Multi-family, Commercials, Industrial, etc., Excluding Single Family Subdivisions)**<br>Section 5.6.7 | D6.6 (Detention Storage), D6.7 (Retention Storage) & D6.8 (Onsite Detention Storage)<br>Pages 83 to 85 | The current bylaw allows for dry and wet ponds, parking lot storage, drywells, and perforated pipes. It also allows the designers to review "all other types of onsite detention systems" with the Engineering Department prior to detailed design.<br>The criteria set in the current bylaw is not specific and as such, more detailed design guidelines were required to expedite development applications and design review processes. | Similar to the current bylaw, the Design Criteria Manual requires an underground detention tank and/or public wet pond to capture a 100-year rainfall runoff and release it at a 5-year pre-development runoff rate to the City's downstream storm pipes. The Design Criteria Manual however, provides design requirement details to size these facilities. | • Clarifies the requirement for controlling and releasing major flows due to a 100-year rainfall event. It will also ensure detention facilities are functioning as per designed to prevent frequent overflows during heavy storms and flooding downstream.<br>• The estimated cost of having an underground detention tank to a typical multi-family development application with 64 units is expected to be about $175,000. This cost is usually much less than the available alternative way of controlling a 100-year rainfall runoff, which would require reconfiguring and reconstructing City roads for preparing a safe overland flow route.<br>• A public wet pond is only expected for City-owned projects, as the cost of the required land for building a wet pond is beyond the affordability range for most developers. |
| **Operating and Maintenance (O&M) Manual**<br>Section 5.6.12 | Not referenced in the current bylaw | The lack of proper onsite (within the property) detention O&M would result in sedimentation and siltation in detention facilities, which would cause sending more flows to City-owned storm pipes and causing downstream flooding. | To ensure that the designed detention storage facility will be operated and maintained properly by the current and future Owners, an O&M manual is required for all detention facilities. The manual shall be prepared by the Owner/Developer's Consulting Engineer and be kept onsite for reference and required maintenance actions. | Prevents flooding at the downstream storm pipes. |

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| **South Langley Integrated Rainwater Management**<br>Section 5.7 | D7.13, Rockpit/Drywell, Page 90 | Approximately three quarter of the parcels at the south of Grade Crescent and 50 Avenue area, are not connected to a City-owned storm sewer conveyance system. This means the conventional stormwater management method of using an onsite underground tank is not applicable at these parcels. The stormwater collection systems in these parcels are instead solely based on onsite Infiltration.<br>The current bylaw does not elaborate a practical approach to design rockpits and/or drywells in this area to control or manage a 100-year rainfall event.<br>This has caused inconsistent design requirements and confusions among consulting engineers in the past on what the City requires and how they can fit a large rockpits in a small single-family residential lot. | An integrated rainwater management system has been introduced for South Langley to capture and infiltrate a 100-year, 24-hour rainfall event. This system consists of:<br>1- An off-site Bioswales to capture and infiltrate street runoff; and<br>2- A prefabricated onsite Infiltration gallery to capture and infiltrate runoffs due to a 100-year rainfall event at subdivided lots. The prefabricated infiltration gallery is lightweight and as such, inexpensive to truck and construct. | The proposed system in the Design Criteria Manual is designed to deal with major storms of up to 100-year frequency and safeguards houses in this part of the City. |
| **Section 6.0 – Sanitary Sewer System** | | | | |
| **Pre-Design Requirements**<br>Section 6.2.1 | S14, Page 104 | The current bylaw, though discouraging pumping onsite sanitary flows, it does not provide any solution on what needs to be done if pumping is the only feasible option due to onsite grade limitation. | The Design Criteria Manual requires the Owner's consulting engineer to demonstrate having a privately-owned sanitary pump to discharge onsite sanitary flows to the City's system is the only feasible solution. When and if the City approves it, then the Owner would need to prepare and register a restrictive covenant on the Land Title and before signing a Servicing Agreement with the City that shall indemnify the City from any future damage claims originated from the | • Requires Owner's consulting engineer to do their due diligent to design a gravity based sanitary sewer system.<br>• Indemnifies the City from any legal damage claims as a result of private pump not functioning as designed. |

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| | | | current or the future owners of the land and/or third parties due to system malfunctioning. | |
| **Pre-Design Requirements** Section 6.2.1 | Not referenced in the current bylaw | The current bylaw does not elaborate the required scope of work for analyzing sanitary sewer system capacity. | The Design Criteria Manual requires the sanitary sewer system capacity be analyzed under OCP land-use scenario to find out whether the sanitary sewer system would be deficient as a result of the addition of a new development in the City. Depending on the size of the development application, it may also require sanitary sewer modeling for system capacity analysis. | Identifies long term effect of the addition of a new development on the City's sanitary sewer system capacity and would require the Developer to pay their cost share to upgrade sanitary pipes, when applicable. |
| **Design Flows (including Infiltration & Inflows)** Section 6.3 | S2.1, Page 99 | The average daily flow for different land-use parcels is quite high in the current bylaw. This would potentially result in unnecessary pipe upgrade requirements that are costly to the City and/or developers. The proposed changes reflect wastewater generation per capita more accurately. | Average daily flow reduced from 350 to 300 liter/person/day.<br>Infiltration & Inflow changed from 8,640 to 11,200 liter/ha/day. This number is recommended by Metro Vancouver and is used in most municipalities in the lower mainland. | A more reasonable Design standard that matches system operations in Langley and hence avoids unnecessary pipe upgrades. |
| **Hydraulic Modeling – Sanitary Sewer** Section 6.5 | Not referenced in the current bylaw | Hydraulic modeling is a more accurate approach to sizing sanitary sewer infrastructures. | The Design Criteria Manual sets a minimum number of units beyond which sanitary modeling would be required to assess system capacity. It also sets detailed level of service criteria for sanitary pipes and pump stations to assess whether upgrades are required. | • Better clarifications and consistencies in sanitary modeling analyses.<br>• Saves staff time to negotiate with consulting engineers, as modeling standards are explicitly set. |
| **Sewer Locations/Corridors** Section 6.10 | Not referenced in the current bylaw | New constructions too close to the City's sanitary sewer pipes may undermine its structural stability. | When the City's sanitary pipe is within a Statutory Right of Way (SRW) on private property, a geotechnical report is needed to recommend whether a restrictive covenant is needed to restrict the depth and location of any proposed footings, buildings, etc. in the vicinity of the sanitary line is required. | Makes sure onsite constructions in the future will not harm the City's sanitary pipes. |

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| **Section 7.0 – Standards for Design of Sanitary Pump Stations** | | | | |
| **Standards for Design of Sanitary Pump Stations**<br>Section 7.8 | Not referenced in the current bylaw | Given the important role of pump stations in sanitary sewer system conveyance, detailed design standards would ensure the system will function properly and at the minimum cost during its lifetime. | Standards for pump design, its motor, wet well, electrical control system, etc. are outlined in the Design Criteria Manual. One of the important requirements is having twin forcemains, with one forcemain serving as a standby unit. | • Setting design standards for pump stations would ensure consistencies in designing/upgrading pump stations in Langley.<br>• Requiring twin forcemains would allow switching from the operating forcemain to the standby forcemain to allow for cleaning and inspecting the other forcemain. This would significantly reduce their life-cycle O&M cost without service disruption.<br>• Avoids costly forcemain structural failure, due to making frequent pipe condition assessment possible. |
| **Section 8.0 - Roadways** | | | | |
| **Existing Utilities vs. Roadway Classifications**<br>Section 8.2.3 | Not referenced in the current bylaw | Flexibility to the design was needed to match reality of each project. | Added language “When existing utilities do not match the typical cross-section off-sets, or will not permit the use of a typical cross-section, the Consulting Engineer shall confirm an alternate design with the Engineer at a pre-design meeting…” adds flexibility to the design and cross section of the roadways. | More flexibility on road and sidewalk cross sections would lead to a less expensive and faster development application approval process. |
| **Typical Design Speed**<br>Section 8.4.1 | R5, Page 58 | The current bylaw allows for design speed of 60 km/hour. Although design speed does not necessarily have to match the posted speed, it facilitates speeding problems along collector roads in the City. | The Design speed for collector roads in the Design Criteria Manual has been reduced to 50 km/hour. | It is well known that most people drive at the speed the road was designed for and not necessarily at the posted speed limit. Lowering design speed (not the posted speed) would alleviate speeding and hence, provide safer roads. |

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| **Corner Cuts**<br>Section 8.5.5 | Not referenced in the current bylaw | Due to lack of having any minimum requirements, the corners were design sub-optimally in the past, which have caused difficulties for waste collection companies to turn onto roads/lanes for garbage pickups. | A minimum 4 m by 4 m corner cut is required in all unsignalized intersections. Where traffic signal or roundabout installation is expected, the minimum requirement will change to a minimum of 5 m by 5 m. | • Setting minimum acceptable standards provide sufficient space to accommodate the required curb return radius for garbage and fire truck accessibility.<br>• Better and faster response to fire.<br>• Easier access for pedestrians with wheelchairs. |
| **Traffic Circles**<br>Section 8.5.9 | Not referenced in the current bylaw | To add an additional traffic calming measure in local/residential roads that are widely used in Europe and some other municipalities in the Lower Mainland, but missing in the City. | Traffic circles are a form of intersection control and traffic calming device that is applicable to local roads only and while reducing speed, will not negatively impact emergency vehicles response time. | Better traffic calming devices in local roads without causing noise problem and increasing emergency vehicle response time. |
| **Access Location, Management, and Spacing**<br>Section 8.5.11 | Not referenced in the current bylaw | Adding too many close access driveways to roads will increase conflicts with pedestrians, cyclists, compromise transit operations, and decrease safe vehicle operations. | Minimum distance between two driveways and between driveway and road intersections are introduced. | Provides efficient and safe movement for all travel modes. |
| **New Road Construction**<br>Section 8.9 | R11, Page 61 | Road structural design shall be adequate to provide 20 years of life cycle for arterial roads and 30 years for collector and local/residential roads | Based on City of Langley's past experience minimum thickness of sub-base, granular base, and asphalt changed to extend pavement life cycle. | Expected to reduce the life cycle construction cost of roads. |
| **Sidewalks**<br>Section 8.11.4 and<br>Section 15.0 (Supplementary Drawings) | R18.3, Page 65 | The current bylaw requires 1.5 m sidewalk for residential and collector roads and 1.8 m sidewalk for other types of roads, including arterial, industrial, and commercial roads. The Design Criteria Manual is now requiring at least 1.8 m sidewalk for all road classifications.<br>Provisions were also needed for: | 1. Depending on a project location or land use, and its proximity to Skytrain stations, the City Engineer may require wider *Sidewalks*.<br>2. Sidewalks that are installed between the month of October to March are usually damaged due to winter road salt splashes. The Design Criteria Manual now requires applying "curing and sealing" compounds that are inexpensive, yet capable of protecting fresh concrete surface. | • Ease of Skytrain use.<br>• Longer sidewalk life cycle. |

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| | | 1. Requiring additional sidewalk width in anticipation of the Skytrain station in Langley; and<br>2. Protecting fresh concrete surface of sidewalks. | | |
| **Driveways**<br>Section 8.12 | R13, Page 62 | More detailed information on second driveway access eligibility was called for. | 1. The Design Criteria Manual allows for one driveway access.<br>2. The Design Criteria Manual outlines explicitly conditions under which the second driveway access may be permitted. | • This would minimize conflict with road traffic flows and provide a safer road for everyone.<br>• It also accelerates development review process, as the requirements for second driveway are clearly explained. |
| **Walkways, Ramps and Guards**<br>Section 8.16 | R18.2, R18.4, R18.5, Pages 65, 66, & 67 | To update the standards to meet BC Building Code requirements and MMCD guidelines. | 1. Requirements now match BC Building Code and MMCD's.<br>2. Requires ornamental street lighting at walkway exit and entrance and where horizontal curve is greater than $30^{o}$. | Enhances pedestrian safety. |
| **Trails**<br>Section 8.17 | Not referenced in the current bylaw. | Standards for designing trails, as a mode of transportation, is required | Trail design standards in the Design Criteria Manual is based on the guidelines outlined in the City's "Trail Classification and Maintenance Standard" document. | Brings in a stand-alone document and makes it a part of the Design Criteria Manual to have a "one stop shop" approach to designing all modes of transportation in the City. |
| **Traffic Impact Assessment (TIA)**<br>Section 8.19 | R17, Page 28 | The current bylaw, though outlines the conditions that trigger a need for TIA study, it lacks a defined TIA scope of work acceptable to the City. This matter has often caused ambiguity among Consulting Engineers, which required time consuming discussions between the development communities, their Consulting Engineers, and the City. | Depending on the size and complexity of development applications, the Design Criteria Manual defines three levels of TIA scope of works. This approach is now in line with other municipalities such as the City of North Vancouver, New Westminster, etc. | It accelerates development review process, as the requirements for TIA are clearly explained. |

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| **Bicycle Routes**<br>Section 8.21 | Not referenced in the current bylaw. | To promote a multimodal transportation system that supports bicycle lanes. | Sets minimum requirements for designing separated, buffered, or Multi Use Path (MUP) bicycle lanes based on Transportation Association of Canada TAC and Ministry of Transportation & Infrastructure (MOTI) design guidelines. | Safer bicycle lanes. |
| **Traffic Calming**<br>Section 8.22 | Not referenced in the current bylaw. | To provide technical details required to implement the City's Traffic Calming Policy No. CO-47 | The Design Criteria Manual introduces a set of acceptable traffic calming measures based on TAC guidelines. | Provides consistencies in the process to implement traffic calming measures. |
| **Pavement Cut/Restoration**<br>Section 8.23 | Not referenced in the current bylaw.<br>Currently included in the City's Pavement Cut Policy No. CO-57 | The Design Criteria Manual sets standards for pavement and hence it makes sense to also include requirements for cutting and restoring it. | Sets the minimum requirements to restore pavement when it is cut during construction activities.<br>The Permanent Pavement Reinstatement will be completed by the City and not developers' contractors for better quality control and assurance. | Brings in a stand-alone policy and makes it a part of the Design Criteria Manual to have a "one stop shop" approach to address road related construction standards in the City. This approach is similar to what the City of Surrey is currently practicing. |
| **Section 9.0 - Streetlighting** | | | | |
| **Streetlighting**<br>Sections 9.1 to 9.17 | Section L, page 117. | The current requirements in the City's bylaw are outdated and based on Gold edition of MMCD that was published 22 years ago. The City has also been using its "Street Light Supplemental Standards" that set additional updates to the bylaw requirements. These supplemental standards were set by a former employee in the City and had not been reviewed officially for quality check.<br>Updates were needed to set lighting standards for roads, lanes, and walkways that complies with ANSI/IES RP-8 National Standard Practices. | This section of the Design Criteria Manual provides minimum requirements for street lighting levels, LED lighting design criteria, etc. | • Lighting specifications will be based on the provincial and national regulations and designed by a professional engineer who specializes in Lighting.<br>• Brings in a stand-alone document and makes it a part of the Design Criteria Manual to have a "one stop shop" approach to address lighting standards in the City. |

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| **Street Light Pole Specifications, - Downtown Area Post Top Light Poles** Section 9.7 | Not referenced in the current bylaw. | To set the decorative lighting requirements standards for the downtown area based on the City's 2010 Downtown Langley Master Plan. | Provides design instructions for downtown Langley post top light poles. | Summarizes in the requirement outlined in the City's downtown master plan and makes it a part of the Design Criteria Manual to have a "one stop shop" approach to address lighting standards in the City. |
| **Section 10.0 – Traffic Signals** | | | | |
| **Traffic Signals** Sections 10.1 to 10.39 | Not referenced in the current bylaw. | • To standardized traffic signal design in the City.<br>• Currently included in the City's "Traffic Signal Standards" document that has not been officially approved. | The Design Criteria Manual uses the most current edition of BC Ministry of Transportation and Infrastructure Electrical and Traffic Engineering Manual, Institute of Transportation Engineers (ITE), MMCD, TAC, etc. | • The design requirements require conformity with the traffic signal details used throughout the province.<br>• Brings in a stand-alone document and makes it a part of the Design Criteria Manual to have a "one stop shop" approach to address traffic signal standards in the City. |
| **Pedestrian and Cyclist Pushbuttons** Section 10.28 | Not referenced in the current bylaw. | To standardized pedestrian and cyclist pushbuttons. | Accessible Pedestrian Signal pushbuttons (APS) are now required at all crossings. APS' provide auditory ques for visually impaired pedestrians.<br>Cyclist buttons will be installed in all bike routes so that cyclists can easily activate pedestrian signals. | • Makes crossing intersections safer for visual impaired pedestrians.<br>• Cyclist pushbutton ppromotes bicycling by providing more facilities for cyclists. |
| **Section 11.0 - Specifications & Standards for Landscaping** | | | | |
| **Specifications and Standards for Landscaping** Sections 11.1 to 11.17 | Section T, page 122 | The current requirements in the City's bylaw are outdated and based on Gold edition of MMCD (that was published 22 years ago), and the City's "Street Tree Program" dated 1999. | • Requirements are updated and are now in line with most municipalities in the Lower Mainland.<br>• Includes provisions for planting of shrubs and ground covers, and not just trees | • Clearly states the expected procedures around planting requirements, plant selection and approval of planted areas.<br>• Plant list has been updated for drought tolerant & native species. |
| **Noxious Weed Control** Section 11.15 | Not referenced in the current bylaw. | To control the spread of noxious weeds in the City. | To make sure imported growing media or structural soils being used on City property are free of Noxious Weeds.<br>If any Noxious Weed species become evident during | Lowers the Operations and Maintenance cost for the City. |

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| | | | the landscape Maintenance Period, they shall be eliminated at the earliest opportunity at the Developer's cost and by their Landscape Architect or arborist. | |
| **Accepted Street Trees & Not Accepted Plants**<br>Section 11, Appendix A: | Not referenced in the current bylaw. | There is no list of the acceptable trees in the City that Landscape Architects can use for their landscaping designs and they often contact City staff for direction. | Provides a comprehensive list of acceptable small, medium, and large trees, as well as shrubs. This list is carefully selected to match our neighbouring municipalities' tree species standards to provide a uniformity when crossing from one municipality to the other. | It accelerates development review process, as the requirements for landscaping and acceptable trees and shrubs are clearly explained. |
| **Section 12.0 – Construction Drawing Specifications** | | | | |
| **Required Drawings**<br>Sections 12.2 | Section G3, page 46 | To set detailed requirements on items that need to be addressed in each design drawing sheet. | • Items that need to be included in each drawing sheet are not detailed.<br>• Plan and profile drawings of each utility (road, water, sanitary, and storm sewer systems) shall be shown in separate design sheets.<br>• Drawing sheets are now have unique sheet numbers for each utility. | Having separate sheets for different utilities and using unique sheet number for each utility would make it easier and faster for City staff to find related sheets when reviewing design drawings. |
| **Section 13.0 - Standard Forms** | | | | |
| **Standard Forms** | Not referenced in the current bylaw. | • Provides the list of City's online forms and 5 additional forms for Consulting Engineers, Developers, and Contractors to fill out before starting their works in the City.<br>• Adding the Form F-2 (Pavement Cut) to the Design Criteria Manual would effectively replace policy WAT.19 | Lists all the forms related to engineering works and services for easy referencing. | Consolidation of the forms required for construction and design of works and services at the City in the Design Criteria Manual will reduce the chances of surprises and/or will improve communications between staff and consulting engineers, contractors, and developers. |

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| **Section 14.0 – Environmental Control of Treated Water** | | | | |
| **Environmental Control of Treated Water** | Not referenced in the current bylaw. | To protect environment and fish habitat, chlorinated water should not enter into storm sewer, drainage channels and creeks. | Requires any flow of chlorinated water escaping from a watermain be directed into a sanitary sewer manhole and if not possible, it should be neutralized before entering into the City's storm sewer system and/or any fish bearing body of water. | Protects environment by requiring to test the released water for the presence of chlorine or chloramine at 10 to 15-minute intervals. |
| **Section 15.0 - Supplementary Specifications, Standards & Detail Drawings** | | | | |
| **Supplementary Specifications, MMCD Platinum Edition**, Section15.3 | Schedule D, Supplementary Specifications, page 149 | Similar to other municipalities in the Lower Mainland, the City needs to lists its design and construction method preferences and deviations to the MMCD requirements. These deviations in each municipality are set to reflect City's staff expertise & experience, and infrastructure and maintenance needs better. The supplemental specifications to MMCD in the current bylaw are based on the Gold edition of MMCD. As such, City's supplementary specifications needed to be updated. | Although the Design Criteria Manual is MMCD based, it includes some supplemental specifications (i.e., deviations from MMCD guidelines) to either reflect the City's experience and preferences in designing or maintaining certain infrastructures, or to raise the minimum standard. | The Design Criteria Manual has made all the efforts necessary to keep the supplemental specifications as few as possible to alleviate contractor's surprise factor (as they are fully familiar with MMCD guidelines). By doing so, the unknown risks to contractors will be minimized, which in turn would result in lowering contract costs to the City. |
| **Supplementary Specifications, Standards & Detail Drawings**, Section 15.4 | Schedule C, Standard Drawings, page 125 | The current bylaw drawings are mainly based on the design standards that are somewhat outdated. | • The drawings are now a complete set that covers all the areas that MMCD refers to, and their sequential order in the Design Criteria Manual mimics MMCD's.<br>• The proposed new drawings are based on the widely accepted and recent engineering and construction methods.<br>• The road section drawings now include bike lanes or MUPs as an additional mode of transportation. | They say a picture is worth a thousand words. By cleaning up the standard design drawings we are improving communication within the development community in a huge way. |