MEMORANDUM

TO:	James Hartnett, Town Administrator, Town of Westport
FROM:	Jeff Ling, Kleinfelder
DATE:	June 28, 2022
SUBJECT:	Street Design and Parking Lot Guidelines Analysis; Green Infrastructure Feasibility Analysis
CC:	Mark Thompson, Adria Fichter, Kleinfelder

The Town of Westport administers a Stormwater Management Program in conformance with requirements of the Massachusetts General Permit for stormwater discharges from Small Municipal Separate Storm Sewer Systems (MS4). As an element of that program, the Town is required to evaluate current street design and parking lot guidelines (and other local requirements) that affect the creation of impervious cover. Per the language of the permit (Section 2.3.6(b)):

> *"This assessment shall be used to provide information to allow the permittee to determine if changes to design standards for streets and parking lots can be made to support low impact design options. If the assessment indicates that changes can be made, the assessment shall include recommendations and proposed schedules to incorporate policies and standards into relevant documents and procedures to minimize impervious cover attributable to parking areas and street designs."*

Upon completion of the evaluation, the Town must implement the recommendations in accordance with the town-set schedules contained in the assessment. The results of the evaluation, therefore, effectively become a condition of the permit. As such, it is critical that all jurisdictional concerns within the Town with responsibility or interest in the design, operation, maintenance, or ownership of the assets be in agreement regarding meeting the objectives of the evaluation within the broader context of the Town's vision and Master Planning goals.

Similarly, under Section 2.3.6(c), the Town is required to assess existing regulations to determine the feasibility of making certain practices allowable when appropriate site conditions exist. These practices specifically include:

- Green roofs

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- Infiltration practices such as rain gardens, porous and pervious pavements, and other designs to manage stormwater using landscaping and structured or augmented soils; and
- Water harvesting devices such as rain barrels and cisterns, and the use of stormwater for non-potable uses.

The purpose of the analysis is to determine if the practices are allowed, and if not, what are the circumstances that hinder use of the practices. Thereafter, the Town is to determine what changes in regulations, if any are appropriate to optimize use of such practices, and as with the street/parking analysis, establish recommendations and implementation schedule to put these practices into common usage.

It should be noted that the Town of Westport was audited by the EPA in May of 2021 (the end of permit year 3), and with regards to Post Construction Minimum Control Measures the audit team observed no deficiencies at the time of the audit. However, as the audit was done at the end of permit year 3, this permit requirement (Section 2.3.6(b)) was not yet part of their analysis as it is a year 4 requirement. Therefore, the Town is still responsible for assessing regulations and setting a schedule for improvements to those regulations if there are hinderances and standards in relevant documents. The Town is responsible for reporting on the status of both of these assessments including any planned or completed changes to local regulations and guidelines in annual reports which are a required submittal to US EPA and the Massachusetts Department of Environmental Protection. This Technical Memorandum documents the approach, results and recommendations of the required evaluations.

Methodology

To complete the analyses, the following documents were reviewed:

- *Town of Westport Planning Board Rules and Regulations Governing the Subdivision of Land, updated in 2017 (referred to as 'Subdivision'')*
- *Town of Westport Zoning By-Laws (referred to as 'Zoning')*
- *Town of Westport Master Plan 2016 Master Plan & 2021 Update (referred to as 'Master Plan')*
- *Town of Westport By-Laws and Regulations (referred to as 'By-Laws')*
- *Rules and Regulations of the Westport Planning Board Site Plan Approval (referred to as 'Site Plan Approval')*
- *Stormwater Quality and Quantity Control Regulation (referred to as 'SW Reg.')*

The grading matrix attached to this Technical Memorandum (Attachment 1) is adapted from the Massachusetts Audubon-created Analysis Tool for Local Land Use Regulations found on the US EPA's website (Stormwater Tools in New England | US EPA). The

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purpose of such an approach is to allow the Town to compare current policies and regulations to examples of “best practices” that optimize potential for improved stormwater management outcomes (primarily as it relates to water quality, but with respect to water quantity in some instances.) Ultimately, the Town must determine if improved outcomes can be practically and effectively achieved through modification of existing Town policies and regulations to encourage.

The analysis was completed by reviewing relevant sections of the cited reference documents to determine where, or if, pertinent criteria currently exist in the Town’s regulations as a basis for comparison to recommended best practices. Existing practices that were determined to be less than optimum based on the matrix tool definitions were flagged for further consideration. If the Town had no current regulation addressing the specific practice or design intent (e.g. allowing use of rain barrels) this was noted. Note that the lack of language specifically allowing a particular best practice was not deemed to constitute a challenge or hindrance to use of such practices, given that the Town requires the use of low impact design practices “unless infeasible” in accordance with MS4 Permit requirements. Consequently, any proposed stormwater best management practice designed to achieve water quality improvement would be evaluated on a case-by-case basis with respect to constructability and technical considerations regarding site suitability.

Analysis and Recommendations

The analysis is summarized in the tables below and is itemized by design factor. Relevant regulations and guidelines are cited as necessary. Regulations or guidelines are judged on the criteria found in the Attachment 1 on whether they are sufficient in carrying out the intent of the MS4 permit. Current regulations, hinderances, and recommendations are discussed for each design factor.

Street Design and Parking Lot Guidelines: Summary of Findings

Street design and parking lot standards and guidelines are detailed within the Zoning By-Laws and Subdivision Regulations. References to relevant by-laws and regulations are made for each design element or practice. If standards and guidelines conflict with other regulation or later section in the same document, the more stringent stormwater regulations override in both Zoning and Subdivision documents as stated in the Town’s Site Plan Approval Rules and Regulation 20.11:

> *“The stormwater management system shall adhere to the standards of the Westport Rules and Regulations Governing the Subdivision of Land, the Dept. of Environmental Protection's Stormwater Management Policy, EPA NPDES Phase IT, and any additional by-law or regulation of the Town. Where regulations conflict, the more stringent regulation shall apply. Runoff shall be recharged*

onsite by being diverted to vegetated surfaces for infiltration, or through the use of detention ponds. Drainage provisions shall be designed to remove oil, grease and sediment prior to discharge to the ground. Best management practices such as bio-retention areas, rain gardens, filter strips, swales and constructed buffers are encouraged."

In general, Westport rules and regulations require and encourage development to incorporate low impact design (LID) and encourage infiltration and pervious area as opposed to closed systems. Similar language encouraging LID and sustainable stormwater management practices "to the maximum extent practicable" are present in:

- Subdivisions Section V. Subsections C & D;
- Stormwater Reg. 2, 5, & 7;
- And Zoning 8.2.5

The following summary of findings will discuss in greater detail relevant street and parking lot design guidelines that are related to decreasing impervious area or incorporating low impact designs (LID) for each design factor.

Factor	Regulation Source(s)	Sufficient? (Y/N)	Discussion
Street Location	*Subdivision IV.A.1, IV.A.3, IV.D, V.C.1.c; Zoning 8.1.5.c, 8.2.5*	Y	*Current design standards:* – New subdivisions must be designed for safe vehicular travel, livability, and amenity of the subdivision – Sets minimum grade for different street types (collector, residential, rural) – Subdivision creation should give due regards to natural and cultural features such as large trees, scenic points, etc. – The site shall be graded to the maximum extent practicable so that surface water shall be directed to the stormwater management system – For Open Space Residential Development (OSRD), streets will be designed and located to maintain and preserve natural topography and minimize cut and fill – Zoning design standards require applicants to submit plans that illustrate how their design considers reducing impervious surfaces wherever possible through alternative street design for sites or sites part of a development that impact 40,000 square feet or more *Possible improvements:* – None, Zoning already encourages the minimization of impervious area
Road Width	*Subdivision App Table A, App A-2; Zoning 8.2.5.i.*	Y	*Current design standards:* – Minimum Road widths are set to 30’ for Collector and 22’ residential streets, rural road widths are set to 18’ – Subdivision specifies bituminous concrete is required for collector and residential streets, rural can be gravel or bituminous concrete – Zoning design standards require applicants to submit plans that illustrate how their design considers reduce impervious surfaces wherever possible through alternative street design for sites or sites part of a development that impact 40,000 square feet or more *Possible Improvements:* – Explicitly allow shoulders to use permeable materials or pavers in design standards

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Factor	Regulation Source	Sufficient? (Y/N)	Discussion
ROW Width	*Subdivision V.B.1, App Table A, V.C.d.; Zoning 8.2.5.I.1.*	Y	*Current design standards:* – Minimum ROW widths are set to 50' for Collector and residential streets, and Rural ROWs are set to 40' – ROW shall be cleared of all stumps, brush, roots, boulders, like material and all trees not intended for preservation – Loam and other yielding material should be excavated as necessary soil conservation By-Laws – Swales shall be vegetated unless the Planning Board determines conditions to be unsuitable – Zoning design standards require applicants to submit plans that illustrate how their design reduce impervious surfaces wherever possible through alternative street design for sites or sites part of a development that impact 40,000 square feet or more *Possible Improvements:* – None, the ROW clearing requirement will be overridden if vegetated roadside swales are chosen to be drainage
Access Option	*Zoning 8.5.1, 8.5.2.A, 8.6.3.B; Subdivision Form CD*	Y	*Current design standards:* – No special permit required for common drives if included in subdivision design – Common drives (excluding OSRD) is limited to 3 lots in any zoning district, with a 500' length maximum – Can grant reduced frontage special permit if project reduce the number of individual driveways and shall wherever and whenever feasible use a common driveway *Possible Improvements:* – None, the standards allow for common drives to reduce impervious area.
Dead Ends/Cul-de-sacs	*Subdivision IV.A.5.*	Y	*Current design standards:* – *Shall not be permitted unless it is shown there is no way to connect to an existing road* – *All circular turnarounds shall have unpaved permeable center island, Board can request preservation of native trees with grading and seeding* – *Limits length to 1200 ft* – *Requires lengths over 150 ft to have tear drop or circular, any less can use hammerhead turnaround* – *Limits ROW radii to 70' for residential, collector or commercial shall have 90' ROW radius* – *Bioretention is generally encouraged*

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			Possible Improvements: – None, current regulations set limit on dead-ends, requires vegetated island and allows hammerhead turnarounds

Factor	Regulation Source	Sufficient?(Y/N)	Discussion
Curbing	*Subdivision App. A-2; Zoning 8.2.5.i, 8.6.1*	Y	*Current design standards:* – Collector and residential streets show 1' cape cod berm in typ. Cross section – The applicant shall reduction of impervious surfaces wherever possible through alternative street design, including omission of curbs and use of narrower streets, the use of porous pavement, shared driveways and parking areas for sites or sites part of a development that impact 40,000 square feet or more *Possible Improvements:* – None, site plan requirements for consideration of open drainage make preference for open drainage and omission of curbing clear
Roadside Swales	*Subdivsion V.C.1.d, V.D.4, V.D.11, App A-2; Zoning 8.1.10.e, 8.2.5.k*	Y	*Current design standards:* – Control of stormwater runoff by intermittent water courses such as swales shall be vegetated – The design of stormwater management system will conform to LID to the maximum extent possible – Swales location shall be located not less than 10' from nearest property line separating the subdivision from the properties – In OSRD, drainage the planning board shall encourage the use of "soft" stormwater management techniques such as vegetated swales – Site plans submitted to the zoning board shall consider to the maximum extent possible grass swales among roads for sites or sites part of a development that impact 40,000 square feet or more *Possible Improvements:* – None, regulations already allow roadside swales and in certain cases encourages them to be considered over closed drainage (in Site Plan Approval)

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Utilities	*Subdivision V.G.1, App Table A.g., App A-2*	Y	*Current design standards:* – Electric, telephone, gas, cable television, and all other services, except transformers and junction boxes shall be placed underground in all subdivisions. – No offset widths specified, water mains shall be located in the grass plot between street pavement and sidewalk easterly and southerly side – Gas main to be located in the grass plot westerly or northerly sides *Possible Improvements:* – None, as roadside LID is allowed, exception to these utilities location should be allowed for roadside LID implementation

Factor	**Regulation Source**	**Sufficient?(Y/N)**	**Discussion**
Sidewalks	*Subdivision V.B.7, App Table ; Zoning 6.5.11.B, 8.2.5.i.*	Y	*Current design standards:* – 4’ typ. wide side walk shown in cross section with 4-5’ green strip between sidewalk and road sloped 3/8” per foot towards the grassy strip – When more than 20 lots in subdivision, sidewalk shall be constructed on at least one side of the road – Sidewalk material should follow current specification of the planning board – Noquochoke Overlay District – shall provide sidewalks along at least one side of all streets unless waived by the board for equivalent pathways – Within Zoning for land disturbances over 40,000 square feet of land, the applicant shall to the maximum extent feasible LID standards including the use of porous pavement or permeable pavers *Possible Improvements:* – None, current law allows for flexibility in material and only one side is required in low density areas
Parking	*Zoning 8.3.1.*	Y	*Current design standards:* – Sets specific minimums on projected use – Residential parking requirements are set to 1.5 spaces per residential unit – Does not offer maximum limits *Possible Improvements:* – Set maximum limits for parking or encourage development to use minimum number

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Commercial Parking	*Zoning 8.3.1; 9.3.7*	Y	*Current design standards:* – Minimum Parking spot size is 180 square feet – Joint use of off-street parking shall not be less than the sum of the requirements of the various users in the schedule – Drive-throughs Developments that provide cross drive access between properties may be allowed 10% reduction. If applicant can demonstrate peak parking demand allows, SPGA can reduce required parking space by 20% *Possible Improvements:* – Decrease parking stall sizes to 9'x18' (162 square feet) – Allow reduction of required shared parking for all developments if peak demand allows or if other transit is available

Factor	Regulation Source	Sufficient?(Y/N)	Discussion
LID in Parking Areas	*Zoning 8.2.5.g, 8.7.5.8; Site Plan Approval 20.6.1.d, 20.11*	Y	*Current design standards:* – LID emphasizes simple, nonstructural, innovative, low-cost methods including open drainage systems, parking areas and/or roadways – Site plan approval requires applicant to create plans that divide large expanses of parking with landscaping and shade trees – Parking areas more than 10 spaces shall contain 150 square feet of planted area per 1000 square feet or no less than 40 square feet of soil/permeable surface area per tree in a bermed island per 10 spaces *Possible improvements:* – None, in case of bioretention in parking lot islands, assuming exceptions will be made for island curbing
Easy Siting of LID features (bioretention, swales, etc.)	*Zoning 8.2.5.l; Site Plan Approval 20.11; SW Reg. 7.4*	Y	*Current design standards:* – Site plans submitted to the zoning board shall consider to the maximum extent possible grass swales among roads for sites or sites part of a development that impact 40,000 square feet or more – Swales location shall be located not less than 10' from nearest property line separating the subdivision from the properties – Allowed in open space

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			– No developmental incentives for incorporating LID *Possible improvements:* – Offer developers incentives for incorporating LID
Permeable Paving	*Zoning 8.2.5.l; SW Reg. 7.4*	Y	*Current Design Standards:* – Site plans submitted to the zoning board shall consider to the maximum extent possible reduction of impervious surfaces wherever possible using porous pavement or permeable pavers, for sites or sites part of a development that impact 40,000 square feet or more – Permeable paving mentioned in LID credits *Possible Improvements:* – None, Permeable paving is allowed for most applications

Factor	**Regulation Source**	**Sufficient?(Y/N)**	**Discussion**
Permeable Paving	*Zoning 8.2.5.l; SW Reg. 7.4*	Y	*Current Design Standards:* – Site plans submitted to the zoning board shall consider to the maximum extent possible reduction of impervious surfaces wherever possible using porous pavement or permeable pavers, for sites or sites part of a development that impact 40,000 square feet or more – Permeable paving mentioned in LID credits *Possible Improvements:* – None, permeable paving is allowed for most applications

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Stormwater Management O&M Plan	*Zoning 8.2.5.g; Site Plan Approval 20.11*	Y	*Current Design Standards:* – Site plans for sites that disturb 40,000 square feet or greater shall submit site plans that show to the maximum extent possible stormwater management components that provide filtration, treatment and infiltration such as vegetated areas that slow down runoff; maximizing infiltration and reducing contact with paved surfaces – Site plans approval require stormwater management plans *Possible Improvements:* – None, O&M required and open drainage is preferred

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Green Infrastructure Analysis: Summary of Findings

This analysis will focus on whether current building codes, design standards and guidelines allow the following types of Green Infrastructure:

- Green roofs,
- Infiltration Practices (rain gardens, curb extensions, planter gardens, porous and pervious pavement, etc.),
- And Water Harvesting Devices (rain barrels, cisterns, use of stormwater for non-potable uses)

Generally, like street design and parking lot guidelines, the Town allows and encourages LID features to the maximum extent practicable. Zoning Section 8.2.5. Low impact design requires applicants to include considerations of incorporating various LID features including GI such as green roofs, green infiltration/bioretention, and rain harvesting.

Green Infrastructure	Regulation Source	Currently Allowable? (Y/N)	Discussion
Green Roofs	*Zoning 8.2.5.I.4; SW Reg. 7.4; Site Plan Approval 20.15.d*	Y	*What Allows Practice?* – Zoning design standards require applicants to submit plans that illustrate how their design considers use of roof gardens – SW Reg. offers LID credits and runoff numbers for example of LID including green roofs – Site Plan Review encourages green roofs or roof-mounted solar panels *What Hinders Practice?* – Nothing hinders practice.
Infiltration (rain gardens, Curb Extensions, Planter Gardens, porous and Pervious Pavement, etc.)	*Zoning 8.2.5.I.; SW Reg. 7.4; Site Plan Approval 20.11*	Y	*What Allows Practice?* – Zoning design standards require applicants to submit plans that illustrate how their design considers use of rain gardens, bioretention area, permeable pavers or pavement, natural vegetation and buffer areas – SW Reg. offers LID credits and runoff numbers as example of bioretention facilities – *Site plan encourages stormwater to be infiltrated on-site through vegetated areas if possible* *What Hinders Practice?* – Nothing hinders practice.
Water Harvesting (Rain Barrels, Cisterns, use of Stormwater for non-potable Uses)	*Zoning 8.2.5.I.7*	Y	*What Allows Practice?* – Zoning design standards require applicants to submit plans that illustrate how their design considers use of rain barrels, cisterns or other water harvesting devices *What Hinders Practice?* – Nothing hinders practice.

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Proposed Implementation Schedule

The Town of Westport does not need to implement any changes to allow and encourage LID for streets and parking lots. However, there are minor improvements that can be made to existing regulations when they are updated next. Typically, the Town, evaluates and updates their regulations every 10 years. In the interim, the Town should include these improvements as considerations when reviewing and approving projects, and where allowable, strive to approve projects that meet this criterion.

Design Factor	Improvements Discussion
Road Width	Explicitly allow road shoulders to use permeable pavement or pavers within subdivision approval process or have design template/guidelines within Subdivision regulations.
Access Options	Approve lower minimum road width and ROW width within new Subdivision creation.
Commercial Parking	Lower minimum parking stall size to 9'x18' in Zoning regulations. Allow reduction of number of parking spaces based on access to other forms of transport and shared lots with different peak demand times.
Easy Siting of LID	Offer developers incentives for incorporating LID features in their design.

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