

**EXPLANATION OF, AND RATIONALE FOR,  
2014 WARRANT ZONING WARRANT ARTICLES RELATING TO  
IMPERVIOUS SURFACES AND LOT COVERAGE**

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(Revision C)

I. Introduction

We support these warrant articles as they more fully implement the Master Plan, help to preserve the semi-rural character of Rye, and help to protect the Town's watershed. Impervious surfaces have become an increasing problem in Rye, as property owners are increasingly trying to maximize what may be built on small parcels. This ordinance applies the same types of restrictions that already exist in the General Residence District to the Business District, which closely abuts residential districts throughout Rye.

Two warrant articles have been submitted this year for the consideration of the voters at the March election. Unlike other warrant articles, these relate to zoning and may not be amended at the February 1 Deliberative Session. Both warrant articles relate to impervious coverage, and the second one relates to lot coverage as well as impervious coverage.

II. First warrant article: tightening up the definitions of "impervious" and "impermeable"

The first warrant article modifies the definition of "impervious coverage" to match the State definition contained in RSA 483-B:4, VII-b, the Shoreland Water Quality Protection Act.

The current zoning ordinance appears to use the words "impervious" and "impermeable" interchangeably, even though the latter is not defined in the Rye Zoning Ordinance. The amendment makes it clear that the two, as used in the ordinance, are to be treated synonymously. Under the proposed new definition, requirements would be tighter such that gravel driveways and parking areas will require additional demonstration that the design is pervious, or that other areas of the lot can effectively absorb and infiltrate water when considering the lot coverage, grading and drainage design.

Under the current definition, the assumption is that gravel is pervious. However, once packed down by repeated traffic, the ability of gravel driveways to infiltrate water is greatly diminished unless they are specifically designed to avoid this. Without a definition that requires that designs demonstrate that gravel and crushed stone is truly pervious, such materials may be substituted for asphalt without limit as to the percentage of lot coverage. This fulfils the letter, but not the spirit, of the ordinance. Such substitution has been particularly prevalent near the coast of Rye, where drainage problems are increasing and the extensive man-made, non-landscaped, surfaces contribute to overcrowding of lots and the loss of the semi-rural character.

The first warrant article will not prevent property owners from using gravel (or other materials classified as impervious in the definition) to satisfy the requirement that a portion of their lots be uncovered, as long as it is demonstrated that the design will

effectively absorb or infiltrate water. Strategies that might mitigate storm water runoff include appropriate storm water management studies followed by plans designed to effectively absorb or infiltrate water. Tactics that may be used include grading, rain gardens, drip beds, rain barrels, suitable layers of stone of varying size to build driveways, walkways and parking, and gravel filled chambers and ditches.

III. Second warrant article: Limiting impervious coverage in the Business District

The second warrant article relates to the Business District. Rye has four zoning districts applicable to private land owners: Single Residence, General Residence, Commercial, and Business. None of Rye is zoned Industrial, although the ordinance refers to such a District. The Recreation and Conservation Districts are generally applicable only to Town-owned lands.

The General Residence district includes much of the land near the beach. Smaller lots and more lot coverage are permitted in that district than in the Single Residence District. While there are exceptions, the Commercial District consists of Route 1 from Dow Ln. to the Portsmouth City Line about a mile north of there. The Business District consists largely of small pockets of land scattered throughout Rye that are currently used by, or located near, small commercial entities, including motels and tourist cabins.

Virtually all of the land in Rye zoned Business is located adjacent to, or a short distance from, land zoned Single or General Residence. Much of it is thus located within, or a short distance from, areas that are essential to providing a sense of the “semi-rural” character of Rye, one of the essential goals and visions of the Master Plan.<sup>1</sup>

The Commercial District is less restrictive as to permitted uses, and permits greater lot coverage than in the Business District.

Selected dimensional requirements are summarized below:

| <u>District</u>   | <u>Minimum frontage</u> | <u>Minimum front setback</u> | <u>Minimum lot size</u> | <u>Maximum lot coverage (structures)</u> | <u>Maximum lot coverage (impermeable area)</u> |
|-------------------|-------------------------|------------------------------|-------------------------|--|--|
| Single Residence  | 200 ft.                 | 40 ft.                       | 66,000 sq. ft.          | 15%                                      | Not spec.                                      |
| General Residence | 150 ft.                 | 30 ft.                       | 44,000 sq. ft.          | 30%                                      | 30%  |
| Business          | Not spec.               | 30 ft.                       | 44,000 sq. ft.          | 40%                                      | Not spec.                                      |
| Commercial        | 150 ft.                 | 30 ft.                       | 44,000 sq. ft.          | 75%                                      | Not spec.                                      |

Table 1: Selected Current Rye Zoning Provisions

In general, the requirements become less stringent as one proceeds down the above table from the Single Residence to the Commercial District. In the General Residence District the 30% maximum coverage applies to paved driveways and other impermeable areas as well as structures. The other districts do not have that limitation. The proposed

<sup>1</sup> 2009 Master Plan p. 3-2. December 2013 Draft Master Plan p. 1-2.

second warrant article would extend the inclusion of impermeable areas in the lot coverage calculation to the Business District as well.

#### IV. Reasons for limiting impervious coverage: water quality, flooding and semi-rural character

As indicated in more detail below, limiting impervious coverage is important for two reasons: First, impervious areas inhibit the ability of the land to absorb water. What cannot be absorbed by the land often runs off onto other properties and town streets, and ultimately into streams, rivers, lakes and the ocean. Worsening problems in this regard could trigger EPA requirements for a more extensive municipal storm water system. Runoff also creates a water quality issue, particularly with parking areas and other surfaces traveled by vehicular traffic, where oil and other contaminants are often picked up and swept into nearby bodies of water. It also creates flooding problems.

The last study of impervious coverage for the Town, conducted in 2005, indicated 12.7 percent impervious coverage, an increase from 2000. According to the Master Plan, any coverage over 10 percent is considered to have a deleterious effect on water quality (see quotes below).

Second, the greater the lot coverage, whether by structures or other impervious areas, the less the land is left in its natural state. Imparting a sense of the semi-rural character of Rye depends on maintaining as much of the land as possible in its natural state.

In addition to limiting the impervious coverage in the Business District, the proposed second warrant article excludes from the lot area (i.e. the denominator of the coverage calculation) any land that is submerged at high tide or is wetlands. These lands are already saturated and not able to absorb additional water, and may not generally be built upon, hence it makes sense to exclude them from the calculation.

Furthermore, the inability to build on wetlands or tidal shorelands in some cases could result in the upland portions of parcels becoming almost entirely covered in buildings and impervious areas as owners attempt to maximize what is built on the parcel beyond its ability reasonably to bear such construction. This increased density can also affect the ability of septic systems to function correctly over the long-term, a particular issue in areas of Rye that lack sewer services.

#### V. The proposed ordinance changes fill gaps and correct anomalies in the existing one

The extension of the coverage limitation to impervious areas also resolves an anomalous situation. All uses permitted in the General Residence District are also permitted in the Business District. However, in the former, impervious areas are included in the lot coverage calculation, in the latter they are not. Thus, an owner of a house on a small lot in the former district would find his driveway and parking areas limited, while one in the latter district would not. This anomaly is underscored by the facts that many of the lots in the Business District have houses on them, and much of the Business District is located adjacent to residentially zoned areas.

It is fair to ask why a similar limitation on impervious areas should not be applied to the Single Residence and Commercial Districts as well.

As can be seen from Table 1 above, the Single Residence district's requirements are such that impervious coverage would rarely, if ever, approach the 25-30 percent coverage that would constitute a serious problem. Even at the minimum lot size, 9900 sq. ft. of coverage would be needed before even the 15 percent coverage limit would be exceeded. To reach such coverage would require a single story house of extraordinary size, together with parking and driveway areas for extraordinary numbers of guests. While there are grandfathered Single Family Residence District lots less than the minimum size, most truly small lots are located in the General Residence District. A medium-sized house on a 10,000 sq. ft. lot in that district can quickly approach 30 percent coverage once patios, driveways and parking areas are considered.

The Commercial District already permits 75 percent lot coverage with buildings, so bringing impervious areas within the limit would at most affect the remaining 25 percent. Furthermore, the Commercial District is largely located near Route 1, which is a major artery with heavy commercial development along its entire length in New Hampshire, including the mile or so that is in Rye. The population of Rye and surrounding towns needs places to shop and do business, justifying the loss of semi-rural character in this area.

#### VI. Most current uses are consistent with the proposed change in the Business District.

As indicated below, this change will not greatly affect property owners in the Business District other than those who might want significantly to expand the intensity of use. Out of 38 parcels identified in that district, only three are presently above the 40 percent, based on tax card information on the lot size, building footprint and paved parking area sizes. The greatest of those is at 52 percent, and the average is only 10 percent<sup>2</sup>.

Furthermore, much of the Business District is already in the Coastal Overlay District, and would appear to be governed by section 304.5 of the Zoning Ordinance, which limits impervious coverage to 30%.

Section 507 of the Zoning Ordinance constitutes a limit on impervious coverage in all Districts, to the extent that an excess of such coverage resulting from construction would cause an increase in runoff onto other properties, water courses, or the town's storm drainage system. These warrant articles support that section's objective.

However, the requirements of section 507 do not fully address the problem of impervious coverage. The standard of that section is necessarily subjective, as acknowledged by section 507.4, which permits the Building Inspector to require a "detailed drainage and grading plan" when there is a question as to whether there would be runoff beyond the owner's property. The proposed warrant articles, if both are enacted, establish a specific, easily verified, limit for impervious coverage. Because the definition is worded with an exception, the burden is on the property owner to demonstrate that the design will cause a gravel or crushed stone surface to be pervious.

Similarly, sections 604 and 611.1 of the Land Development Regulations ("LDR") impose similar requirements on site plans and subdivision plans as that in section 507.

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<sup>2</sup> Wetlands and submerged areas are not necessarily deducted from the lot area for purposes of the tax card. Thus, for a limited number of these parcels, a calculation of the coverage based on the proposed ordinance might yield a greater percentage.

The proposed ordinance supports those objectives of the LDR as well. It does so, however, in an objective rather than a subjective way based on an easily verified lot coverage calculation.

An additional reason for not relying solely on site plan review is that such review only applies to nonresidential and multi-family uses. See N.H. Rev. Stat. Ann. (“RSA”) 674:43, I and section 101 of the LDR. Since site review is based on use rather than the district in which the property is located, the site plan review process does not apply to single-family residential construction in the Business District, and, as indicated below, many of the parcels in that district contain houses, not businesses.

Ironically, there is no limit on asphalt parking areas in the Business District, as there is in the General Residence District, and no ability of the Planning Board to review single-family construction. A large parking area associated with a single-family residence in the General Residence District that would be prohibited by section 204.3(E) of the Zoning Ordinance would be permitted on a lot in the Business District next door. Section 507 would come into play only if the construction affected other lots, water courses, or the town’s storm drainage system.

VII. Text of first warrant article

Shall the town amend Appendix A Definitions of the Rye Zoning Ordinance for “Impervious Coverage” by adopting the definition for “Impervious Surface” of RSA 483-B:4.VII-b?

(Note: Deleted language struck through. New language ***emboldened and italicized***):  
***IMPERVIOUS COVERAGE, IMPERVIOUS SURFACE, IMPERMEABLE SURFACE, IMPERMEABLE AREA: Means any modified surface, area, or coverage that cannot effectively absorb or infiltrate water. Examples of such surfaces, areas, and coverage include, but are not limited to, roofs, and unless designed to effectively absorb or infiltrate water, decks, patios, and paved, gravel, or crushed stone driveways, parking areas, and walkways. (RSA 483-B:4. VII-b.)***

~~IMPERVIOUS COVERAGE: The addition of pavement, cement, stone or other ground cover, including buildings and structures that prevents water from flowing through to subsoil layers. (Adopted 3/11/08)~~

VIII. Text of second warrant article

Are you in favor of the adoption of this amendment to the Rye Zoning Ordinance as follows?

Amend §210.3(E) relative to the allowed building area in the Business District as follows (Note: Deleted language struck through. New language ***emboldened and italicized***):

No more than forty percent (40%) of the area of any lot shall be occupied by buildings. ***Driveways, parking lots, unwalled covered areas, barns, sheds and other impervious areas shall not be included in the ground floor area, but their additional area, together***

*with the total area of all buildings on the lot, shall occupy no more than forty percent (40%) of the lot. For purposes of this calculation, any area which is submerged at mean high tide, or which is wetlands, shall be subtracted from the lot area.* The building requirements for dwellings in this district shall be the same as specified for dwellings in a General Residence District. No principal building other than a dwelling on a lot in this district shall have less than 1,200 square feet of ground floor area, excepting tourist camps.

IX. Current Business District properties

| <b>Map</b> | <b>Lot</b> | <b>Address</b> | <b>Description</b> | <b>Acres</b> | <b>Coverage</b> |
|------------|------------|----------------|--------------------|--------------|-----------------|
| 5          | 50         | 2281 Ocean     | Dunes, etc.        | 2.71         | 40%             |
| 5.3        | 39         | 2197 Ocean     | House              | 0.11         | 30%             |
| 5.3        | 40         | 2193 Ocean     | House              | 0.34         | 9%              |
| 5.3        | 41         | 2187 Ocean     | Multiple houses    | 0.92         | 4%              |
| 5.3        | 42         | 2175 Ocean     | Apt. 4 unit        | 0.58         | 9%              |
| 8          | 73PR3      | 23 Locke Rd.   | Motels             | 1.36         | 3%              |
| 8          | 73PR4      | 23 Locke Rd.   | Vacant land        | 1.3          | 0%              |
| 8          | 56         | 2000 Ocean     | Rye shores condo   | ?            |                 |
| 9.2        | 22         | Harbor Rd.     | Fmr. Saunders      | 0.48         | 0%              |
| 9.2        | 22.1       | Harbor Rd.     | Fmr. Saunders      | 0.48         | 0%              |
| 11         | 9          | 925 Washington | House              | 0.51         | 28%             |
| 11         | 10         | 919 Washington | Hungry Horse       | 0.58         | 30%             |
| 11         | 11         | 915 Washington | House              | 0.37         | 6%              |
| 12         | 48         | 562 Washington | Two fam.           | 0.34         | 7%              |
| 12         | 49         | 566 Washington | Ofc. Bldg          | 0.24         | 52%             |
| 13         | 12         | 1677 Ocean     | Rays               | 1.26         | 5%              |
| 13         | 36         | 1535 Ocean     | Houses             | 0.76         | 5%              |
| 13         | 39         | 1505 Ocean     | House              | 0.37         | 12%             |
| 17.3       | 6          | 1215 Ocean     | Atlantic Winds     | 2.3          | 3%              |
| 17.3       | 28         | 1205 Ocean     | Red Roof Mkt.      | 0.46         | 26%             |
| 17.3       | 1          | 1313 Ocean     | Houses now?        | 4.4          | 1%              |
| 17.4       | 37         | 1323 Ocean     | Peteys             | 1.2          | 22%             |
| 17.4       | 12         | 1399 Ocean     | House              | 0.52         | 9%              |
| 17.4       | 13         | 1381 Ocean     | Crown Colony       | 3.11         | 1%              |
| 19         | 62         | 377 Sagamore   | Two fam.           | 0.28         | 9%              |
| 19         | 63         | 365 Sagamore   | House/store        | 0.57         | 21%             |
| 20.2       | 143        | 925 Ocean      | House              | 0.19         | 11%             |
| 22         | 29         | 70 Sagamore    | Houses now?        | 0.34         | 8%              |
| 22         | 30         | 76 Sagamore    | House              | 0.34         | 6%              |
| 22         | 28         | 73 Sagamore    | House              | 0.39         | 7%              |
| 22         | 105        | 64 Sagamore    | Animal Hosp.       | 2.69         | 13%             |
| 23         | 5          | 735 Ocean      | Land               | 0.37         | 0%              |
| 23.1       | 28         | 741 Ocean      | Pebbles Motel      | 1.15         | 23%             |
| 23.1       | 29         | 824 Ocean      | Condos             | ?            |                 |
| 24         | 4          | 5 Pioneer      | Art Gallery        | 3.09         | 12%             |
| 24         | 6          | 33 Sagamore    | Fmr. Cabins        | 3.9          | 1%              |
| 24         | 7          | 14 Elwyn       | House              | 0.23         | 9%              |
| 24         | 5          | 60 Sagamore    | Rye Water          | 0.21         | 44%             |



water and recharge our aquifers. Impervious surfaces limit natural water cleansing and can potentially cause flooding.”<sup>3</sup>

“Our vision for land in the Coastal area is one of limited commercial development that utilizes the best practices of low impact development concepts. While we understand that growth will occur, our vision is for growth without over bulking of lots and with minimal increase in **impervious surfaces**.”<sup>4</sup>

“On the traditional Single Residence lots, the larger sizes of homes built in Rye in recent years have been more compatible with large lots. However, there have been concurrent **surface water drainage** management problems which has manifested in recent years and warrant review of density and coverage requirements.”<sup>5</sup>

As recognized by the Master Plan, and indeed by the Zoning Ordinance in its application of impervious surface requirements within the Aquifer Protection Overlay District, surface water, which may be contaminated by runoff from impervious surfaces, may also have an effect on groundwater. Rye depends on wells fed by groundwater to provide clean water to its residents.

“Although often thought of as distinct systems, groundwater and surface water, especially in coastal New Hampshire are closely linked. A lead in to a recent US Geological Society report states ‘As the Nation’s concerns over water resources and the environment increase, the importance of considering ground water and surface water as a single resource has become increasingly evident’. (Winter, et al., 1998). Groundwater will discharge to surface streams, wetlands and ponds and surface water often provides recharge to underlying groundwater. Therefore human activity can inadvertently affect both the quality and the quantity of both resources”<sup>6</sup>

“Regular updates to the Ordinance should be incorporated to keep it current with new understanding of impacts to groundwater.”<sup>7</sup>

“Water resources are plentiful and diverse in Rye, but are nevertheless prone to threats from a variety of sources. Water quality is threatened by pollution from point sources (pollution from an identifiable point of discharge) such as septic systems, or **run-off from parking lots** and from non-point sources (pollution from an unidentifiable point of discharge)

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<sup>3</sup> 2009 Master Plan p. 1-1 to 1-2, December 2013 Draft Master Plan p. 1-2.

<sup>4</sup> December 2013 Draft Master Plan p. 3-8.

<sup>5</sup> 2009 Master Plan p. 3-10. December 2013 Draft Master Plan p. 3-10.

<sup>6</sup> December 2013 Draft Master Plan p. 6-15.

<sup>7</sup> December 2013 Draft Master Plan p. 6-16.

such as atmospheric deposition of acid rain and mercury... (Flanagan et al., 1998)<sup>8</sup>

“... there has been a move away from the old storm water runoff retention pond and towards low intensity development which endeavors to slow storm water runoff and **return more of the runoff directly into the ground.**”<sup>9</sup>

The Master Plan has identified impervious surfaces as a threat to Rye, resulting in “Flooding [and] reduced suitability of land for water recharge” It recommends that Rye “[c]onduct a review of Rye’s ordinances and regulations based on Better Site Design checklist. Require on-site infiltration. Amend building codes to require drip beds, rain barrels and other **infiltration devices** for structures.”<sup>10</sup>

“**Impervious** surfaces impede the infiltration of water into the soil. Examples of impervious surfaces include roads, parking lots, buildings, concrete and severely compacted soils. Such surfaces are also sometimes referred to as **impermeable** (New Hampshire Estuaries Project, 2004).

Recently, scientists have reported that levels of **impervious** surface in excess of **ten percent** in a watershed can affect water quality.

‘When the percentage of impermeable surfaces in a watershed is ten percent or less, streams typically retain good water quality and stable channels. When the proportion is between ten to twenty-five percent, stream fed flows cause noticeable erosion (Perkins, 2004).’

‘More than twenty-five percent **impermeable** surface can lead to severe physical and ecological damage to streams in a watershed.’ (Perkins, 2004).”<sup>11</sup>

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<sup>8</sup> 2009 Master Plan p. 6-4. December 2013 Draft Master Plan p. 6-17.

<sup>9</sup> December 2013 Draft Master Plan p. 9-13.

<sup>10</sup> 2009 Master Plan p. 6-8 (except last sentence quoted). December 2013 Draft Master Plan p. 6-19.

<sup>11</sup> All four paragraphs are from 2009 Master Plan p. 6-7, December 2013 Draft Master Plan pp. 6-18 to 6-19.