Grand River Conservation Authority
Scoped Agricultural Policy Review for the Administration of Ontario Regulation 41/24 (Prohibited Activities, Exemptions and Permits Regulation)

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1.0 Introduction

The Grand River Conservation Authority (GRCA) manages water and other natural resources on behalf of 38 municipalities and close to one million residents of the Grand River watershed through the delivery of a range of programs and services. Under Ontario Regulation 686/21: Mandatory Programs and Services under the Conservation Authorities Act (CA Act), conservation authorities are responsible for, among other things, managing risks related to natural hazards, including preventing and mitigating those risks. As part of delivering this mandate, GRCA's Planning and Regulations Services Department is responsible for reviewing planning and development applications as:

- a regulatory agency under Section 28 of the Conservation Authorities Act
- a body with provincially delegated responsibilities acting on behalf of the province to ensure decisions under the Planning Act are consistent with the natural hazard policies of the Provincial Policy Statement and/or provincial plans, and
- a body commenting on risks related to natural hazards arising from a proposal under the Aggregate Resources Act, Drainage Act, Environmental Assessment Act, and/or Niagara Escarpment Planning and Development Act.

Focusing on GRCA's regulatory role, under Section 28 of the CA Act and Ontario Regulation 41/24 (the Regulation), GRCA regulates:

- development activities in or adjacent to watercourses, valleylands, wetlands, Lake Erie shoreline or an inland lake that may be affected by flooding, erosion or dynamic beach hazards, hazardous lands, including unstable soil and bedrock, as well as lands adjacent to these features,
- activities to straighten, change, divert or interfere in any way with the existing channel of a river, creek, stream, or watercourse, and
- activities to change or interfere in any way with a wetland.

Permits are required from GRCA prior to undertaking any development activities within regulated areas mentioned above, or activities to straighten, change, divert or interfere with a watercourse or to change or interfere with a wetland.

GRCA may issue a permit if the activity is not likely to affect the 1) control of flooding, 2) erosion, 3) dynamic beaches, or 4) unstable soil and bedrock and 5) when the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property.

GRCA's Board-approved "Policies for the Administration of Prohibited Activities, Exemptions and Permits Regulations Ontario Regulation 41/24[i]" outline the policies followed by the GRCA in making decisions regarding the outcome of all permit applications made under the Regulation pursuant to the CA Act. The applicant must demonstrate that these policies are met before permission may be granted. Use of the policy document ensures a consistent approach to the review of applications, staff recommendations and GRCA decisions related to the Regulation.

As a result of feedback received from staff, permit applicants and the public, the GRCA is undertaking a scoped review of GRCA's policies, specifically for agricultural structures in the riverine flooding hazard (commonly referred to as the floodplain). A key focus of the review is the current maximum size of farm buildings which is capped at 100 square metres/1,076 square feet. For context, 100 square metres/1,076 square feet is about the size of a 4-car garage.

2.0 Background

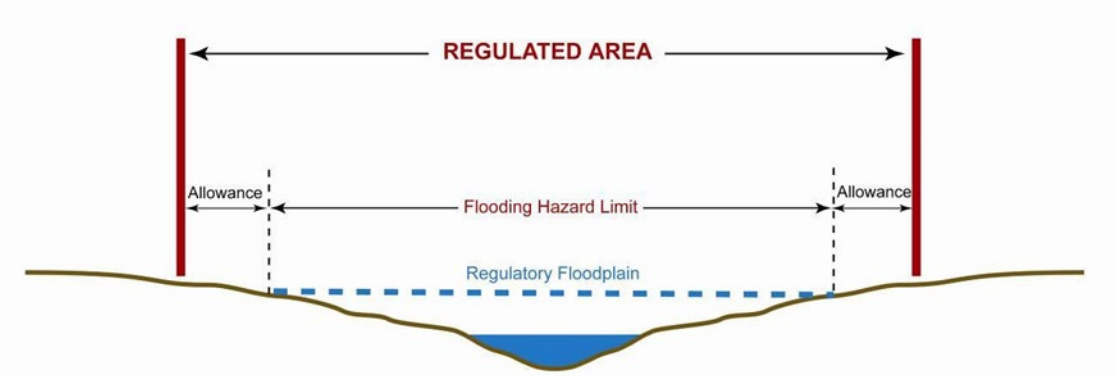
2.1 Riverine Flooding Hazard

This policy review is focused on agricultural (farm) buildings in the riverine flooding hazard (floodplain). In Ontario, either storm-centred events, flood frequency-based events, or observed events may be used to determine the extent of the Regulatory floodplain[ii].

In the Grand River watershed, as stipulated in Schedule 1 of Ontario Regulation 41/24, the applicable flood event standard is the greater of the Hurricane Hazel (1954) storm event or the 100-year frequency flood event. The flood produced through these calculations is called the Regulatory Flood, the limits of which define the Riverine Flooding Hazard (also referred to as the Regulatory Floodplain).

The regulated area associated with the riverine flooding hazard includes the Regulatory Floodplain plus an allowance of 15 metres from the outer limit of the hazard (Figure 1). The allowance is included to address limitations in base mapping scale and accuracy and enables consideration of activities directly adjacent to the Riverine Flooding Hazard, which could aggravate or increase the hazard risk.

Figure 1: Riverine Flooding Hazard – Regulated Area for One Zone Policy Areas



There may be more than one natural hazard present on a property. The Regulated Area represents the greatest extent of the combined hazards plus an allowance as set out in the Regulation. Areas regulated under Ontario Regulation 41/24 have been mapped according to the prescribed limits in the Regulation, however, it is important to be aware that the Regulation applies to all areas described by the Regulation, whether mapped or not.

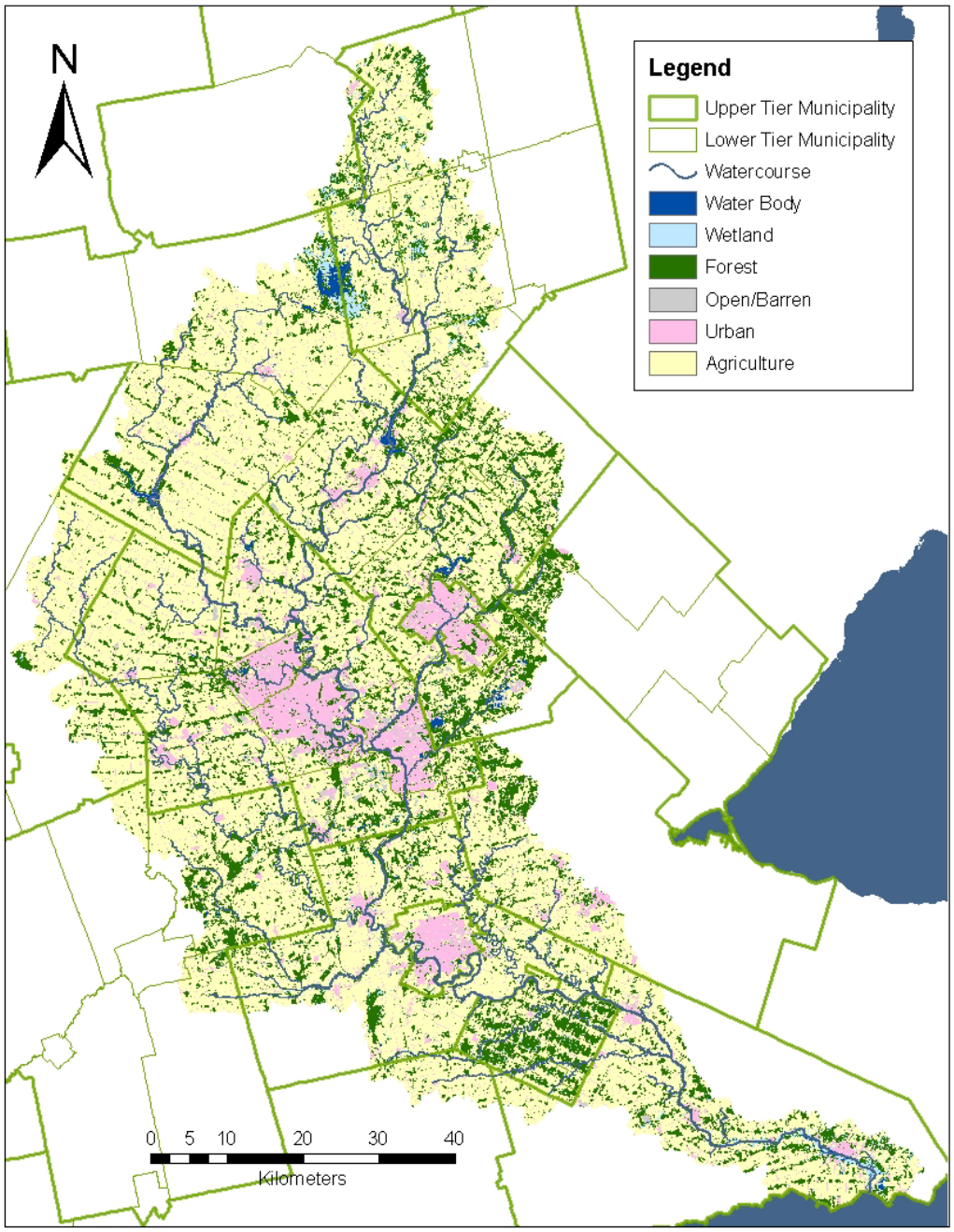
Within Ontario, there are three policy concepts for floodplain management: One-Zone, Two- Zone, and Special Policy Area (SPA). Most regulated areas within/adjacent to the Grand River and its tributaries associated with the Riverine Flooding Hazard are *One-Zone Policy Areas*. In a One-Zone Policy Area, the entire regulatory floodplain is considered the *floodway.* New development is generally prohibited, while development associated with existing uses is permitted if certain criteria are met, or the development must be located in the floodplain by its nature (i.e. flood and erosion protection works).

As this policy review focuses on agricultural structures within One-Zone Policy Areas, no further discussion is provided on Two-Zone or SPA policy areas in this paper.

2.2 Agricultural Uses in Ontario and the Grand River Watershed

Some of the most agriculturally productive lands in Ontario are in the Grand River watershed. As reported in GRCA's 2020 State of Water Resources report[iii], agriculture is the largest land use in the watershed as shown in Figure 2 (61% of the land is used for agricultural production using land cover data from 2017 and cross referenced with Agriculture and Agri-Food Canada). Most (82%) of the farmland in the watershed is used for crop production, specifically corn, followed by soybeans, hay and grains.

Figure 2: Land Cover in the Grand River watershed (Source[iv]: GRCA 2018)



The Ontario Federation of Agriculture (OFA) has developed statistical snapshots for Ontario's Census Divisions and Census Agricultural Areas, as of 2024. Across Ontario, there are nearly 50,000 farms covering 11.7 million acres of farmland, and the agri-food sector contributes more than $50 billion in GDP annually and employs over 871,000 people [v]. According to a report by Statistics Canada based on results from the 2016 and 2021 Census of Agriculture data[vi], there is a trend of fewer but larger farms, consistent from the previous census. The percentage of "small farms", meaning less than $100,000 in revenue, in Ontario was 61.4% in 2015 and 59.9% in 2020 and there was a rate of decline (-2.5%) of the number of farms between 2016-2021. However, during the same period the number of farms in Ontario with revenues of $1 million and over increased by 19.2%.

With the trend towards larger farm sizes, equipment needs are evolving to improve efficiencies and yields which results in the need for larger farm buildings.

3.0 Legislative, Regulatory and Policy Context

3.1 Conservation Authorities Act and Ontario Regulation 41/24

The CA Act was created in 1946 in response to erosion and drought concerns, recognizing these and other natural resource initiatives are best managed on a watershed basis.

In 1956, in response to the severe economic and human losses associated with Hurricane Hazel (1954), amendments to the CA Act first empowered conservation authorities to make Regulations to prohibit filling in floodplains. These Regulations were broadened in 1960 to prohibit or regulate the placing or dumping of fill in defined areas where in the opinion of the conservation authority, the control of flooding, pollution or the conservation of land may be affected. In 1968, amendments to the CA Act further extended the Regulations to prohibit or control construction and alteration to waterways, in addition to filling.

In 1998, the CA Act was changed as part of the *Red Tape Reduction Act* (Bill 25), to ensure that Regulations under the Act were consistent across the province and complementary to provincial policies. Significant revisions were made to Section 28, which led to the replacement of the "Fill, Construction and Alteration to Waterways" Regulation with the Content of Conservation Authority Regulations under Subsection 28 (1) of the CA Act, O. Reg. 97/04, which was followed by each Conservation Authorities' individual "Development, Interference with Wetlands and Alterations to Shorelines and Watercourses" Regulation. The Minister of Natural Resources approved Ontario Regulation 150/06 for the GRCA, consistent with Ontario Regulation 97/04, on May 4, 2006. Under this regulation, permission was required to develop in or within the allowance to river or stream valleys, wetlands, shorelines or hazardous lands; alter a river, creek, stream or watercourse; or interfere with a wetland. Permission could be granted if it could be demonstrated to the satisfaction of the CA that the proposed work would not affect the control of flooding, erosion, dynamic beaches or pollution or the conservation of land.

In subsequent years numerous amendments have been made to Section 28 of the CA Act and its associated Regulations. Ontario Regulation 686/21, among other provisions, requires that a conservation authority shall provide programs and services to ensure that the conservation authority satisfies its duties, functions and responsibilities to administer and enforce the provisions of Parts VI and VII of the Act and any regulations made under those Parts (O. Reg. 686/21, s. 16).

On April 1, 2024, a new Regulation came into force – Ontario Regulation 41/24 – Prohibited Activities, Exemptions and Permits Regulation. The Regulation, issued under the CA Act, replaced all 36 individual Conservation Authority regulations (including GRCA's Regulation 150/06) with one consistent

province-wide regulation. The “pollution” and “conservation of land” considerations for granting permission were removed from the Act and a new emphasis on public safety was added.

The current legislative structure includes requirements for the administration of the Regulation in both the CA Act and O. Reg. 41/24, therefore both pieces of legislation are to be considered to make decisions and develop policies and guidelines related to CA permit applications.[vii]

3.2 Provincial Direction

According to Ontario’s 2020 Flooding Strategy[viii], flooding is considered the most significant natural hazard in Ontario in terms of death, damage and civil disruption and is the costliest type of natural disaster in Canada in terms of property damage. One of the objectives for the Strategy is to keep people and property out of areas where flooding presents unacceptable risks and not create new or aggravate existing flood risks.

This objective is imbedded in earlier provincial documents, including a guidance document titled “Understanding Natural Hazards” [ix], which includes a goal of reducing impacts of natural hazards to prevent risk to loss of life and minimize property damage through three components: prevention, protection and emergency response.

Prevention is the highest priority as it is the most cost-effective approach and can often be achieved through means such as land use planning and regulation. Protection focuses on mitigating measures, such as structural works such as dams or dykes which are costly to build and maintain or implementing floodproofing requirements for development. Emergency response and recovery measures involve flood forecasting and warning, development and activation of emergency action plans.

The Provincial Technical Guide (2002)[x] provides guidance on prevention measures, such as prohibiting new development in the floodway, except for uses which by their nature must be located within the floodway, such as flood and/or erosion control works, or where appropriate, minor additions or passive, non-structural uses which do not affect flood flows. Ingress/egress for new buildings is also to be considered so vehicular and pedestrian movement is not prevented during times of flooding.

Incorporation of floodplain management in land use planning is provided in the Provincial Planning Statement (PPS, 2024) [ix], a province-wide planning policy framework. All municipal decisions requiring approval under the Planning Act must be consistent with the standards set in the PPS. While permit decisions under the CA Act are not required to be consistent with the PPS, it is helpful to consider as general Provincial direction.

PPS policies direct new development away from areas that are subject to riverine flooding, where there is an unacceptable risk to public health or safety or of property damage, and requires that new hazards are not created or existing hazards aggravated. Accordingly, the policies dictate that development shall not be permitted in a floodway, or areas that would be rendered inaccessible to people and vehicles during times of flooding hazards, erosion hazards and/or dynamic beach hazards, unless it has been demonstrated that the site has safe access appropriate for the nature of the development. Exceptions include where the development is limited to uses which by their nature must locate within the floodway, including flood and/or erosion control works or minor additions or passive non-structural uses which do not affect flood flows.

Direction can also be taken from the Ontario’s Special Advisor on Flooding Report to Government, 2019[xi] , page 93, which describes two main approaches to managing flooding and other natural hazards: a hazards-based approach and a risk-based approach.

> “A hazards-based approach focuses on determining where hazards exist and then taking steps to prevent activities from occurring in those areas. A risk-based approach focuses on determining the risks posed by natural hazards and then taking steps to further reduce those risks to acceptable levels. In the case of flooding, a hazards-

based approach seeks to delineate the floodplain and prevent development from occurring within it. A risk-based approach seeks to identify the risks associated with development in a floodplain and find ways to reduce those risks through enhanced floodproofing, flood forecasting and warning, and other measures. Adopting a risk-based approach allows individuals to proceed with a given activity (e.g. development within a floodplain) provided that sufficient measures can be put in place to keep risks as low as reasonably achievable."

3.3 Guidance from Conservation Ontario

General guidance was developed by Conservation Ontario through a working group, for consideration by conservation authorities in development of CA specific Board-approved policies for administration of the Ontario Regulation 41/24 and associated sections of Part VI of the CA Act. It is recognized that each CA's policies may vary from the guidelines taking into account existing CA policies and the unique characteristics of each watershed. The following provides a summary of some of the considerations from the 2024 document[xii] related to development in a One-Zone floodplain.

- In general, development activity within the Regulatory floodplain shall not be permitted. Development associated with existing uses in river or stream valleys such as non-habitable structures and minor additions to existing buildings or structures is often differentiated from new development to allow landowners to maintain, and to a limited extent, improve their properties.
- Generally, basements within the Regulatory floodplain should not be permitted.
- Development may be permitted as outlined below subject to the applicant providing complete studies and plans that demonstrate to the satisfaction of the CA that the activity will not affect the hazard; and the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property.
- Development activity associated with existing uses located within the Regulatory floodplain, such as minor additions, may be permitted. Consideration should be given amongst other items to the type of land use (i.e. residential), permissible area increases with a cap, and that development is protected from the hazard. Where permitted, the submitted plans should demonstrate that:
    a. there is no feasible alternative site outside of the Regulatory floodplain for the proposed development activity or in the event that there is no feasible alternative site, that the proposed development activity is located in an area of least (and acceptable) risk
    b. the proposed works do not create new hazards or aggravate flooding on adjacent or other properties and there are no negative upstream and downstream hydraulic impacts
    c. the development activity is protected from the flood hazard in accordance with established floodproofing and protection techniques
    d. the proposed development activity will not prevent access for emergency works, maintenance and evacuation
    e. the potential for surficial erosion has been addressed through the submission of proper drainage, erosion and sediment control and site stabilization/restoration plans, and
    f. erosion hazards have been adequately addressed.
- Development activity may be permitted for the reconstruction or relocation of a building within the Regulatory floodplain, provided that it has not been damaged or destroyed by flooding. The submitted plans should demonstrate that the building:

a. cannot be relocated to an area outside the flood hazard and if there is no feasible alternative site, that it is located in an area of least (and acceptable) risk
b. will be protected from the flood hazard through incorporation of appropriate building design parameters, and
c. will not exceed original habitable floor area of the previous structure nor the original footprint area of the previous structure.

- Consideration be given to the ability for public and emergency operations personnel (police, firefighters, ambulance etc.) to safely access the floodplain during regulatory flood events. Ingress and egress for new development should be "safe" pursuant to Provincial floodproofing guidelines. Depths and velocities should be such that pedestrian and vehicular emergency evacuations are possible.
- For minor additions and re-development on existing lots as a minimum, access should achieve the maximum level of flood protection determined to be feasible and practical based on existing infrastructure.
- Consideration be given to safety risks, which are a function of the occupancy of structures as well as their flood susceptibility, and the access routes to those structures. Risk should be controlled by limiting the size and type (and thereby limiting the occupancy) of additions or reconstruction projects in dangerous or inaccessible portions of the Regulatory floodplain. Floodproofing measures should be in keeping with the standards of the River and Stream Systems Flooding Hazard Limit, Technical Guide – Appendix 6. Where floodproofing standards or safe access cannot be obtained for development, generally the development should be prohibited.

3.4 Current GRCA Policies

In administering Ontario Regulation 41/24, GRCA's policy objectives regarding floodplains include, but are not limited to:

- prevent loss of life, minimize property damage and social disruption, and avoid public and private expenditure for emergency operations, evacuation and restoration due to natural hazards and associated processes
- prohibit development activity which, singularly or cumulatively, may restrict riverine channel capacities to pass flood flows, reduce storage capacity in floodplains and wetlands resulting in increased flood levels, and create potential danger to upstream and downstream landowners
- prohibit development activity of flood susceptible river or stream valleys which may increase hazard risk, create new hazards or aggravate existing hazards which would in future years require expensive protection measures, and
- reduce potential nuisances associated with development by limiting the potential for floating objects and debris during flood events.

These objectives informed the development of the following current policies for agricultural structures in the One-Zone Policy Area floodplain:

The following policies apply to development activity for agricultural buildings or structures proposed in a One-Zone Policy Area subject to a *Riverine Flooding Hazard*, excluding allowances.

8.1.1 Development activity will not be permitted within the Riverine Flooding Hazard except in accordance with the policies in Sections 7.1.2-7.1.3 – General Policies and Sections 8.1.2-8.1.29 – Policies for One-Zone Policy Areas.

Existing Uses

8.1.2 Development activity associated with existing uses located within a Riverine Flooding Hazard may be permitted in accordance with the policies in Sections 7.1.2-7.1.3 – General Policies, and where it can be demonstrated that:

a) there is no feasible alternative site outside the Riverine Flooding Hazard,
b) the site is not subject to frequent flooding,
c) ingress and egress are “dry” where this standard can be practically achieved, or floodproofed to an elevation which is practical and feasible, but no less than “safe”,
d) floodproofing is undertaken to the extent practical, where floodproofing to the elevation of the Regulatory Flood is not technically feasible, and
e) there is no risk of structural failure due to potential hydrostatic/dynamic pressures.

8.1.22 Additions to existing agricultural buildings or structures may be permitted in accordance with the policies in Section 8.1.2 – Policies for One-Zone Policy Areas, and where it can be demonstrated that:

a) the addition is 50 percent or less of the original ground floor area of the building or structure to a maximum of 100 m^2 (1,076 ft^2), or in the case of multiple additions, all additions combined are equal to or less than 50 per cent of the original ground floor area of the building or structure to a maximum footprint of 100 m^2 (1,076 ft^2), and
b) no basement is proposed, and any crawl space is designed to facilitate services only.

8.1.23 *Accessory Buildings or Structures* associated with agricultural uses may be permitted in accordance with the policies in Section 8.1.2 – Policies for One-Zone Policy Areas, and where it can be demonstrated that:

a) the building or structure is greater than 15 m^2 (160 ft^2) but less than or equal to 100 m^2 (1,076 ft^2) or in the case of additions, the combined area of the existing building or structure and any proposed addition is equal to or less than 100 m^2 (1,076 ft^2),
b) electrical, mechanical, and heating services are located above the level of the Regulatory flood, wherever possible,
c) the building or structure is securely anchored such that it does not obstruct downstream culverts during a flood event where applicable,
d) the cumulative impact of multiple accessory buildings or structures on the subject property are negligible, and
e) no basement is proposed.

8.1.24 *Replacement* of agricultural buildings or structures greater than 100 m^2 (1,076 ft^2) damaged or destroyed by causes other than flooding may be permitted in accordance with the policies in Sections 7.1.2 - 7.1.3 General Policies, and where it can be demonstrated that:

a) the building or structure to be replaced is relocated outside the Riverine Flooding Hazard or where this is not feasible, the building or structure is relocated to an area within the existing lot where the risk of flooding and property damage is reduced to the greatest extent, wherever possible,
b) the new building or structure is the same size or larger to a maximum of 50 percent of the original habitable ground floor area or a footprint of 100 m^2 (1,076 ft^2), whichever is the lesser,
c) no basement or crawl space is proposed,
d) electrical, mechanical, and heating services are located above the level of the Regulatory Flood, wherever possible, and
e) there is no risk of structural failure due to potential hydrostatic/dynamic pressures.

8.1.25 Relocation of existing agricultural buildings and structures greater than 100 m^2 (1,076 ft^2) may be permitted in accordance with the policies in Section 8.1.25 – Policies for One-Zone Policy Areas, provided that the risk of flooding and property damage is reduced to the greatest extent wherever possible through relocation.

8.1.26 Agricultural Structures which reduce risks associated with erosion or sedimentation may be permitted in accordance with the policies in Sections 7.1.2-7.1.3 - General Policies, and where it can be demonstrated that:

a) there is no feasible alternative site outside the Riverine Flooding Hazard,
b) the risk of property damage is minimized through site design and flood emergency plans, and
c) floodproofing is undertaken to the extent practical, where floodproofing to the elevation of the Regulatory Flood is not technically feasible.

4.0 Review Considerations

To inform the policy review, in addition to the legislative, regulatory and policy context outlined above, consideration was given to other Conservation Authority policies, an analysis to determine average size of farm buildings, a review of permits issued for farm buildings in one County as a representative example, as well as other agricultural-specific factors.

4.1 Other Conservation Authority Policies

Of the 20 policy documents reviewed, 10 had policies specific to agricultural buildings in One-Zone floodplain policy areas.

A summary of the policies related to agricultural/farm buildings including accessory structures is provided in Table 1. Note replacement or relocation policies are not included in this summary. Some general observations are as follows:

1. Maximum Sizes
    - Farm Buildings:
        - Two CAs have no cap if certain requirements are met.
        - Three CAs have no cap, but do not permit certain types of farm buildings (i.e. commercial greenhouses, large-scale closed equestrian, livestock facilities). One of the 3 also has a maximum flood depth requirement.
        - One CA has no size cap, with permission dependent on depth of flooding.
    - Additions:

        - GRCA and one other CA has a cap of 50% of the original size to a cap of 100 square metre for additions.
        - One CA has a cap of 50% of the size of the original structure with no size cap.
        - One CA has a maximum cap of 100 square metres.
        - One CA has no cap; however, different requirements are required to be met depending on whether the structure is over or under 100 square metres.
    - Accessory Structures:
        - GRCA and one other CA has a maximum cap of 100 square metres.
        - Two CAs have no cap for accessory structures, provided certain requirements are met.
        - The CAs which permit farm buildings do not have specific policies for accessory structures. Assuming the accessory structures are treated as farm buildings, an additional 5 CAs have no cap for accessory structures, provided certain requirements are met.

For the other CAs that were reviewed that had no distinction between agricultural structures in the floodplain and other uses, it is assumed that agricultural buildings would be captured by policies related to other uses (i.e. commercial, industrial). If so, policies related to additions range from a maximum cap of 50% of existing ground floor area, to a maximum cap of generally either 46.5 square metres or 100 square metres. For accessory structures, the policies range from a maximum cap of 28 square metres to no size cap.

Table 1: Summary of Conservation Authorities Agricultural Specific Policies in One-Zone Floodplain

CA	Last Updated	Summary
Grand River	2024	Permit additions (up to 50% of original ground floor area) and accessory structures if certain requirements met, both capped at 100 square metres. Site not subject to frequent flooding. Floodproofing required. Safe access required.
Conservation Halton	2025	Permits farm buildings if certain requirements met, except farm residences, commercial greenhouses and large-scale closed equestrian or livestock facilities not permitted. Wet floodproofing required. On-title agreement may be required.
Lake Simcoe	2024	Permits farm buildings if certain requirements met, including flood depth is less than 0.8 metres. Wet floodproofing required.
Long Point	2024	Permit additions (up to 50% of original ground floor area) and accessory structures if certain requirements met, both capped at 100 square metres. Site not subject to frequent flooding. Floodproofing required. Safe access required.
Maitland Valley	2024	Permits agricultural structures if certain requirements are met, including that the structure is not likely to be damaged by flood waters (i.e. damp floodproofing) and access, if impaired by the location of the structure, is not required during natural hazards such as flooding.

CA	Last Updated	Summary
Mississippi Valley	2024	Permits farm buildings if certain requirements met, except farm residences, commercial greenhouses and large-scale enclosed livestock facilities not permitted. Floodproofing required. Auxiliary buildings up to 50 square metres permitted if certain requirements met, including depth of flooding does not exceed 0.3 metres. However, agricultural buildings may be exempt from the requirements for auxiliary buildings.
Niagara Peninsula	2024	Permits farm buildings and additions if certain requirements met, including that the building would not incur significant damages during a flood event.
Raisin Region	2024	Permits additions (maximum footprint of 100 square metres) and accessory structures if certain requirements met. Floodproofing required. Safe access required.
Rideau Valley	2024	Permits agricultural related buildings or structures if certain requirements met, including flood depth is no more than 0.3 metres of flooding and the building shall not be used for overnight housing of livestock. Floodproofing required. Safe access required.
South Nation	2023	Permit additions if requirements met. Requirements differ if footprint of addition is over or less than 100 square metres. Accessory structures associated with agricultural uses permitted if certain requirements met. Floodproofing required.
TRCA	2014	Permit additions up to 50% or less of existing ground floor area and one additional storey if certain requirements met. Floodproofing required. Safe access required and/or achieves the maximum level of flood protection deemed by TRCA to be feasible and practical based on existing infrastructure (e.g. road platform).

4.2 Analysis of Farm Building Sizes

Key feedback received from staff, permit applicants and the public was that the maximum allowable size of a farm building addition or accessory structure was too small, and does not accommodate modern farming operations, including equipment storage. To inform consideration of a revised policy related to size of farm buildings, information was collected to assist staff.

4.2.1 GIS Analysis

An analysis was undertaken using GRCA's GIS (Geographic Information System) to determine using best available information, an estimate of the average size of a farm building (excluding farm residences). The analysis was based on a review of the footprint of farm buildings outside of the GRCA's regulated area. Buildings within the regulated area were not included as they may have been subject to GRCA's current size cap, which may not provide an accurate estimate of a typical size.

While the analysis has some limitations, it generally shows that the average size of a farm building is 555 square metres, which is roughly 5x greater than the 100 square metres size cap currently permitted for additions to existing structures or new accessory agricultural structures in the floodplain.

Table 2: Agricultural Building Analysis Summary

Municipality		Farm Buildings Outside Regulation Limit	
Upper Tier	**Lower Tier**	**Total #**	**Avg. Size (Sq. M) Per Parcel**
City of Hamilton	Not applicable	1484	443.58
County of Brant	Not applicable	1370	539.78
County of Oxford	Township of Blanford-Blenheim	1390	502.23
County of Oxford	Township of East Zorra-Tavistock	299	613.72
County of Oxford	Township of Norwich	267	563.29
County of Oxford	Township of Zorra	8	373.47
County of Perth	Municipality of North Perth	16	780.44
County of Perth	Township of Perth East	1060	694.37
Grey County	Township of Southgate	1547	425.23
Haldimand County	Not Applicable	330	380.02
Norfolk County	Not applicable	21	527.27
Region of Halton	Town of Halton Hills	2	243.59
Region of Halton	Town of Milton	106	486.03
Region of Waterloo	Township of North Dumfries	609	547.89
Region of Waterloo	Township of Wellesley	2211	570.33
Region of Waterloo	Township of Wilmot	1269	616.93
Region of Waterloo	Township of Woolwich	1702	590.61
Wellington County	Town of Erin	230	525.18
Wellington County	Town of Grand Valley	205	626.61
Wellington County	Township of Amaranth	289	573.62
Wellington County	Township of Centre Wellington	2446	605.73
Wellington County	Township of East Garafraxa	222	711.68
Wellington County	Township of Guelph/Eramosa	581	741.35
Wellington County	Township of Mapleton	1336	762.57
Wellington County	Township of Melancthon	271	437.32
Wellington County	Township of Puslinch	401	514.70
Wellington County	Township of Wellington North	349	589.44
Total	**All Municipalities**	20,021	555.07

4.2.2 Building Permit Information

To obtain representative examples of current farm building sizes, building permit information from a municipality within the Grand River watershed was reviewed. Monthly summaries of building permits issued with details on the size of the building are available on-line for the County of Brant.

Table 3: Building Permit Monthly Summaries for Farm Building Permits in County of Brant (Source: County of Brant[xiii])

Date	# Permits	Description	Area in Sq. M	Value
2025				
June	1	Feed Storage Shed Addition	111	$15,000
May	2	Storage Shed Grain Storage (4 Bins) with unloading pit	557 482	$250,000 $650,000
April	1	Covered Storage Shed	356	$200,000
March	5	Addition to Potato Storage Building Livestock Barn Electrical Shed Barn Roof and Wall replacement (due to collapse) Scale House	412 515 73 1783 105	$547,000 $120,000 $10,000 $200,000 $25,000
February	1	Equipment Storage Shed, Workshop and Office Above Grade	1890	$1,250,000
January	4	Storage Pole Barn Beef Barn Chicken Barn addition Poultry Barn with manure storage	520 3,081 2,415 2,826	$87,000 $1,200,000 $800,000 $1,000,000
2024				
December	2	Storage Barn Addition Storage Building	406 728	$170,000 $100,000
November	1	Storage Shed	891	$90,000
October	2	Greenhouse Grain Storage (4 Bins)	562 1,217	$120,000 $1,000,000
September	0	Not applicable	Not applicable	Not applicable
August	6	Storage Building Dairy Barn Manure Storage Hay/Storage Building Pole Barn Addition Storage Barn Addition	379 2,473 263 645 420 202	$175,000 $915,000 $60,000 $220,000 $97,000 $25,000
July	1	Equipment Storage Building	295	$60,000
June	4	Manure Storage Manure Storage Coverall Implement Storage Shed Equipment Storage Shed Addition	1,018 683 1,038 234	$30,000 $100,000 $192,000 $100,000

Date	# Permits	Description	Area in Sq. M	Value
May	4	Dairy Barn Addition Dairy Barn Addition Manure Storage Silo Foundation (Silage)	455 1,129 467 5	$240,000 $600,000 $60,000 $50,000
April	4	Storage Building Bunker Silo Storage Building Poultry Barn	1,190 275 428 1,525	$300,000 $80,000 $80,000 $300,000
March	0	Not applicable	Not applicable	Not applicable
February	1	Poultry Barn	4,013	$2,300,000
January	0	Not applicable	Not applicable	Not applicable

Based on this information (2024-present) from one representative watershed municipality, the size of permitted accessory structures such as equipment or storage sheds and silos are generally under 555 square metres, while farm buildings such as dairy and poultry barns are much larger.

As outlined in the Ontario Building Code, “large” farm buildings generally have a footprint greater than or equal to 600 m² (6458 ft²) and are more than 3 stories, while “small” farm buildings generally have a footprint less than 600 m² (6458 ft²) and are not more than 3 stories. The design and construction requirements for large and small farm buildings are different.

4.2.3 Research on Farm Building Sizes

The size of farm buildings varies depending on individual farm operation. Field crops for example require multiple pieces of equipment for soil preparation, planting, crop care, harvesting, transporting, storing and processing. Livestock operations and specialty crops will have additional equipment needs.

For comparison purposes between the maximum farm building size of 100 square metres (1076 square feet) currently permitted by GRCA policy versus the size of farm equipment, the following provides an example. Based on personal communication with an agricultural equipment dealer, a modern combine with duals (without a corn or grain head) is roughly 16 by 36 feet (576 ft²/53m²). Based on personal communication with a farmer, one of their tractors is 13 by 24 feet (312 ft²/30m²). Without regard to spacing or maneuverability in the farm building, the square footage occupied by this tractor and combine is about 83 m²/890 ft², which is almost the entire current maximum allowable size of 100 m² (1076 ft²) for these two pieces of equipment.

For a dairy farm, according to an article from the Dairy Farmers of Canada from 2021[xiv], there is an average of 75-95 cows per farm in Quebec and Ontario. Based on Provincial guidelines[xv], while it depends on the layout, a barn size to house 95 cows is approximately 8.4-11.1 m² metres per cow, or approximately 800-1055 m² (approximately 8600- 11,355 ft²). In addition, a milking centre[xvi] would be needed which consists of a holding area, milking parlour, milk tank room and mechanical room and may have areas like a storage or supply room.

For beef cattle, housing requirements for backgrounding beef cattle depend on several factors. To determine a general estimate for a beef barn, an average number of cattle was utilized. According to a fact sheet[xvii] issued by Beef Famers of Ontario as of December 2024, there are an average of 24 cows per farm. Using recommended housing requirements from the Ministry of Agriculture, Food and Rural Affairs[xviii], assuming a barn with a yard, the barn area per animal is 1.4–1.8 m^2 (15–20 ft^2) for a calve and 1.8–2.8 m^2 (20–30 ft^2) for a finisher. Assuming 30% (7) are calves and the remainder (17) require space equivalent to a finisher, a barn area of 60 m² (645 ft²) would be required. Other requirements for

alley space, feeders and waterers increase the total floor area required. While this example is below the current maximum allowable size of a farm building, Table 3 includes a beef barn of approximately 3000 m².

The GIS analysis shows that the average size of a farm building in the watershed is approximately 555 m², however, the three examples above as well as the building permit information in Table 3 show the variation in farm building sizes depending on individual farm operations.

5.0 Policy Discussion

Based on the review of average size of farm buildings using different methodologies in comparison to GRCA's current policies, a maximum of 100 square metres for an accessory structure (i.e. equipment shed) would not house the number of, nor the size of farming equipment for modern operations. Further, for existing farm buildings, an addition of 50% of existing ground floor area up to a maximum cap of 100 square metres is also limiting.

A wide range of policy options were considered with the intention that any proposed policies are not more restrictive than current policies. The general prohibition for new development within the One-Zone Floodplain Policy is proposed to remain (Policy 8.1.1). A risk-based approach is proposed for development associated with existing agricultural uses. This approach directs development away from the hazard whenever possible. When that isn't feasible, it focuses on reducing the risks to acceptable levels by implementing practical protective measures and ensuring that no new hazards are created nor existing risks aggravated.

5.1 Proposed Policies

The proposed policies for farm buildings associated with an existing agricultural use incorporate the following measures to minimize risk, taking into consideration the guidance outlined in previous sections:

- Direct development outside of the floodplain to avoid the hazard.
    - Where feasible, development is directed outside the floodplain. If not feasible, development will continue to be directed outside areas that frequently flood as per current policy. It is recognized that it may not be feasible to locate a farm building outside the floodplain, for example to maintain a farm cluster and in consideration of MDS (Minimum Distance Separation) requirements.
- Property damage is reduced by limiting the size of farm building permitted.
    - A size cap is maintained; however, the maximum ground floor area is proposed to be increased from 100 square metres (1,076 square feet) to 600 square metres (6,458 square feet).
- Ingress/egress is considered based on nature of development.
    - Farm buildings have low human occupancy (workers) and would not be permitted in frequently flooded areas. As such, the risks to public safety are reduced and no safe access provisions are being proposed.
- The development activity is protected from the flood hazard in accordance with established floodproofing and protection techniques.
    - Floodproofing will be required to the extent practical where floodproofing to the elevation of the Regulatory Flood is not technical feasible.

- The proposed works do not create new hazards or aggravate flooding on adjacent or other properties and there are no negative upstream and downstream hydraulic impacts.
    - Depending on the scale and scope of a project, along with site conditions, a hydraulic analysis or other engineering assessment may be required to demonstrate no impacts on adjacent landowners or the floodplain.

The increase from 100 square metres (1,076 square feet) to a 600 square metres (6,458 square feet) maximum size cap was based on the average size of farm buildings of 550 square metres in the GIS analysis which appears in-line with equipment sheds in the County of Brant analysis, and the distinction in the Ontario Building Code between a large and small farm building being under or over 600 square metres.

It is recognized that this maximum cap will prohibit “large” farm buildings or additions greater than 600 square metres. The policies aim to strike a balance between modernizing our policy approach to reflect current agricultural operations while continuing to manage flood risks.

A comparison chart of current and proposed policies is shown in Table 4 below.

Table 4: Existing and Proposed Agricultural Policies in One-Zone Floodplain Policy Areas

Current Policy	Draft Policy
General Policies 7.1.1 Development activity, interference or alteration will not be permitted within a regulated area, except in accordance with the policies in Sections 7, 8 and 9. 7.1.2 Development activity, interference or alteration within a regulated area may be permitted where it can be demonstrated through appropriate technical studies and/or assessments, site plans and/or other plans as required by the GRCA that: • the risk to public health or safety is not increased, • the activity will not result in the damage or destruction of property, • susceptibility to natural hazards is not increased or new hazards created, • there are no *adverse hydraulic or fluvial impacts* on rivers, creeks, streams, or watercourses, • there are no adverse impacts on the natural shoreline processes of Lake Erie, • grading (e.g., placing and removing fill) is minimized and maintains Special Policy Areas and floodplain flow regimes for a range of rainfall events, including the *Regional Storm,* • there are no negative or adverse hydrologic impacts on wetlands, • sedimentation and erosion during construction and post construction is minimized using *best management practices* including site, landscape, infrastructure and/or facility design (whichever is applicable based on the scale and scope of the project), construction controls, and appropriate remedial measures, • access for emergency works and maintenance of flood or erosion control works is available, • works are constructed, repaired and/or maintained according to *accepted engineering principles* and approved engineering standards or to the satisfactions of the GRCA, whichever is applicable based on the scale and scope of the project, and • the activity is not likely to affect the control of flooding, erosion or dynamic beaches or unstable soil or bedrock; the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property and any other requirements that may be prescribed by the regulations. 7.1.3 Notwithstanding Section 7.1.2, development activity, interference or alteration in a Regulated Area may be permitted subject to supplementary policies or stand-alone policies as specified in Sections 8 and 9.	No change

Current Policy	Draft Policy
8.1.1 Development activity will not be permitted within the *Riverine Flooding Hazard* except in accordance with the policies in Sections 7.1.2-7.1.3 – General Policies and Sections 8.1.2-8.1.29 – Policies for One-Zone Policy Areas.	No change
Existing Uses 8.1.2 Development activity associated with existing uses located within a *Riverine Flooding Hazard* may be permitted in accordance with the policies in Sections 7.1.2-7.1.3 – General Policies, and where it can be demonstrated that: a) there is no feasible alternative site outside the Riverine Flooding Hazard, b) the site is not subject to *frequent flooding,* c) ingress and egress are "dry" where this standard can be practically achieved, or floodproofed to an elevation which is practical and feasible, but no less than "safe", d) *floodproofing* is undertaken to the extent practical, where floodproofing to the elevation of the Regulatory Flood is not technically feasible, and e) there is no risk of structural failure due to potential hydrostatic/dynamic pressures.	Remove reference to 8.1.2 in agricultural policies and add applicable requirements directly to policy.
Proposed changes - Additions: Change reference from agricultural buildings or structures to farm buildings or structures and add definition of a farm building. Remove reference to 8.1.2 and add applicable requirements to additions policy. Change cap from 100 square metres to 600 square metres.	
8.1.22 Additions to existing agricultural buildings or structures may be permitted in accordance with the policies in Section 8.1.2 – Policies for One-Zone Policy Areas, and where it can be demonstrated that: a) the addition is 50 percent or less of the original ground floor area of the building or structure to a maximum of 100 m^2 (1,076 ft^2), or in the case of multiple additions, all additions combined are equal to or less than 50 per cent of the original ground floor area of the building or structure to a maximum footprint of 100 m^2 (1,076 ft^2), and b) no basement is proposed, and any crawl space is designed to facilitate services only.	8.1.22 Additions to existing *farm buildings or structures* may be permitted in accordance with the policies in Sections 7.1.2-7.1.3 General Policies, and where it can be demonstrated that: a) the addition is equal to or less than 600 m^2 (6,458 ft^2), or in the case of multiple additions, all additions combined are equal to or less than a maximum ground floor area of 600 m^2 (1,076 ft^2) b) the site is not subject to *frequent flooding*, c) no basement is proposed, and any crawl space is designed to facilitate services only. d) floodproofing is undertaken to the extent practical, where floodproofing to the elevation of the Regulatory Flood is not technically feasible, e) electrical, mechanical, and heating services are located above the level of the Regulatory flood, wherever possible, f) there is no risk of structural failure due to potential hydrostatic/dynamic pressures,

Current Policy	Draft Policy
	g) the building or structure is securely anchored such that it does not obstruct downstream culverts during a flood event where applicable h) there are no impacts on adjacent landowners as determined by a hydraulic analysis or other engineering assessment, where appropriate, and i) the cumulative impact of multiple buildings or structures on the floodplain is negligible as determined by a hydraulic analysis or other engineering assessment, where appropriate.
Proposed changes: Change reference to agricultural buildings or structures to farm buildings or structures and add definition of a farm building. Change reference from accessory buildings to farm buildings, as accessory structures are considered a type of farm building. Remove reference to 8.1.2 and add applicable requirements to additions policy. Change cap from 100 square metres to 600 square metres. Add requirement to ensure no negative impacts on adjacent landowners, and the applicant may be required to submit studies/assessment to demonstrate this. Specifically note that the applicant may be required to submit studies/assessments to demonstrate cumulative impact of existing buildings/proposed new development is negligible.	
8.1.23 *Accessory Buildings or Structures* associated with agricultural uses may be permitted in accordance with the policies in Section 8.1.2 – Policies for One-Zone Policy Areas, and where it can be demonstrated that: a) the building or structure is greater than 15 m^2 (160 ft^2) but less than or equal to 100 m^2 (1,076 ft^2) or in the case of additions, the combined area of the existing building or structure and any proposed addition is equal to or less than 100 m^2 (1,076 ft^2), b) electrical, mechanical, and heating services are located above the level of the Regulatory flood, wherever possible c) the building or structure is securely anchored such that it does not obstruct downstream culverts during a flood event where applicable, d) the cumulative impact of multiple accessory buildings or structures on the subject property are negligible, and e) no basement is proposed.	8.1.23 Farm buildings or structures may be permitted in accordance with the policies in the policies in Sections 7.1.2 - 7.1.3 General Policies, and where it can be demonstrated that: a) there is no feasible alternative site outside the Riverine Flooding Hazard, b) the ground floor area of the building or structure is equal to or less than 600 m^2 (6,458 ft^2) c) the site is not subject to frequent flooding, d) no basement is proposed, and any crawl space is designed to facilitate services only, e) floodproofing is undertaken to the extent practical, where floodproofing to the elevation of the Regulatory Flood is not technically feasible, f) electrical, mechanical, and heating services are located above the level of the Regulatory flood, wherever possible, g) there is no risk of structural failure due to potential hydrostatic/dynamic pressures, h) the building or structure is securely anchored such that it does not obstruct downstream culverts during a flood event where applicable,

Current Policy	Draft Policy
	i) there are no impacts on adjacent landowners as determined by a hydraulic analysis or other engineering assessment, where appropriate, and j) the cumulative impact of multiple buildings or structures on the floodplain is negligible as determined by a hydraulic analysis or other engineering assessment, where appropriate.
Proposed changes: Change reference to agricultural buildings or structures to farm buildings or structures and add definition of a farm building. Change cap from 100 square metres to 600 square metres. Add floodproofing is required to extent practical.	
8.1.24 *Replacement* of agricultural buildings or structures greater than 100 m^2 (1,076 ft^2) damaged or destroyed by causes other than flooding may be permitted in accordance with the policies in Sections 7.1.2 - 7.1.3 General Policies, and where it can be demonstrated that: a) the building or structure to be replaced is relocated outside the Riverine Flooding Hazard or where this is not feasible, the building or structure is relocated to an area within the existing lot where the risk of flooding and property damage is reduced to the greatest extent, wherever possible, b) the new building or structure is the same size or larger to a maximum of 50 percent of the original habitable ground floor area or a footprint of 100 m^2 (1,076 ft^2), whichever is the lesser. c) no basement or crawl space is proposed, d) electrical, mechanical, and heating services are located above the level of the Regulatory Flood, wherever possible, and e) there is no risk of structural failure due to potential hydrostatic/dynamic pressures.	8.1.24 *Replacement* of farm buildings or structures damaged or destroyed by causes other than flooding may be permitted in accordance with the policies in Sections 7.1.2 - 7.1.3 General Policies, and where it can be demonstrated that: a) the building or structure to be replaced is relocated outside the Riverine Flooding Hazard or where this is not feasible, the building or structure is relocated to an area within the existing lot where the risk of flooding and property damage is reduced to the greatest extent, wherever possible, b) the new building or structure is the same size or larger in accordance with Policies in Section 8.1.22, c) no basement is proposed, and any crawl space is designed to facilitate services only, d) floodproofing is undertaken to the extent practical, where floodproofing to the elevation of the Regulatory Flood is not technically feasible, e) electrical, mechanical, and heating services are located above the level of the Regulatory Flood, wherever possible, and f) there is no risk of structural failure due to potential hydrostatic/dynamic pressures, g) the building or structure is securely anchored such that it does not obstruct downstream culverts during a flood event where applicable.
Proposed changes: Change reference to agricultural buildings or structures to farm buildings or structures and add definition of a farm building. Remove reference to size, as relocation of any size structure would be permitted.	

Current Policy	Draft Policy
Correct incorrect policy reference.	
8.1.25 Relocation of existing agricultural buildings and structures greater than 100 m^2 (1,076 ft^2) may be permitted in accordance with the policies in Section 8.1.25 – Policies for One-Zone Policy Areas, provided that the risk of flooding and property damage is reduced to the greatest extent wherever possible through relocation.	8.1.25 Relocation of farm buildings or structures may be permitted in accordance with the policies in Section 8.1.24, provided that the risk of flooding and property damage is reduced to the greatest extent wherever possible, through relocation.
8.1.26 Agricultural Structures which reduce risks associated with erosion or sedimentation may be permitted in accordance with the policies in Sections 7.1.2-7.1.3 - General Policies, and where it can be demonstrated that: a) there is no feasible alternative site outside the Riverine Flooding Hazard, b) the risk of property damage is minimized through site design and flood emergency plans, and c) floodproofing is undertaken to the extent practical, where floodproofing to the elevation of the Regulatory Flood is not technically feasible.	No change
Proposed change: Add Definition of Farm Buildings as per Ontario Building Code.	
N/A	Farm building means all or part of a building that does not contain any area used for residential occupancy, is associated with and located on land devoted to the practice of farming and used essentially for the housing of equipment or livestock or the production, storage or processing of agricultural and horticultural produce or feeds.

6.0 Endnotes

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[iv] Irvine, C. Grand River Conservation Authority. October 19, 2018.Technical Memorandum – Summary of the Status of Agriculture in the Grand River Watershed.

[v] Ontario Federation of Agriculture. OFA Ontario Agriculture at a Glance.

[vi] Conservation Ontario, Section 28 Committee. 2024. Interim Guidelines to support Conservation Authority Administration of O.Reg. 41/24

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[viii] Ministry of Natural Resources and Forestry. 2020. Protecting People and Property :Ontario's Flooding Strategy. Ontario 2020 Flooding Strategy

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[x]Ontario Ministry of Natural Resources. 2002. Technical Guide – River and Stream Systems: Flooding Hazard Limit.

[xi] McNeil, D. Prepared for Ministry of Natural Resources and Forestry. 2019. Ontario's Special Advisor on Flooding Report to Government, An Independent Review of the 2019 Flood Events in Ontario. An Independent Review of the 2019 Flood Events in Ontario

[xii] Conservation Ontario. Section 28 Committee. March 2024. Interim Guidelines to Support Conservation Authority Administration of Ontario Regulation 41/24.

[xiii] County of Brant. Building Reports and Building Permit Records - County of Brant

[xiv] Dairy Famers of Canada. September 1, 2021. How many cows are on Canadian Dairy Farms. How Many Cows are on Canadian Dairy Farms? | Dairy Farmers of Canada

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[xviii] Ministry of Agriculture, Food and Rural Affairs, J. Byrne and R. Niraula. February 2020. Factsheet #20-013. ISSN 1198-712X. 20-013 — Housing Requirements for Backgrounding Beef Cattle