Agenda Item # 3

NR 115 Impervious Surface (IS) Summary Sheet

NR115 IS definition (115.03(4g)): *An area that releases as runoff all or a majority of the precipitation that falls on it. Impervious surfaces excludes frozen soil but includes rooftops, sidewalks, driveways, parking lots, and streets unless specifically designed, constructed, and maintained to be pervious.*

NR115- stated intent of IS provisions (115.05(1)(e):

NR 115 requires that counties establish IS standards to "protect water quality, fish and wildlife habitat and protect against pollution of navigable waters."

Area of IS applicability(115.05(1)(e)(1):

IS standards apply to the construction, reconstruction, expansion, replacement or relocation of any IS within 300' of the ordinary high water mark of any navigable waterway on a riparian lot or any non-riparian lot that is entirely within 300 ft. of the OHWM.

Calculating Impervious Surface Coverage(115.05(1)(e)(1m):

The % of IS allowed within 300 ft. of the OHWM is calculated by dividing the surface area of the existing and proposed impervious surfaces on a riparian lot or a non-riparian lot fully within 300' of the OHWM by the total surface area of the lot and multiplying by 100.

Example:

Lot Area = 20,000 square feet

- *Existing impervious surface on lot to be retained = 1000 square feet*
- *Proposed additional new impervious surface on the lot = 500 square feet*

Calculation = 1000 + 500= 1500 square feet of IS

1500/20,000= 7.5% total existing and proposed IS Coverage on lot

Impervious Surface Limitations (115.05(1)(e)(2):	
***General Standards* (115.05(1)(e)(2)**	***Highly Developed Shoreline option* (115.05(1)(e)(2m)*)***
15% maximum (without mitigation)	Up to 30%- residential use (without mitigation)
30% maximum (with mitigation)	Up to 40%- residential use (with mitigation)
	Up to 40% commercial/industrial use (without mitigation)
	Up to 60%- commercial/industrial use (with mitigation)

*Existing IS can be maintained, repaired, replaced, relocated or modified.

*Treated impervious surfaces are exempt.

Agenda Item # 4b

Proposed Impervious Surface (IS) Coverage Options developed by County staff

Option 1 "General Standard" (15%-30%)

Employ the General Standard required by NR 115 for all properties that are subject to IS regulations. **The General Standard allows a maximum of 15% IS coverage by right and between 15%-30% IS, with mitigation.**

Notes:
* Per NR115, existing IS % can be maintained, repaired, replaced, relocated or modified.
* Per NR115, treated impervious surfaces are exempt.

Application of Option 1 in context of existing County development pattern:

- Examination of 37 Waukesha Co. riparian properties (see Table 1) revealed the following:

- **0% contained less than 15% IS. None would be permitted by right.**
- **51% contained between 15% and 30% IS and would require mitigation.**
- **49% contained more than 30% IS and would be prohibited or require a variance.**

Benefits:

- Greater protection for the lake environment; including reduced runoff and phosphorus and sediment input.
- Greater area of green space provided for infiltration.
- Reduces potential for adverse drainage on adjacent properties and nearby roads.
- Promotes natural scenic beauty.
- Consistency in regulation for properties in urbanized or rural areas of County.

Problems:

- Highly restrictive threshold for existing small, sub-standard lots, in particular.
- Application process would be time consuming and costly because of numerous variance requests and high number of required mitigation plans.
- Maintenance and monitoring of mitigation plans would be time consuming and costly.
- Natural resource benefits of this option offset by the following:
    - Existing impervious surface levels can be maintained (keep what you have).
    - Green space aesthetic benefits minimized with "treated" system exclusions.

Option 2 Highly Developed Shorelines ("30%-40%")

NR115.05(1)(e)2m: Highly Developed Shoreline Option Overview

Per NR 115, a county ***may*** adopt an ordinance for highly developed shorelines that allows IS coverage of **up to 30% for residential uses or up to 40% for commercial, industrial or business land uses (w/o mitigation) in certain qualifying areas**. **With mitigation, IS coverage limits for highly developed shorelines increase up to 40% for residential uses or up to 60% for commercial, industrial or business land uses.**

Qualifying criteria for "highly developed" designation are described in the "Urban Census Tract" option and "500 ft. Shoreline Sub-Option" described below.

> *Urban Census Tract Option*: A "highly developed shoreline" means a shoreline within an area identified as an Urbanized Area or Urban Cluster in the 2010 US Census or a shoreline that has a commercial, industrial or business land use as of January 31, 2013 (map will be displayed at meeting).
>
> *500 ft. Shoreline Sub-Option*: A County may (w/DNR approval) designate additional areas as highly developed shorelines so long as the area contains at least 500 ft. of shoreline and meets at least one of the following criteria:
>
> - A majority of the lots within the area are developed with more than 30% impervious surface.
> - The area is located on a lake and is served by a municipal sewerage system.

Applicability Summary Chart- Highly Developed Shoreline Option:

	Highly Developed Shorelines (Residential)	**Highly Developed Shorelines (Commercial)**	**"Rural" Shorelines**
Maximum IS Permitted by right	30%	40%	15%
Maximum IS with Mitigation	40%	60%	30%

Notes:
* Existing IS can be maintained, repaired, replaced, relocated or modified.
* Treated impervious surfaces are exempt.

Application of Option 2 in context of existing County development pattern:

- Examination of 37 Waukesha County riparian properties revealed the following:

- **51% contained less than 30% IS and would be permitted by right.**
- **35% contained between 30% & 40% IS and would require mitigation.**
- **14% contained more than 40% IS and would be prohibited or require a variance.**

Option 2 continued

Benefits:

- Reasonable IS coverage for more intensively populated/developed areas.
- Relatively few variances expected.
- Fewer mitigation plans required.
- Simplified application process- less time consuming and costly.
- Provides equitability for property owners in "highly developed" areas because NR115 allows individuals to "keep what they have". With this option, petitioners would be allowed to more closely match the existing development pattern.

Problems:

- Lack of equitability countywide- rural shorelines more heavily regulated.
- Limited protection for water quality and natural scenic beauty because greater IS coverage results in less green space and infiltration area.
- Greater potential for adverse drainage impacts to neighboring properties and nearby roads.

Option 3 "Sliding Scale" Highly Developed Shorelines (30-40%-small parcels, 25-35%-large parcels)

The "Sliding Scale" is a hybrid option that employs the maximum IS coverage limits for "highly developed shorelines" (30% w/o mitigation, 40% w/ mitigation) on parcels less than 20,000 square feet but sets slightly more restrictive IS coverage limits for parcels that are more than 20,000 square feet in area. **This option would allow residential lots more than 20,000 square feet in area a maximum of 25% IS, by right, and up to 35% IS with mitigation.**

This option was prepared for consideration because the 'General Standard" IS coverage limits of NR115 appear to disproportionately constrain smaller properties. The IS coverage scheme of similar northern lakes states (Minnesota and Maine) was analyzed in the NR115 Economic Analysis document that was prepared by DNR to analyze Wisconsin's shoreland zoning program. Minnesota limits IS coverage to 25% within 1000' of lakes and 300' of rivers. Maine sets an IS limit of 20%. Several Wisconsin counties and the Town of Delafield have previously employed a 25% IS coverage maximum. Like Option 2, rural shorelines would be required to comply with the General Standard IS coverage limits of NR 115.

*Parcel size note- **51.8% of all lakefront properties in Waukesha County are less than 20,000 square feet in area.**

Applicability Summary- "Sliding Scale:"

Lot Size - Residential	**Highly Developed Shorelines – IS permitted**	**Highly Developed Shorelines – IS with mitigation**	**Rural Shorelines – IS permitted**	**Rural Shorelines – IS w/ mitigation**
20,000 sq. ft. or more	25%	35%	15%	30%
19,999 sq. ft. or less	30%	40%	15%	30%
Lot Size - Commercial				
All lot sizes	40%	60%	15%	30%

Application of Option 3 in context of existing County development pattern:

- Examination of 37 Waukesha County riparian properties revealed the following:

- **51% would fall within the permitted IS coverage range.**
- **32% would fall within the permitted IS range with mitigation.**
- **16% would exceed allowable limits and be prohibited or require a variance.**

Option 3 continued

Benefits:

- Reasonable IS coverage for more intensively populated/developed areas.
- Relatively few variances expected.
- Fewer mitigation plans required.
- Simplified application process- less time consuming and costly.
- Provides equitability for property owners in "highly developed" areas because NR115 allows individuals to "keep what they have". With this option, petitioners would be allowed to more closely match the existing development pattern.
- Some additional minor water quality benefits and green space protection as compared to Option 2 because less IS coverage would be allowed for properties over 20,000 sq. ft.
- Lots more than 20,000 square feet in area would be regulated similar to the former Town of Delafield open space regulations on R-L Residential Lake lots which would provide consistency for one of the affected towns.

Problems:

- Lack of equitability countywide- rural shorelines and larger lots more heavily regulated.
- Limited protection for water quality and natural scenic beauty because greater IS coverage results in less green space and infiltration area.
- Greater potential for adverse drainage impacts to neighboring properties and nearby roads.
- More variances as compared to Option 2.

Hypothetical 20,000 square foot lot at 15% Impervious Surface

(3000 SF impervious allowed)

Driveway	800 SF (50’ X 16’)
Walkways	500 SF (125’ X 4’)
Garage	576 SF (24’ x 24’)
Patio	300 SF (15’ x 20’)

Leaves 824 square feet for first floor living space (with no boathouse and minimal garage)

Hypothetical 20,000 square foot lot at 25% Impervious Surface

(5000 SF impervious allowed)

Driveway	800 SF (50’ X 16’)
Walkways	500 SF (125’ X 4’)
Garage	720 SF (24’ x 30’)
Patio	300 SF (15’ x 20’)
Boathouse	300 SF (15’ x 20’)

Leaves 2380 Square Feet for first floor living space

Hypothetical 20,000 square foot lot at 30% Impervious Surface

(6000 SF impervious allowed)

Driveway	800 SF (50’ X 16’)
Walkways	500 SF (125’ X 4’)
Garage	720 SF (24’ x 30’)
Patio	300 SF (15’ x 20’)
Boathouse	300 SF (15’ x 20’)

Leaves 3380 Square Feet for first floor living space

TABLE 1 = Waukesha County Sample Lakefront Properties- Impervious Surface Calculations

Example No.	Tax Key No.	Riparian Y/N	Total Lot Size (sq. ft.)	Lot Size w/in 300 ft.	Conforming Lot Size Y/N	Existing Impervious %	Existing Impervious (sq. ft.)	Existing Impervious w/in 300 ft. (sq. ft.)
1	MRTT0405956	Y	3,994	same	N	41.6	1,662	same
35	OCOT0574029	Y	7,000	same	N	58.7	4,113	same
2	OTWT1626004	Y	7,203	same	N	21.9	1,579	same
33	OCOT0572016	Y	8,050	same	N	31.6	2,540.20	same
17	OCOT0576099	Y	8,098	same	N	32.4	2,626	same
6	MRTT0405962/0405963	Y	8,300	same	N	52.6	4,365	same
21	EGLT1871047	Y	8,608	same	N	26.6	2,286	same
23	EGLT1871020	Y	8,735	same	N	24.1	2,109	same
38	MRTT0332024	Y	8,922	same	N	26.7	2,385	same
39	MRTT0405016	Y	9,423	same	N	35	3,308	same
34	OCOT0573982004	Y	10,185	same	N	45.8	4,667	same
16	OCOT0533025	Y	10,455	same	N	39.2	4,095	same
24	EGLT1871052	Y	10,891	same	N	17.8	1,940.50	same
30	EGLT1871997	Y	11,268	same	N	19.4	2,191	same
22	EGLT1871009	Y	11,375	same	N	18.5	2,104	same
4	MRTT0372039	Y	11,394	same	N	26.6	3,036	same
3	EGLT1871004	Y	12,088	same	N	30.8	3,730	same
36	OCOT0575077	Y	13,703	same	N	39.9	5,483	same
28	DELT0810056	Y	13,742	same	N	32.5	4,464	same
42	OTWT1694064	Y	13,817	same	N	15.6	2,072	same
37	MRTT0411002	Y	14,250	same	N	43	6,131	same
19	MRTT0332012	Y	14,553	same	N	29.9	4,350	same
43	MRTT0332007	Y	14,717	same	N	23.9	2,207.50	same
27	DELT0810049	Y	15,112	same	Y	27.9	4,212	same
31	DELT0810035	Y	15,347	same	Y	30.8	4,728	same
20	DELT0810045	Y	15,523	same	Y	22.8	3,537	same
45	MRTT0335078	Y	15,748	same	N	25.3	2,362	same
8	OCOT0533021	Y	16,718	same	N	35	5,864	same
26	DELT0810017	Y	16,957	same	Y	21	3,564	same
40	OCOT0530112	Y	17,124	same	Y	32.7	2,569	same
29	EGLT1870020	Y	17,560	16,800	N	35	6,524	6,524
7	MRTT0366032	Y	20,117	same	Y	20.8	4,182	same
18	OCOT0524009	Y	24,024	same	Y	39.5	9,492	same
44	MRTT0409104	Y	25,494	same	N	19.7	3,824	same
41	OCOT0527031	Y	43,946	same	Y	16.8	6,592	same
25	DELT0773975	Y	47,798	25,500	Y	19	9,085	5,110
10	MRTT0372994	Y	69,247	46,883	Y	35	24,162	16,900

Average Percentage of Impervious Surface for Riparian Lots in sample set: 30.1

Summary of Results

% Impervious Surface	# of Example Sites within range	% of Example Sites within range
0-15%	0 of 37	0.0%
>15-20%	7 of 37	19.0%
>20-25%	6 of 37	16.0%
>25-30%	6 of 37	16.0%
>30-35%	10 of 37	27.0%
>35-40%	3 of 37	8%
>40-45%	2 of 37	5%
>45-50%	1 of 37	3%
>50-55%	1 of 37	3%
>55-60%	1 of 37	3%