GWK Multi-Community Stormwater & Codes Project

Planning Staff Discussion

Thursday, January 16, 1:30 – 3:30

Beverly Hills, Royal Oak, Oak Park, Huntington Woods

Overall Project Objectives

- Develop consistent standard for County, and adopt locally (WQ/ infiltration and peak flow control)
- **Identify potential code or process barriers at local level: Zoning, other codes, preferences, knowledge**
- Work with each community and the GWK group to develop:
  - Consistent stormwater standards (model ordinance, reference to County, or amendments within local code)
  - **Amended regulations & standards for development that facilitate compliance and encourage green infrastructure practices**
  - **Approaches, policies, and review processes that support implementation**

- Recognized Concerns:
  - Not discouraging investment and especially redevelopment!
  - Not adding cost in a way that disadvantages Oakland County vs. others in SE MI
  - Respecting local practices, standards for land development & review
  - Integrating with stormwater utilities/fees where communities are considering adoption or have done so
  - Clay soils, maintenance, contractor quality for GI

Today's Goals:

Today's Workshop

1. Introductions
2. Current practices for projects/ development review
3. Impact of proposed Water Quality regulations (components that will need adopting/incorporating)
4. Code & review process
5. Moving ahead:
   - Identify steps needed for implementation
   - How to approach code and process barriers, needed amendments
   - Relationship to SW ordinances, definitions

MDEQ and County Requirements for Stormwater Control

Everything else and now water quality …curb your enthusiasm

Standards that must be adopted/implemented:

- Water Quality standards
- Detention/Flood Control Standards
- To be determined: Threshold for application of standards
  - Wayne County: 10,000 SF
  - Detroit: 20,000 SF of new or redeveloped impervious surface
  - Chicago MWRD: 20k SF non-residential or multi-family; 1 acre ROW new impervious
- Other components:
  - Definitions of stormwater practices (i.e. "bioretention" and "permeable pavements")
  - Standards for design
  - How to review/credit the WQ, detention value of different practices
- **For planners: How will these requirements interact with and affect site plan, parking, and landscape requirements?**

Green Infrastructure Focus

Regional objective to encourage use of surface GI as part of stormwater treatment (SEMCOG, MDEQ)

County, our team recognize concerns about maintenance, clay, contractor capacity

Chief practices that need to be accommodated: Bioretention, trees w/structural soils, green streets, permeable pavements/systems

GI is also de-paving/runoff reduction
- and not paving where we don't need it!!

"But we have this thing called CLAY…"

It is understood that vegetative and infiltrating GI practices:

- Do not work in all locations
- May need to be lined or under-drained
- Require different maintenance from underground chambers or ponds
- Are not a simple panacea for water quality and landscaping

What we can expect:

Ohio DNR Example

- Nearly always underdrained, often with substantial gravel layer
- 24 hr. target drawdown time
- May be lined where needed for groundwater conditions
- **Benefits to GWK District when practices reduce the volume discharged to GLWA – especially on a cumulative basis

Ohio DNR Rainwater & Land Development Manual

2.10 Bioretention

Description

Bioretention practices are stormwater practices that utilize a soil media, mulch and vegetation to treat runoff and improve water quality for small drainage areas. Bioretention practices can provide effective treatment for many runoff quality problems such as total suspended solids, heavy metals, organic compounds, bacteria and nutrients (phosphorous and nitrogen) by promoting settling, adsorption, microbial breakdown, and nutrient assimilation by plants. Outlet configurations of bioretention practices can be altered in order to encourage exfiltration, enhance nitrogen removal and mitigate discharge temperatures.

Design Criteria

Water Quality Volume - All bioretention practices shall be designed to treat the water quality volume (WQv) by initially ponding that volume and allowing it to infiltrate through soil media within the practice. Bioretention practices have a target drawdown time of 24 hours for the surface ponding area. Drawdown time may be controlled by the soil media (typically), by an orifice on the underdrain or by the the rate of infiltration into in-situ soils under the practice.

Incorporating Additional Objectives - Design of bioretention practices will vary depending on the water quality objectives, the potential for groundwater recharge, and the potential for groundwater pollution. While all bioretention practices provide filtration through the soil media, the following conditions and design variations may enhance or limit the infiltration of water into in-situ soils, or enhance denitrification at the bottom of the practice.

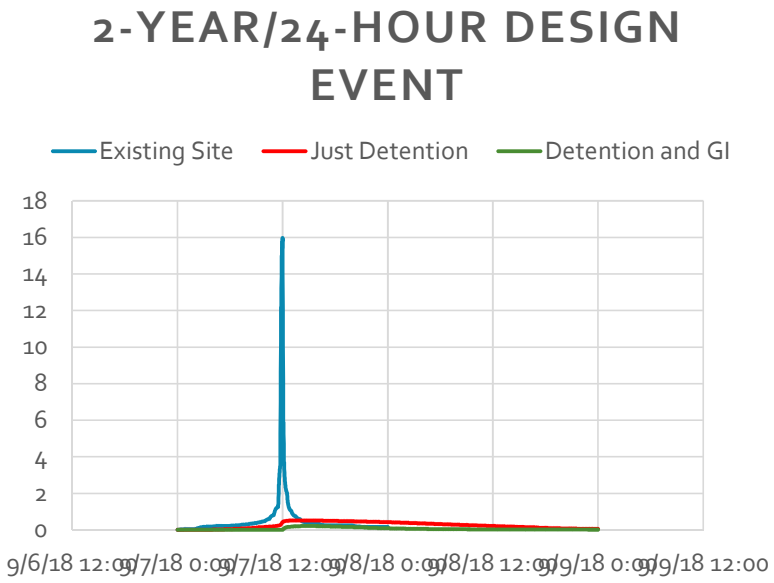
In-situ Soils Suitable for Infiltration – Where in-situ soils can fully infiltrate the water quality volume within 48 hours and where groundwater pollution potential is low, exfiltration may be used as the primary drainage for the bioretention practice. Although this situation may be designed without an underdrain (Figure 2.10.2a), an internal water storage layer provided with a drain near the top serves as a backup to natural exfiltration (Figure 2.10.2b). Systems designed without an underdrain may not be used where extensive ponding of water above the practice will cause damage. Infiltration capacity of the soils shall be tested by a qualified professional.

Limited Infiltration and/or Enhanced Nitrogen Treatment - (Limited infiltration soils = $0.05 \leq Kfs \leq 0.5$ in/hr.) This design provides an internal water storage (IWS) layer below the upturned outlet of the underdrain pipe. This standing water zone (see Figure 2.10.2b and option 1 of 2.10.3) holds water and extends opportunity (both in time and quantity) for exfiltration. This layer also acts as a anoxic zone that encourages denitrification, that is, the conversion of nitrate to nitrogen gas, reduction in nitrogen discharge, and thus is an aid in preventing eutrophication of receiving waters. This design is expected to provide better than 40% and perhaps as high as 80% mass removal of nitrogen from surface runoff.

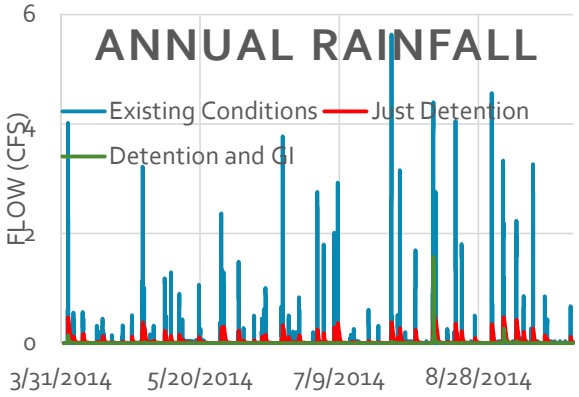
Low Infiltration In-situ Soils – For sites having in-situ soils with low permeability (clayey subsoils with $Kfs < 0.05$ in/hr), a standard underdrain bedded in a gravel layer provides the primary drainage for the practice (Figure 2.10.2c and Figure 2.10.3c). This configuration may be most appropriate for hydrologic soil group (HSG) D soils.

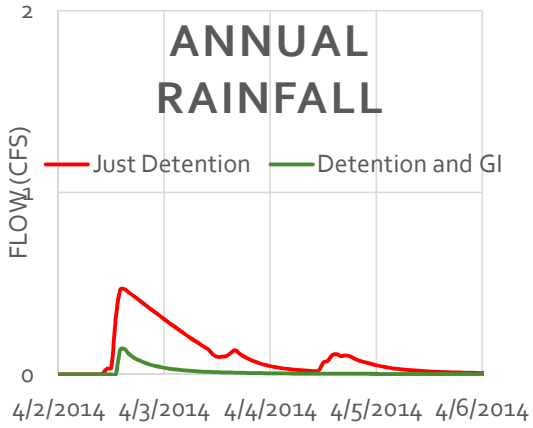
Impermeable Liner – For areas with a high water table, karst, shallow bedrock or high pollution loads, an impervious liner separates the entire practice from in-situ soils and the water table (Figure 2.10.2c). This design also relies on the underdrain system as the primary drainage. This is appropriate where heavy pollution is expected and/or where groundwater must be protected.

Ok – what exactly does this mean for site plans and zoning?



**No spreadsheets were harmed in the generation of these graphs.*

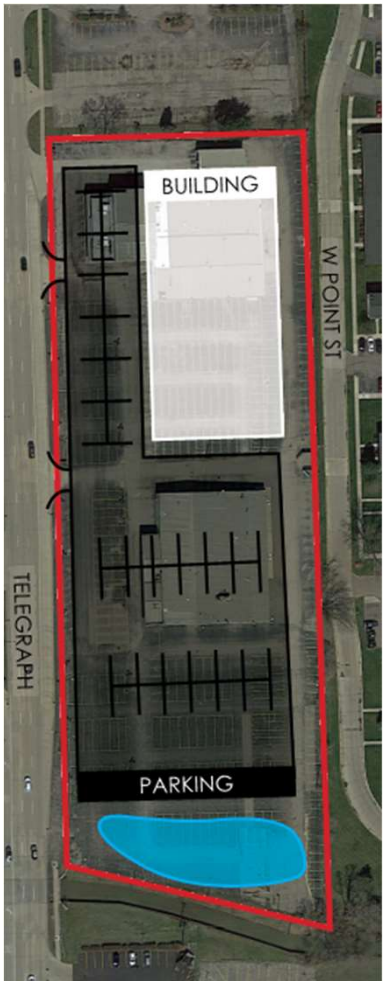




What do these standards mean for site planning?

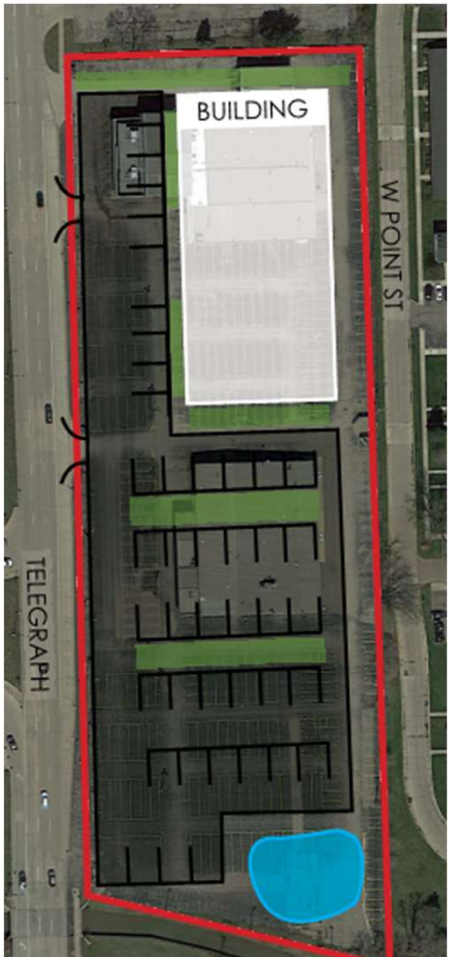
- Surface WQ practices will occupy @ 3-5% of impervious area treated
- Ponds have smaller footprints

JUST DETENTION



Pond Surface Area: 13,000 Sq. Ft.

DETENTION W GI



Total GI Area: 9,000-12,000 Sq. Ft.
Pond Surface Area: 6,600 Sq. Ft.

Helping applicants deal with new standards: (1) Promoting runoff reduction and (2) Incorporating stormwater management

Runoff Volume

STRATEGIES

- Reduce required parking (ratios, space sizes, shared parking, future/reserved)
- Reduce size/extent of other impervious surfaces (fire access, road widths, drive aisle widths, cul-de-sac ratios) OR
- Make partially permeable (grasscrete access areas, permeable pavers, permeable parking lanes)
- De-pave excess impervious
- Green roofs, rainwater harvesting

CODE (or Habit) CHALLENGES:

- Required minimum parking, required fire access, minimum roadway/ drive aisle/ cul-de-sac widths
- Someone *knows* permeable pavements don't work

Area for Treatment with Green Infrastructure

INFILTRATION PRACTICES

- Bioretention, permeable pavement systems, "Stormwater trees," deep-rooted plantings/ amended soils

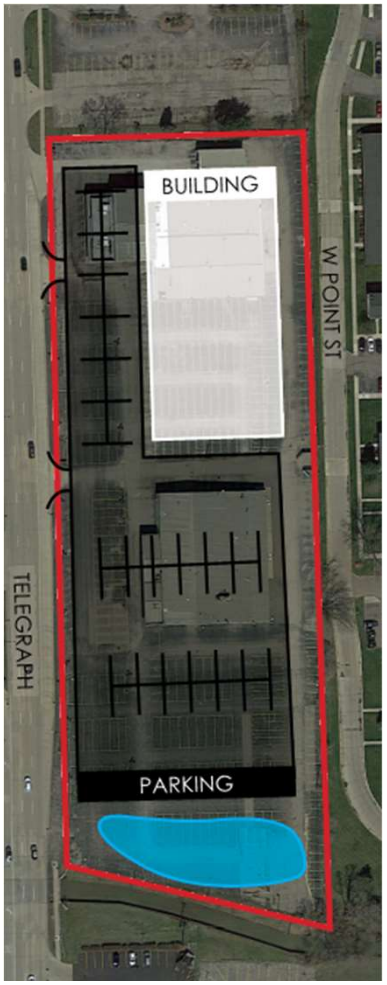
CODE (or Habit) CHALLENGES:

- Required landscaping: specific numbers, sizes of trees and shrubs
- Requirements for turfgrass
- Required continuous curbing
- Required BERMS and fences
- Required small islands throughout parking lots
- Required screening
- …no required landscaping at all…
- …discretion of staff/ planning commission…

Planning & Zoning Questions:

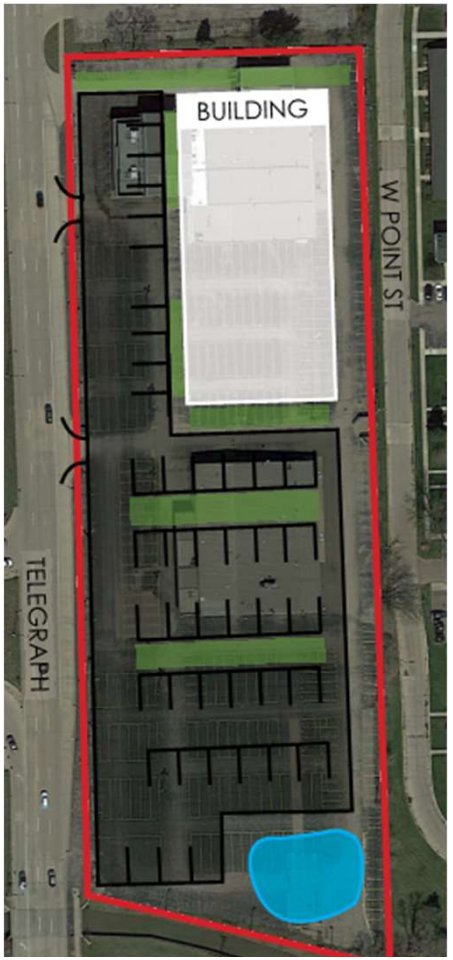
Would the bioretention areas at right 'count' as required landscaping?

JUST DETENTION



Pond Surface Area: 13,000 Sq. Ft.

DETENTION W GI



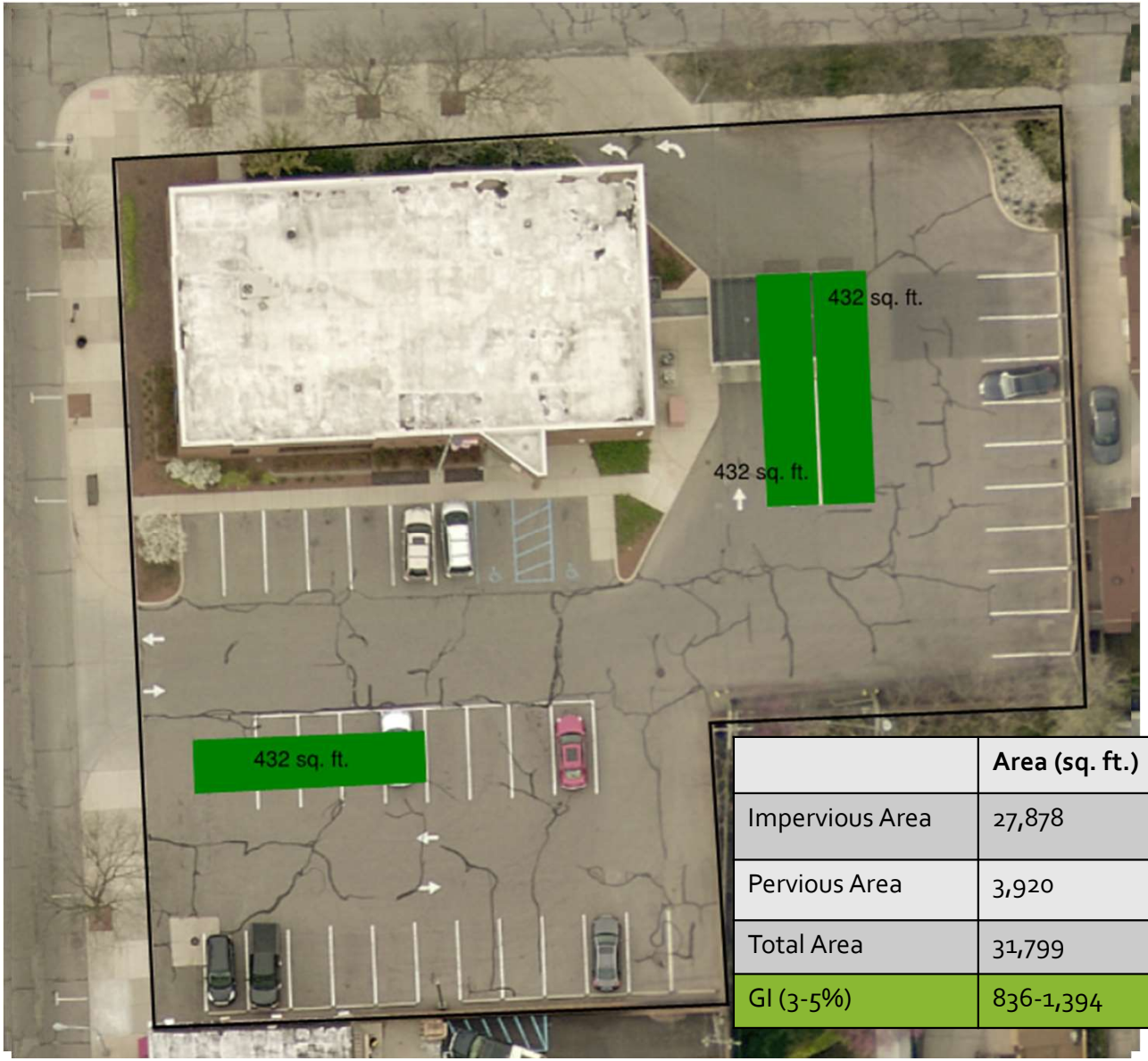
Total GI Area: 9,000-12,000 Sq. Ft.
Pond Surface Area: 6,600 Sq. Ft.

Example #2:

Infiltration of first 1.0" of rainfall

Infiltration BMP Sizing : Footprint approximately 3% - 5% of impervious surface drained to BMP

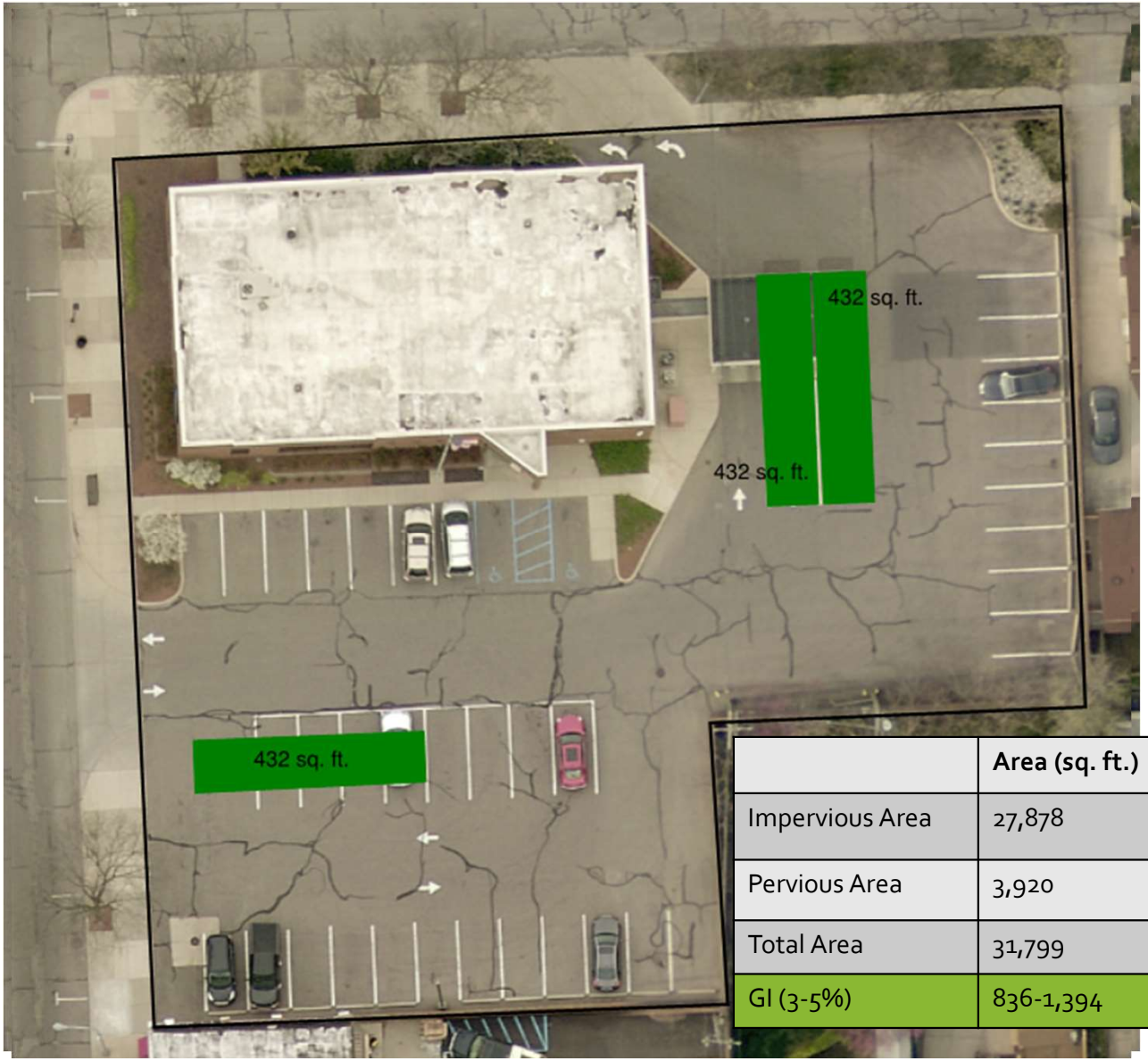
Typical BMP: 12" surface storage depth, 24" engineered soil, 12" stone and overflow structure for higher flow to discharge to receiving sewer



	Area (sq. ft.)	Percentage
Impervious Area	27,878	88%
Pervious Area	3,920	12%
Total Area	31,799	100%
GI (3-5%)	836-1,394	

Planning & Zoning Questions:

- How many drive-through lanes are required?
- How and where can required parking and landscaping minimums be met if GI footprint needs 800 – 1400 SF of space?
- Will our Planning Commission approve it? Must some parking be removed/re-planted?
- When is next flight to Micronesia?



	Area (sq. ft.)	Percentage
Impervious Area	27,878	88%
Pervious Area	3,920	12%
Total Area	31,799	100%
GI (3-5%)	836-1,394	

Example #3:

- Relationship of typical GI footprint to typical landscaping

Planning & Zoning Questions:

- Where should snow storage go (i.e. not in bioretention)?
- Do site plan conditions include good maintenance practices?

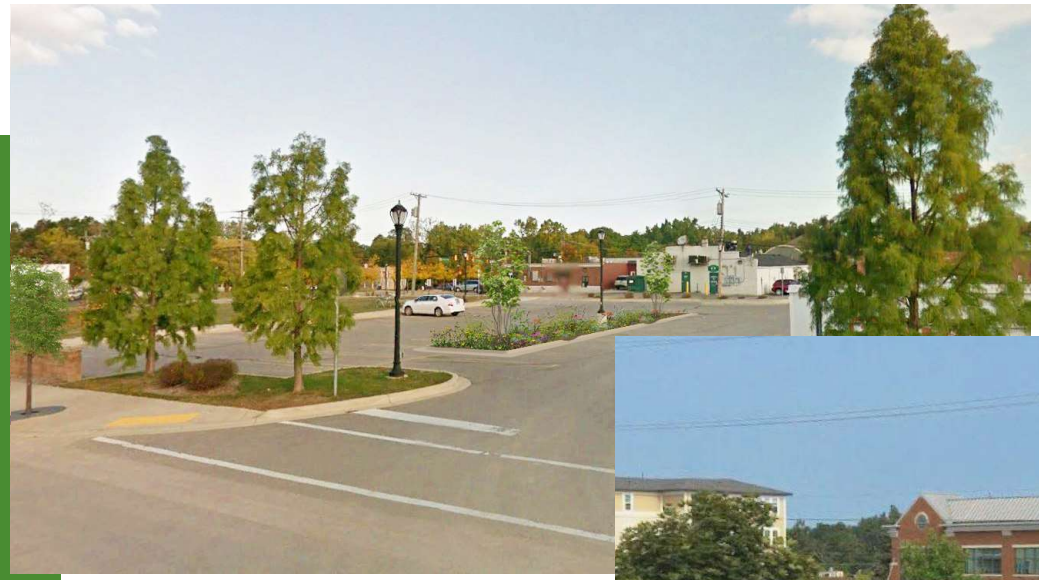
	Area (sq. ft.)	Percentage
Impervious Area	60,126	64%
Pervious Area	33,964	36%
Total Area	94,090	100%
GI (3-5%)	1,804-3,006	

Details & challenges for incorporating GI into sites:

- Bioretention can be part of parking lot islands, but islands usually need to be larger than the usual standard OR located at perimeter

- Deep-rooted plantings and trees in structural soil/ tree boxes are great – if codes allow tall plants and specific types of trees

- Screening: Since water does not flow up hill, berms do not work.



Detail and challenges enabling vegetation and surfaces do "double duty":
"One tree of minimum 3" caliper shall be planted for every twenty (20) parking spaces…"
vs.
"Parking lot island and perimeter planting areas shall be equal to 10% of the total parking surface area…" with minimum planting area and soil volume for bioretention area or per tree *runs away*

Arborcide!

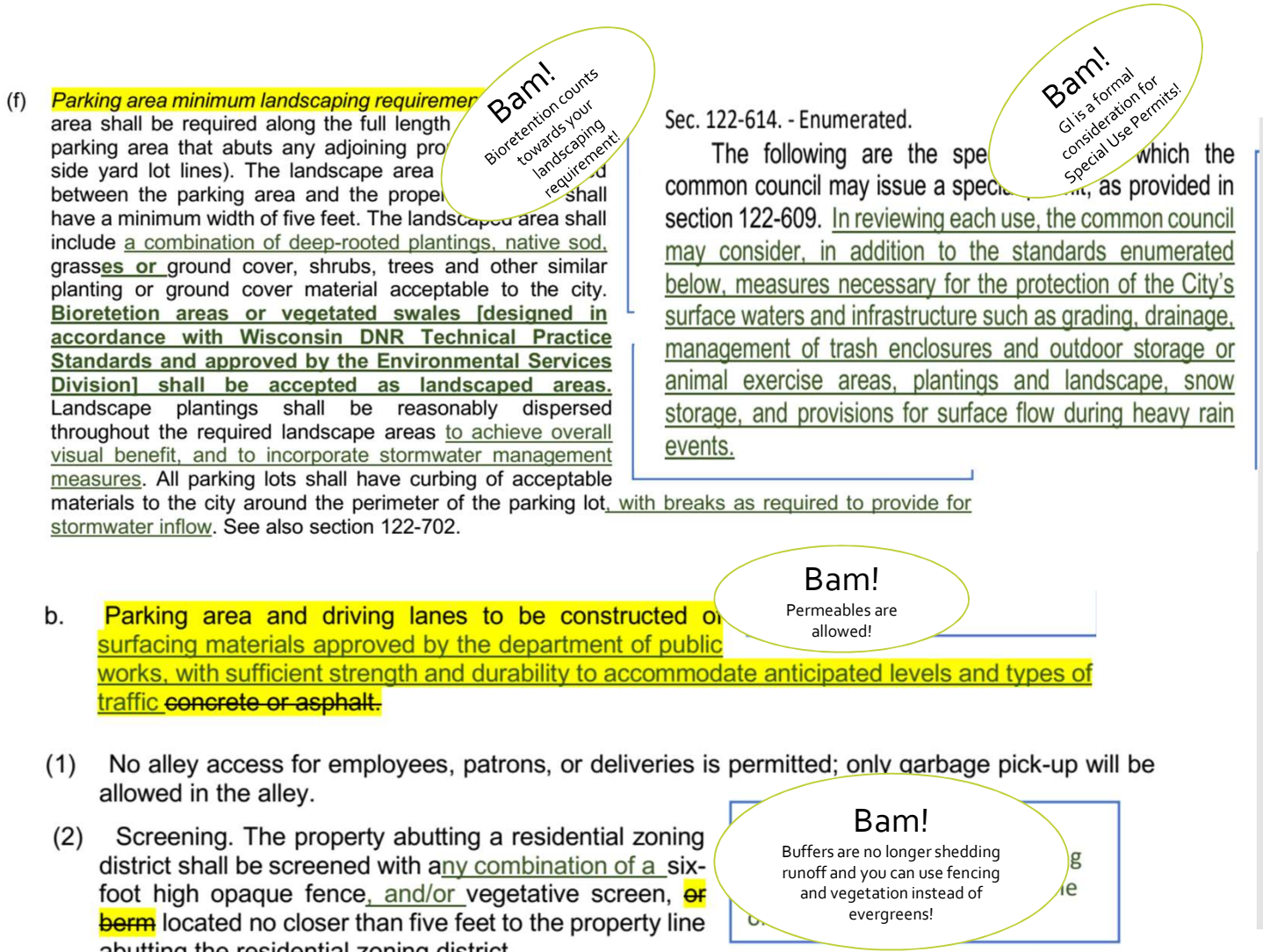
VS.

Hydro filterra tree box

Let's Talk!

What elements of your zoning, procedures, and habits might need a look-see for Water Quality?

DRAFTING ZONING AMENDMENTS that make life easier ☺



(f) *Parking area minimum landscaping requiremer*
area shall be required along the full length
parking area that abuts any adjoining pro
side yard lot lines). The landscape area
between the parking area and the prope
have a minimum width of five feet. The landsc
include a combination of deep-rooted plantings, native sod,
grasses or ground cover, shrubs, trees and other similar
planting or ground cover material acceptable to the city.
Bioretetion areas or vegetated swales [designed in accordance with Wisconsin DNR Technical Practice Standards and approved by the Environmental Services Division] shall be accepted as landscaped areas.
Landscape plantings shall be reasonably dispersed
throughout the required landscape areas to achieve overall
visual benefit, and to incorporate stormwater management
measures. All parking lots shall have curbing of acceptable
materials to the city around the perimeter of the parking lot, with breaks as required to provide for
stormwater inflow. See also section 122-702.

Bam!
Bioretention counts towards your landscaping requirement!

Sec. 122-614. - Enumerated.

The following are the spe
common council may issue a speci
section 122-609. In reviewing each use, the common council
may consider, in addition to the standards enumerated
below, measures necessary for the protection of the City's
surface waters and infrastructure such as grading, drainage,
management of trash enclosures and outdoor storage or
animal exercise areas, plantings and landscape, snow
storage, and provisions for surface flow during heavy rain
events.

Bam!
GI is a formal consideration for Special Use Permits!

b. Parking area and driving lanes to be constructed o
surfacing materials approved by the department of public
works, with sufficient strength and durability to accommodate anticipated levels and types of
traffic ~~concrete or asphalt.~~

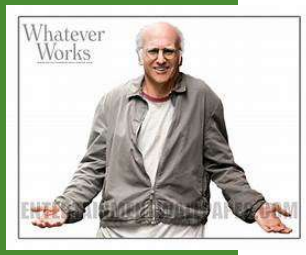
Bam!
Permeables are allowed!

(1) No alley access for employees, patrons, or deliveries is permitted; only garbage pick-up will be allowed in the alley.

(2) Screening. The property abutting a residential zoning district shall be screened with any combination of a six-foot high opaque fence, and/or vegetative screen, ~~or berm~~ located no closer than five feet to the property line abutting the residential zoning district.

Bam!
Buffers are no longer shedding runoff and you can use fencing and vegetation instead of evergreens!

Questions for the group:



1. With respect to zoning and adopted code: Where is your community on the scale of "Whatever Works" to "I'm complying here!"
- Parking ratios
- Parking lot design
- Landscape standards, types, dimensions
- Screening depth, materials, opacity
- Buffers

2. With respect to site plan development and review process, who will 'touch' stormwater?
- In-house engineering
- Public safety/ fire
- Consulting engineers
- Applicants
- Planning Commission
- Elected Officials
- Neighbors

Observations for the group

prior to my 4 pm flight to Micronesia

Observations:

- Really really high parking requirements
- Shared parking/off-site parking are vague/restrictive
- Big drive aisles in one city…next to another with smaller ones
- Mandatory "asphalt or Portland cement" for all parking areas
- Snow storage, trash areas not required to be identified/ reviewed in site plans
- Super-specific plant counts, calipers & spacing in some cases
- Lotta "cover it with turf!"
- Narrative site plan requirements…not very specific

Ugh go away we don't want to redo our parking regs

Updating is business-friendly and water-friendly

Code change: Reduce number of required parking spaces for banks, set *maximum* number of drive-through lanes

VILLAGE OF BUTLER
Zoning Code Section 13-1-92(k)
Option for changing parking ratios and adding shared parking provisions

(k) The Following Guide Specifies the Minimum Number of Parking Spaces Required

The reference herein to "the work shift with the largest number of employees" means the maximum number of full-time or part-time employees present at the facility at any one (1) time. For example, the largest work shift may be a particular day of the week, or a lunch or dinner period in the case of a restaurant. The reference herein to "maximum capacity" means the maximum number of persons which may be accommodated by the use as determined by its design or by applicable building code regulations, whichever is greater. In the case of structures or uses not specified herein, the number of spaces specified for a use which is similar shall apply. In developments involving the establishment of two (2) or more uses on one (1) lot or parcel, the number of spaces required for each use shall determine the total number of spaces required.

[PLEASE NOTE THAT 'EMPLOYEE MAX' BELOW IS AN ABBREVIATION FOR 'EMPLOYEES AT MAXIMUM SHIFT']

(1) Residential uses.

Use	Required Parking	Notes
Single-family and two-family dwellings	2.0 spaces per dwelling unit	*Rec. keeping current standard*
Multi-family dwellings	2.0 spaces per dwelling unit	ADD NOTE: For buildings with more than 8 units where all spaces are in common (i.e. not reserved) requirement is reduced to 1.2 per DU plus 1 per every 4 units.
Housing for the elderly	0.75 spaces per dwelling unit	*Rec. keeping current standard*

(2) Retail sales and customer service uses; places of entertainment.

Use	Required Parking	Notes
General retail sales and	1 per 200 SF Gross Floor Area	*Current standard 1/150 customer*

Vermont Office 5 Taft Avenue Rutland VT 05471
California Office & Mailing Address 12664 Carmel Country Road #70 San Diego CA 92130
birchlineplowing@gmail.com 802.324.5760

- Reduce to 4 drive-through lanes (still a lot)
- Park at 5.5 spaces/1000 SF = 44 spaces instead of 64
- Drainage area 33,000 SF = @ 1,650 SF of bioretention

- **% Runoff Reduction: 48.0%**

How much does parking matter?

…wait for it…

…a *lot*!

- Proportional reduction in runoff volume and size of required BMPs

REDUCTIONS IN VOLUME FROM REDUCED PARKING SURFACE AREA: 1" OF RAINFALL

IF SPACES ARE 9 X 18 WITH 22' AISLES:

	RATIO	SPACES	RATIO	SPACES	REDUCTION IN IMPERVIOUS SURFACE	REDUCTION IN VOLUME TO BE MANAGED - 1" of rainfall (ft3)	gallons
5,000 SF Medical Office	1:150	33	1:200	25	-2,500	-204	-1,527
10,000 SF General Office	1:200	50	1:250	40	-3,000	-245	-1,833
40,000 SF Supermarket	1:150	267	1:200	200	-20,000	-1,633	-12,217
120,000 SF Shopping Center	1:200 + 1:250	280	1:200 + 1:300	267	-4,000	-327	-2,443

IF SPACES ARE 10 X 20 WITH 24' AISLES:

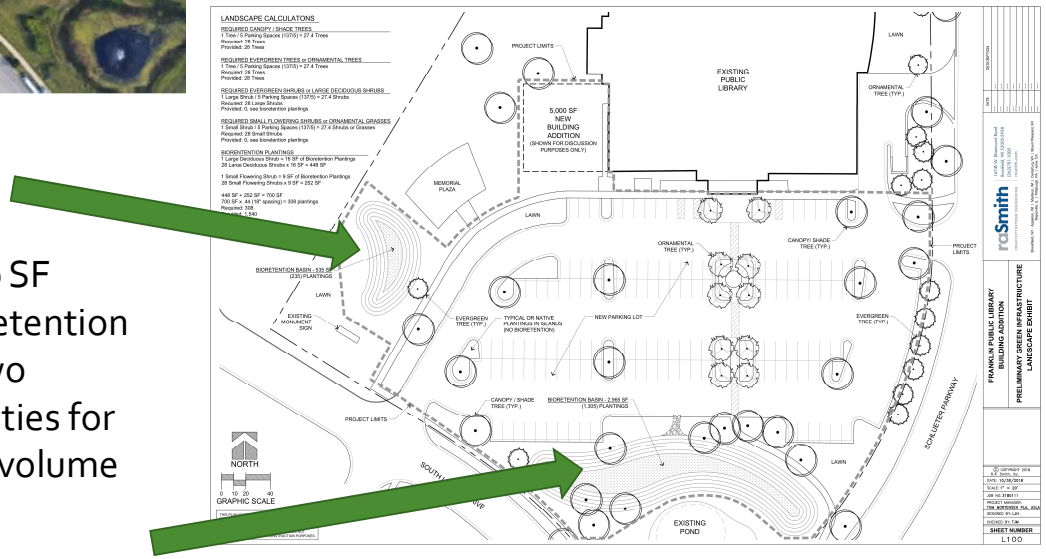
	RATIO	SPACES	RATIO	SPACES	REDUCTION IN IMPERVIOUS SURFACE	REDUCTION IN VOLUME TO BE MANAGED - 1" of rainfall (ft3)	gallons
5,000 SF Medical Office	1:150	33	1:200	25	-2,625	-214	-1,604
10,000 SF General Office	1:200	50	1:250	40	-3,150	-257	-1,924
40,000 SF Supermarket	1:150	267	1:200	200	-21,000	-1,715	-12,828
120,000 SF Shopping Center	1:200 + 1:250	280	1:200 + 1:300	267	-4,200	-343	-2,566

CHANGE FROM 10X20 AND HIGH RATIOS TO 9X18 AND MORE REALISTIC ONES	REDUCTION IN IMPERVIOUS SURFACE	REDUCTION IN VOLUME TO BE MANAGED - 1" of rainfall (ft3)	gallons
5,000 SF Medical Office	-3,000	-245	-1,833
10,000 SF General Office	-3,750	-306	-2,291
40,000 SF Supermarket	-24,000	-1,960	-14,661
120,000 SF Shopping Center	-8,200	-670	-5,009

Making bioretention "count" as required landscaping

- Modeled addition to library + full reconstruction of the (decrepit) parking lot & landscaping
- **Given the City's extremely prescriptive landscaping standards, would bioretention 'count' as required landscaping?

3500 SF bioretention in two facilities for WQ volume



Zoning Amendments (in process!):

1. Affirmatively "counts" bioretention
2. Numerical standard for site plan compliance
3. Larger landscaped islands or perimeters instead of arborcide
4. Minimum soil volume for trees
4. Reducing the extent of turfgrass in favor of deeper-rooted plants

1

E. Integration with Stormwater Management. Vegetated features designed and installed to provide stormwater infiltration or treatment, including but not limited to bioretention areas or rain gardens, vegetated swales, or deep-rooted plantings with amended soils, may be incorporated into landscaped areas and bufferyards required under this Division. The plant selection requirements of this Division may be varied in order to accommodate planting plans specific to a vegetated stormwater infiltration or treatment area, provided the overall landscaping and/or screening plan installed is equivalent or greater to the amount required under this Division.

(E) is a new section that adds specific statement to integrate stormwater management features with landscaping and allow these features to "count". Language for the definitions used here (bioretention, rain gardens, vegetated swales, plantings with amended soils) is provided at the end and can be incorporated into Section 15-11.0101 or Section 15-5.0302(B), Definitions

3

SECTION 15-5.0304 MINIMUM LANDSCAPING STANDARDS FOR OFF-STREET PARKING AREAS AND LOTS

A. **Minimum Landscaping Requirements for Residential and Nonresidential Off-Street Parking Areas and Lots.** Each residential and nonresidential off-street parking lot shall contain landscaping within the parking lots, along parking lot perimeters, and along adjoining entrance drives and circulation drives.

Parking lot perimeters are not called out as areas for landscaping. Where smaller lots are constructed, landscaped islands may be too small to survive well; in these cases, more robust perimeter landscaping can be friendlier to landscape conditions and stormwater management.

4 + 5

~~(F. SPECIES OF PLANTINGS)~~

F. **GROUND COVER**. All areas not covered by buildings or paving shall be covered with landscaping. The specific type(s) of groundcover to be used shall be shown on the landscape plan.

1. Open areas not covered by formal landscape plantings shall be planted with deep-rooted plantings (which may include native short-stature grasses or native forbs), grass, low growing ground cover, or other landscape materials, except where existing natural vegetation of the site makes such plantings impossible.
2. The use of conventional sod or turf grass as ground cover should be limited to those areas planned for active recreation use or other areas where substantial pedestrian use is anticipated.
3. The use of low-growing ground cover on slopes to provide stabilization and where appropriate, pollinator habitat, is encouraged.
4. Parking lot landscaped islands and perimeter areas shall incorporate sufficient soil volume to support the trees or other plant materials installed to be within the island area. The use of salt-tolerant species is strongly recommended in all parking lot landscaped islands and perimeter areas.
5. Low-growing ground cover such as Barren Strawberry (Waldsteinia) is preferred to the use of stone, wood chips, or other non-vegetative material to cover a parking lot landscaped island.

For Ground Cover, (1) adds deep-rooted plantings

(2) is re-formatted from current (1). The phrase "The use of grass on flat open areas as ground cover is necessary" is deleted. The purpose here is to direct applicants to use sod/turf grass where people will walk or recreate on it, and to use other deeper-rooted vegetation or ground covers with more value for stormwater retention, soil stabilization, and habitat in areas where people will not be walking.

In (3), the words in yellow are added to highlight the benefits applicants should seek to maximize in selecting ground cover on slopes.

In (4), the current language is "Parking lot landscaped islands shall be covered by grass." This clarifies standards for the design of island and perimeter areas, which need to be large enough and have enough soil volume to support plantings.

The limitation currently in the regulations on using vegetative material states that islands must be vegetated. There are parking lot islands where this is not advised because of snow storage, salt concentrations, and general abuse.

G. PLACEMENT. Generally, placement of

2

Table 15-5.0302 Standard Plant Units

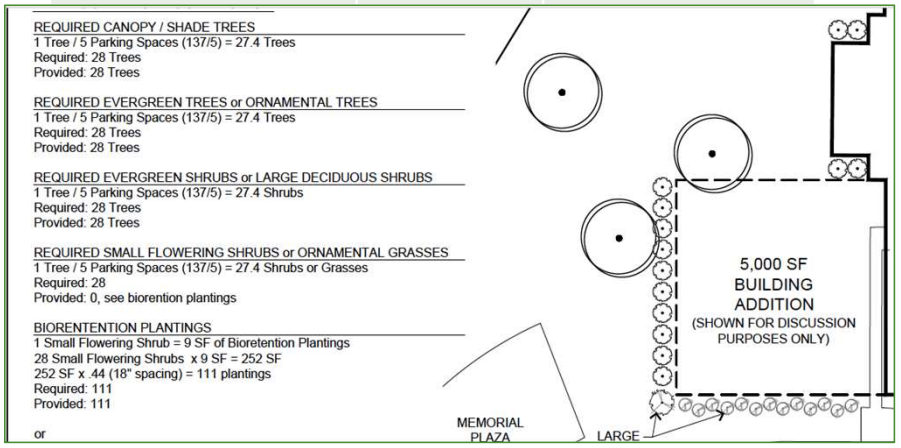
	Planting Size		Land Use Type		
Planting Type	Minimum Diameter/ Size	Minimum Height	Multi-Family	Commercial, Industrial, Office & Similar	Manufacturing/ Industrial
Canopy/ Shade Tree	3" diameter @ 6" above root flare		1.5/ dwelling unit	1/ 5 parking spaces	1/10 parking spaces
Evergreen Tree OR		6'	1/ dwelling unit	1/ 5 parking spaces	1/10 parking spaces
Ornamental Tree	3" diameter @ 6" above root flare				
Evergreen Shrub OR	18" wide		1/ dwelling unit	1/ 5 parking spaces	1/10 parking spaces
Large Deciduous Shrub		3'			
Small Flowering Shrubs OR		18"	3/ dwelling unit	1/ 5 parking spaces	1/10 parking spaces
Native Grasses/ Forbs OR	1 gallon pot				
Bioretention Plantings	3" - 4" pot (or as specified by Landscape Architect)		Per storm water mgmt. plan; Max. Spacing 18" on center; 9 SF = one 18" small flowering shrub or 1 gallon pot of native grasses/forbs		

For purposes of this Section, bioretention plantings shall be equivalent to small flowering shrubs or native grasses/forbs at a rate of 9 SF of plantings per large deciduous shrub, small flowering shrub, or native grass/forb.

The results are in:

- Same total number of canopy trees
- Fewer evergreens
- Larger shrubs
- Bioretention replaces ornamental & evergreen trees
- Less turfgrass = less runoff volume

	Previous	Amended Regs
Canopy Tree	28	28
Evergreen Tree	28	14 (evergreen)
Decorative Tree	28	14 (deciduous ornamental)
Shrub	28	28 large (evergreen or deciduous)
Bioretention		111
Total	112 "units"	84 "Units" plus 3500 SF bioretention



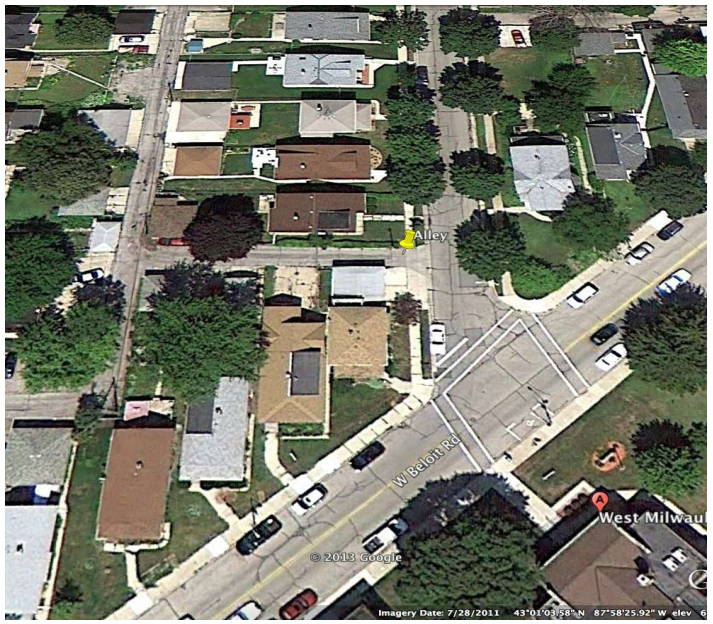
Assumptions:

- lousy clay (0.02 in/hr infiltration)
- Impervious area draining to bioretention: 1.63 ac
- 137 parking spaces (unchanged), 5000 SF new impervious
- 2 yr detention = 0.15 cfs/acre = 0.36 cfs
- 100 yr detention = 0.5 cfs/acre = 1.22 cfs
- 3500 SF bioretention designed to WDNR Technical Practice Standard (4.9% of contributing area)
- **Volume reduction: 11%**
- **TSS reduction: 80%**

Allowing or encouraging permeable surfacing

(Note that your fearless presenter did <u>not</u> say "porous asphalt")

- (3) *Surfacing.* All driveways shall be surfaced ~~with an asphaltic or portland cement pavement~~ in accordance with Village standards and specifications so as to provide a durable and dustfree surface, and shall be so graded and drained as to dispose of all surface water. <u>Permeable surfacing may be used upon review and approval by the City Engineer.</u>



- Drainage area: 25,000 SF
- Paver area: 5600 SF
- Change alley to permeable surface:
  - **Runoff Reduction: 63%**
  - **TSS Reduction:63%**
- Direct roof drainage to permeable area:
  - **Runoff Reduction: 93%**
  - **TSS Reduction: 93%**

Impervious reduction:
- Required ratios
- Drive aisle & space widths
- Shared & off-site requirements
- Stacking

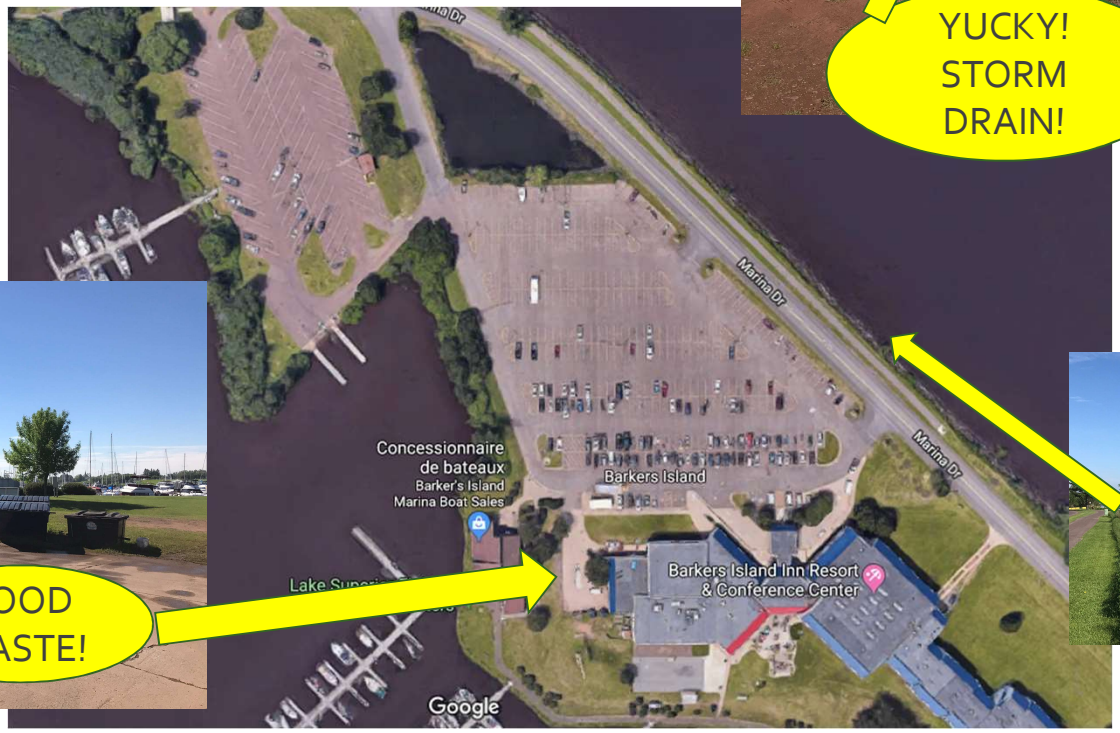
D. *Automobile wash or carwash establishment.* The following regulations shall apply to automobile wash or carwash establishments:

3. *Entrances and exits.* Sufficient space shall be provided on the lot so that vehicles do not enter or exit the wash building directly from an adjacent street or alley. All maneuvering areas, stacking lanes, and exit aprons shall be located on the carwash parcel itself. Streets and alleys shall not be used for maneuvering or parking by vehicles to be serviced by the automobile wash. A minimum distance of 125 feet shall be maintained between ~~the exit door of the wash structure~~ to the nearest exit driveway to permit adequate time for excess water to drip off of the vehicle.

…never mind the excess water running off the site when it rains?!

A few words about traveling crud, to people who can do something about it.

Site plan review is a powerful tool for reducing bacteria and traveling crud in storm sewers and waterways.



Site plan review standards to prevent Traveling Crud:

- Code Change: V. Simple.
- Staff training: Has to happen
- Applicant complaining: You'll get some
- Less pollution from Traveling Crud: PRICELESS

earthberming or a combination of the above.

(b) *Trash dumpsters and receptacles.* **The City of Superior recognizes that trash receptacles and dumpsters can be a source of bacteria and trash pollution conveyed to the City's streets, storm drains and waterways when not properly sited, constructed and managed. All trash receptacles and dumpsters shall be subject to the following standards:**

Very important! Dumpster siting and review for drainage is an area that needs attention and can substantially help with the City's pollution prevention efforts!

i. Trash receptacles and dumpsters shall have secure, fully functional lids to exclude rainwater, snow, and animals, and shall be screened on all sides by the use of a permanent enclosure, with locking gates for disposal truck access.

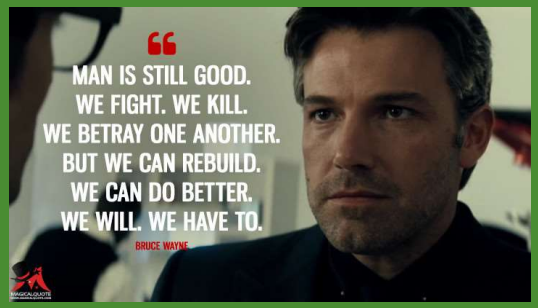
ii. The enclosure shall be constructed to visibly screen the receptacle from public view and from adjoining properties.

iii. The enclosure area shall be sited in a manner that prevents the discharge of runoff into storm drains or surface waters, through any effective combination of curbing, sheet flow through a properly designed vegetated area, use of permeable surfacing with sufficient base course to allow infiltration, or where specifically approved by the Environmental Services Division, discharge to a properly designed sanitary sewer inlet.

iv. Grading and drainage review for all dumpster areas shall be performed by the [WHICH DIVISION] prior to issuance of a building permit.

Very important! Which staff or division should do this review?

Group Discussion: Adopting WQ Standards



General questions

- What aspects of the WQ regulations should be incorporated in your zoning code, vs. deferring to the stormwater plan/ordinance?
- What definitions or examples should be illustrated & codified for your community?
- What guidance, support is needed on site plan approval and conditioning approvals?

Specifics for this group

- What needs to be amended to make landscape "count"?
- Shared parking provisions – are these being used? Would code amendments, templates make it easier/ more common?
- Are there opportunities to promote more off-site parking (300'-500'…standard often 800')?
- What about updating parking ratios as a group with the new 1/31/2019 ITE Manual? ☺ Fun!!!
- Can GI features be sited within required setbacks/ yards?
- Does GI fit any of your definitions of 'accepted' landscaping? What would need to happen?