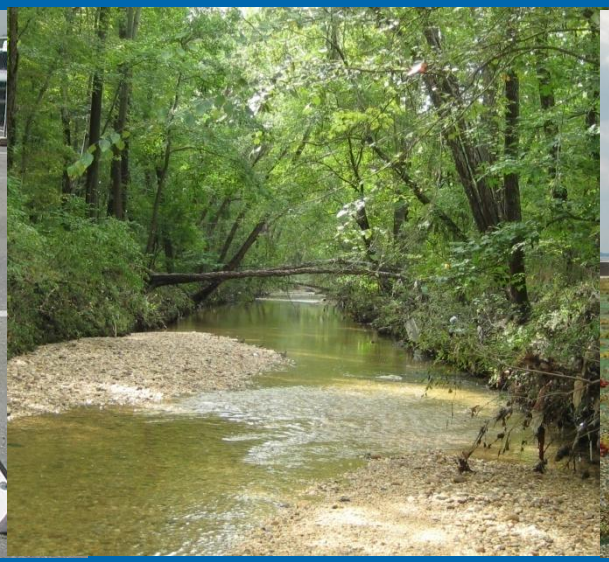
2013 Final Stormwater Rule

Restoring District Waterbodies for Residents, Businesses, & Visitors



DISTRICT DEPARTMENT OF THE ENVIRONMENT

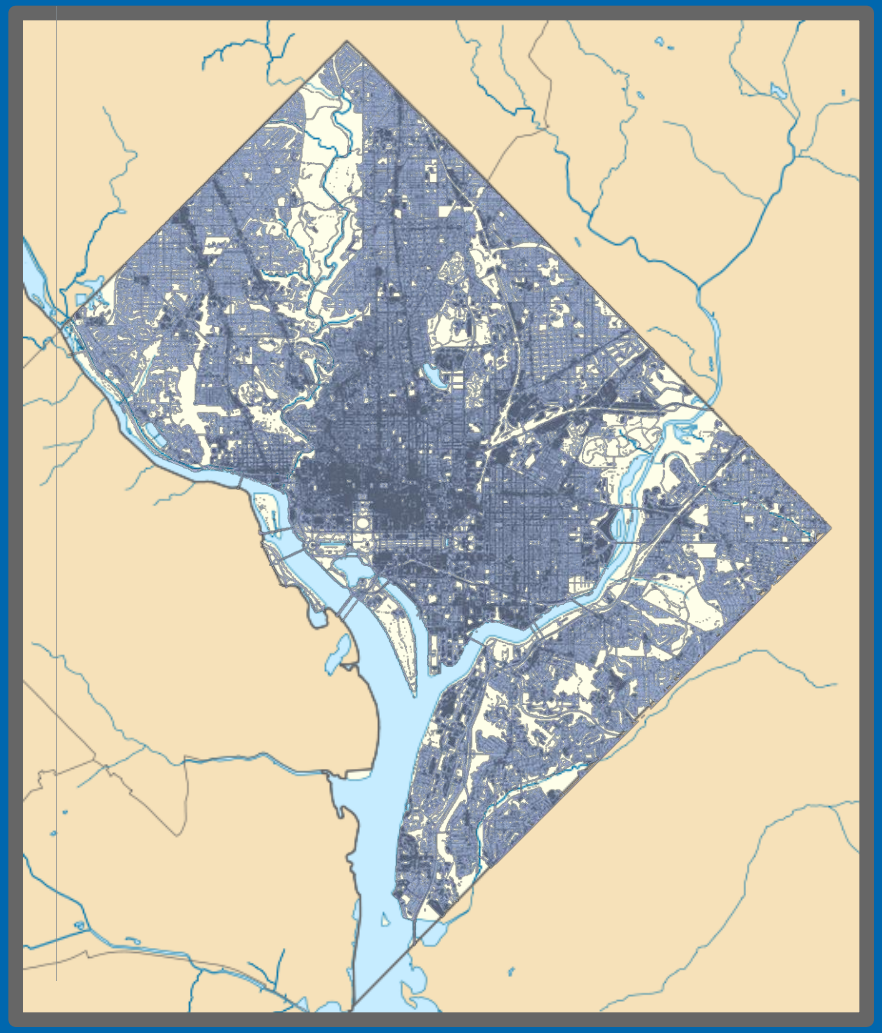
green forward

Agriculture, Industrialization, Urbanization → Degradation

Urbanization ⟹ Stormwater

Imperviousness in the District

- 43% of the District's land area is impervious.
- A single 1.2 inch storm falling on this area produces about 525 million gallons of stormwater runoff.



Impact on Waterbodies

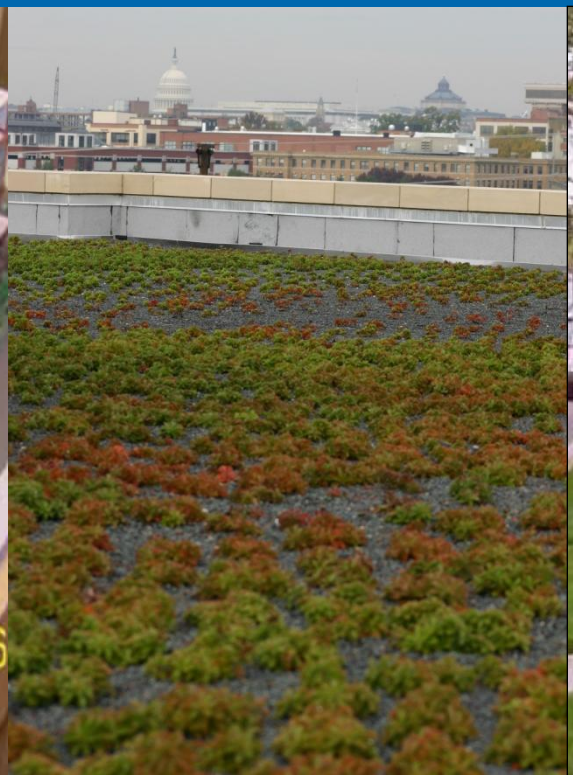
Stormwater washes trash, sediment, oil, grease, pet waste, and other pollutants into District sewers and waterbodies.

Impact on Waterbodies

Its sheer volume erodes stream channels, toppling trees, washing sediment downstream, and severely degrading aquatic habitat.

Impervious Surface Retrofits

- Retain runoff on site to mimic natural land cover.
- Retention BMPs gradually make District “spongier.”
- Essential for long-term restoration of waterbodies.



Retention Requirements in 2013 Rule

Major land-disturbing activity

- Retain the first 1.2” of rainfall on site or through a combination of on-site and off-site retention.

Major substantial improvement activity

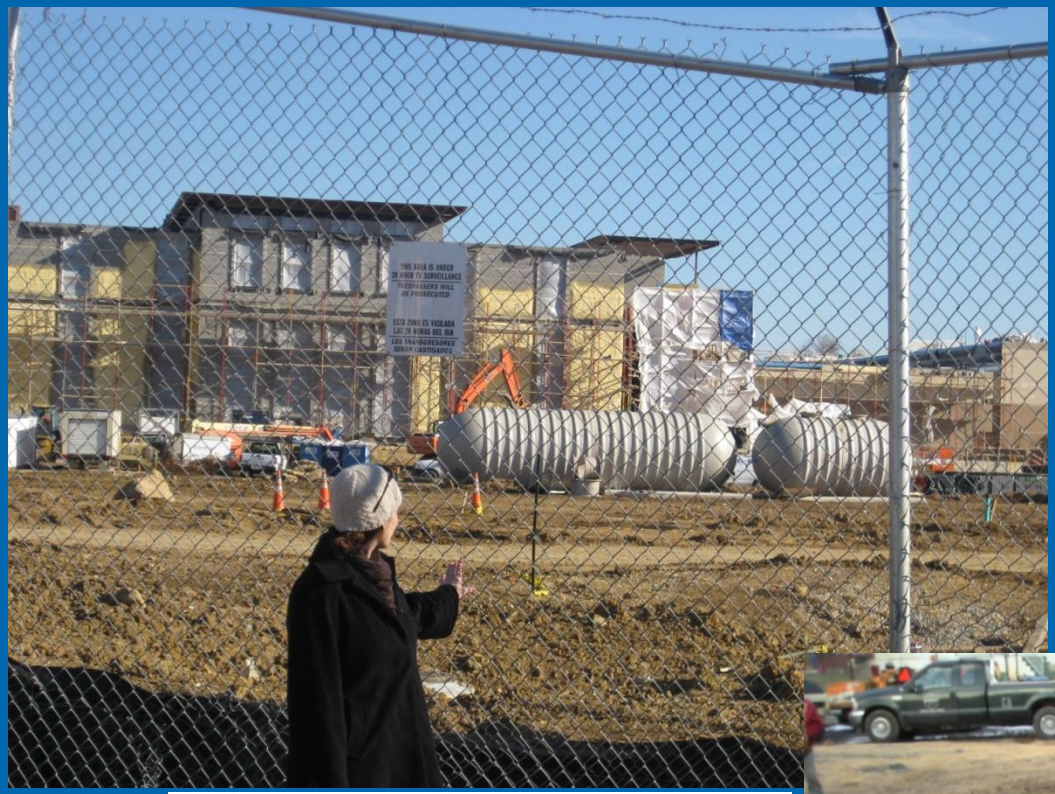
- Retain the first 0.8” of rainfall on site or through a combination of on-site and off-site retention.

Retention achieved with BMPs that infiltrate, evapo-transpire, and/or harvest for non-potable use.

Green Roofs

Stormwater
Tree and LID Boxes

Rainwater Harvesting for Non-potable Uses



Flexibility to Use Off-Site Retention

- Free to go off site after achieving 50% of required retention on site.
- Two off-site options:
  - In-lieu fee (ILF) payment to DDOE = $3.50/gallon/year.
  - Use of privately tradable Stormwater Retention Credits (SRCs).
- Off-site volume is an ongoing obligation that can be:
  - Met on yearly or multi-year basis.
  - Met with a mix of ILF & SRCs and mix can change.
  - Reduced in the future by increasing on-site retention.

Example SRC Transaction

- Grocery parking lot voluntarily retrofits w/4,000 gal BMP to generate 3 years of SRCs or 12,000 SRCs.*
- Church parking lot voluntarily retrofits w/2,000 gal BMP to generate 3 years of SRCs or 6,000 SRCs.
- Regulated site has 3,000 gal yearly offsite obligation & purchases total of 18,000 SRCs to comply for 6 years.
- By end of 6-year period, regulated site purchases additional credits or pays in-lieu fee.

*Opportunity for discount on stormwater impervious fee provides:

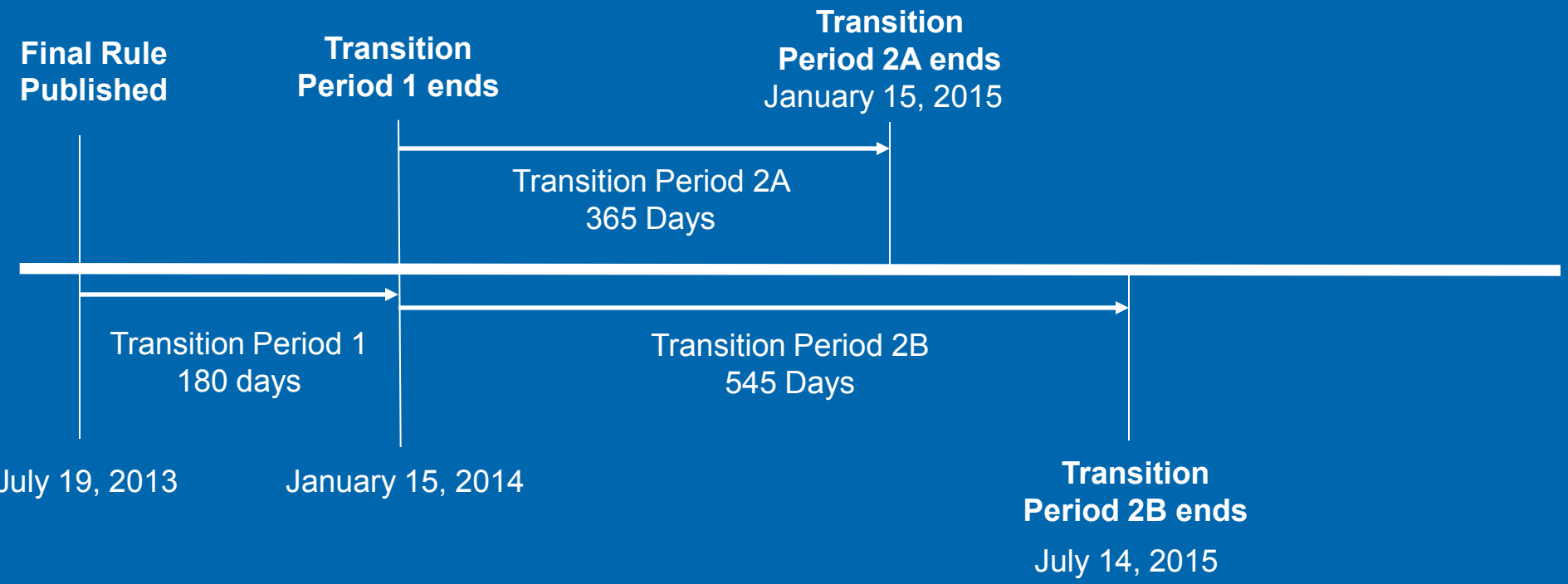
- Layered incentive for retrofit and
- Way to split financial benefits – Aggregator & property owner.

Transition Plan

Transition Period 1

- Regulated projects comply with existing regulations.
- Tied to submittal of first SW Management Plan as part of building permit application process.

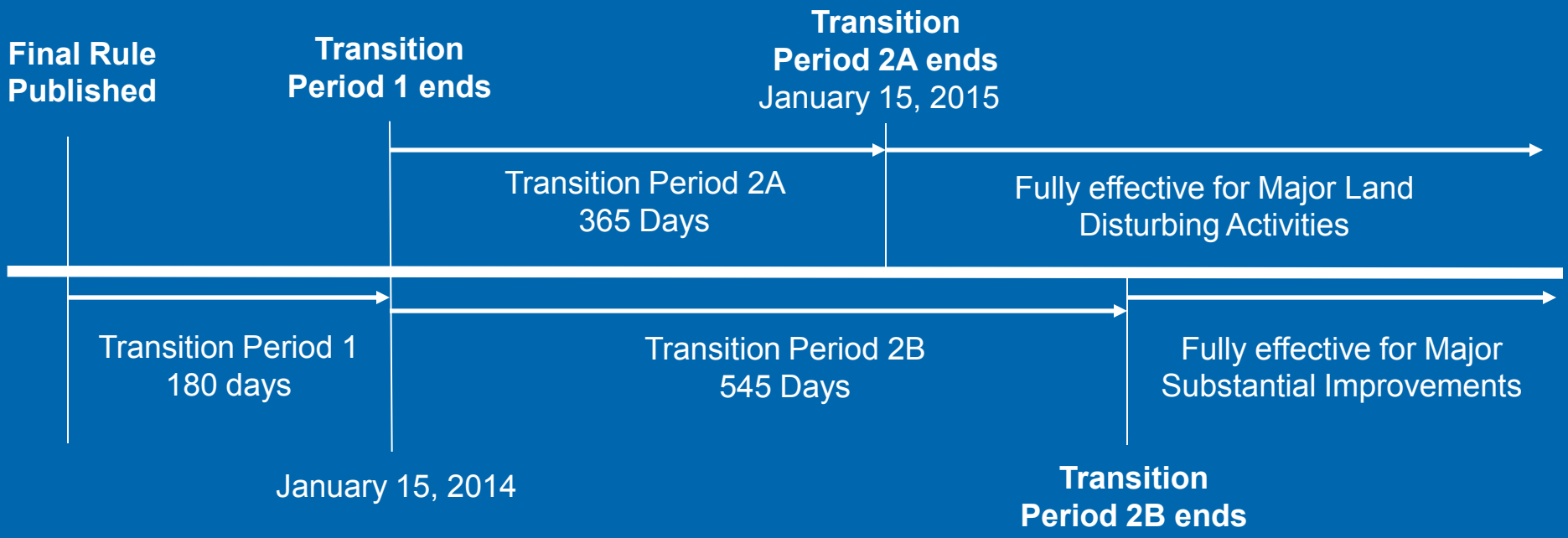
Transition Plan



Transition Period 2A and 2B

- Minimum on-site retention requirement waived.
- Entire retention volume may be achieved off site.

Transition Plan



Fully Effective – Except:

1) Certain projects ("Advanced Design") with unexpired approval by Zoning Com. or NCPC - Subject to TP when application submitted.
2) Additional grounds for on-site relief for projects with unexpired approval (from HPRB, CFA, BZA, DCOP, NCPC) that conflicts with on-site BMP – If application submitted prior to end of TP2A/TP2B.

QUESTIONS?

Brian Van Wye

202-741-2121

Brian.VanWye@dc.gov

To download the District's Final Rule and Stormwater Management Guidebook, & related resources, visit:

ddoe.dc.gov/swregs

Zoning for Sustainability: Green Area Ratio

SEPTEMBER 24, 2013

LAINE CIDLOWSKI, AICP

DISTRICT OF COLUMBIA OFFICE OF PLANNING

Zoning Regulations Review

- Improve clarity, ease of use, relevance
- Diagnosis of barriers to sustainability policy area
- Zoning Commission weighed in on recommendations on….
  - Integrating Land Use and Mobility
  - Energy Conservation and Renewable Energy
  - Water and Sensitive Resource Protection
  - Food Security
  - Green Jobs
  - Large Area Development

Green Area Ratio

What is it?

- A flexible green site design requirement that varies by zone.

How Achieve?

- Choose from a range of environmental landscaping practices each of which have been assigned an environmental performance ranking.

Examples may include…

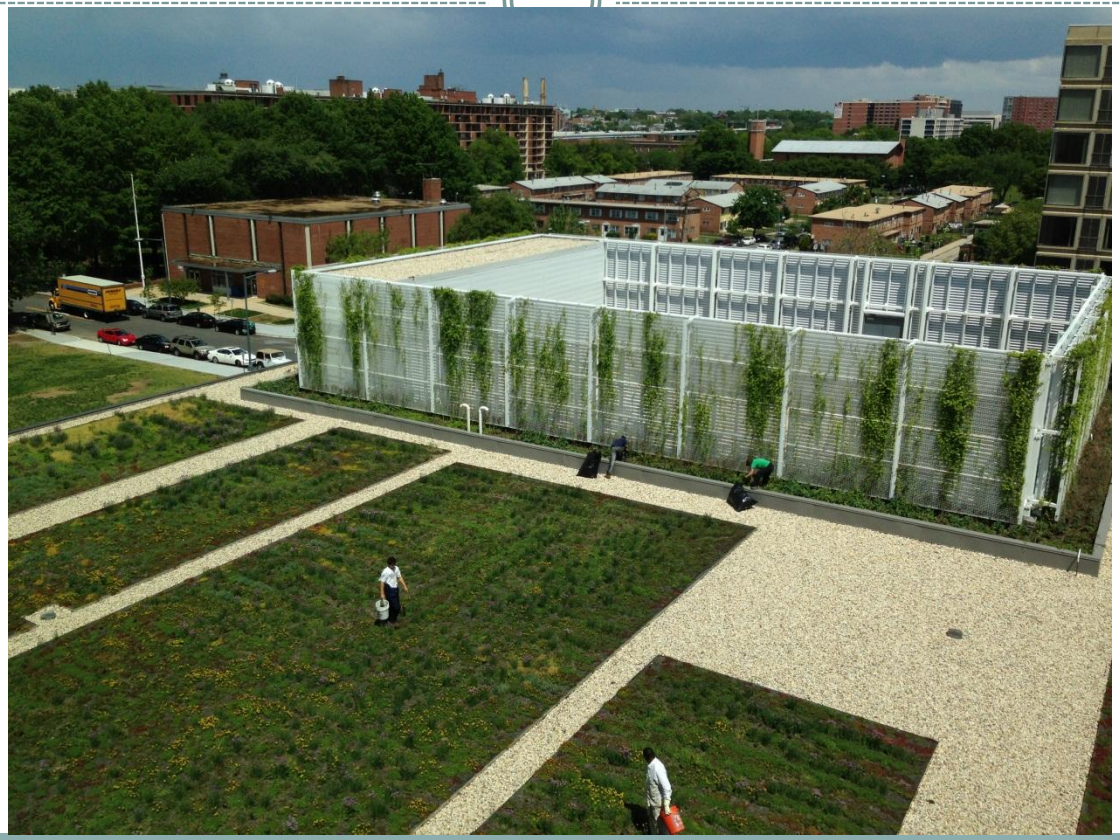
- Impermeable pavement
- Impermeable roof
- Un-vegetated permeable pavement
- Vegetated permeable pavement
- Green roofs
- Natural ground cover
- Rain gardens
- Trees & shrubs
- Green facades

GAR: How Does it Work?

How to calculate:

- **Add up landscape elements by number or size**
  - # trees
  - Size of green roof
  - Size of rain garden
  - # of plants
  - Soil depths
- **Divide by lot area**
- **= GAR score**

Green Area Ratio Specifics



3400. Introduction to GAR regulation

- Explains what the GAR is
  - GAR is a new landscape requirement
  - "*Green Area Ratio* (GAR) is the ratio of the weighted value of landscape elements to land area. The GAR score relates to an increase in the quantity and quality of environmental performance of the urban landscape."

- Explains why the GAR is being implemented
  - Achieve environmental performance
  - Meet city-wide environmental goals

3401. Applicability of GAR Standards

- Applies
  - Applies to all new buildings requiring a C of O
  - All renovations over 100% assessed value

- Does Not Apply to
  - **Single family homes**
  - **2-unit resident**
  - **R-1 to R-4 zones**
  - **In public space**

ZONE DISTRICT	GREEN AREA RATIO
R-5-A and R-5-B	0.40
R-5-C, R-5-D and R-5-E C-1, C-2-A, C-2-B and C-2-C W-1, W-2, W-3 SP-1, SP-2	0.30
C-3-A, C-3-B	0.25
C-3-C, C-4, C-5, CR and any property within the DDD overlay	0.20
CM-1. CM-2, CM-3 and M, • all structures except one story warehouses • one story warehouses	0.30 0.10

3402. Calculation of GAR

- Info used to calculate GAR
- Landscape element options, and GAR values
- How to measure landscape elements
- Sf equivalencies for plants & trees
- Technical calculation of GAR

$$GAR = \frac{\begin{array}{c}(\text{area of landscape element 1 x multiplier}) + \\ (\text{area of landscape element 2 x multiplier}) + \ldots\end{array}}{\text{Lot Area}}$$

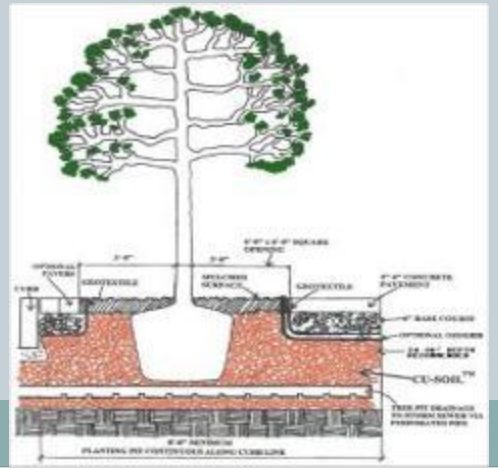
GAR LANDSCAPE ELEMENTS	MULTIPLIER
Landscaped area (select one of the following for each area)	
Landscaped areas with a soil depth of less than 24”	0.3
Landscaped areas with a soil depth of 24” or more	0.6
Bioretention facilities	0.4
Plantings	
Ground covers, or other plants less than 2’ tall at maturity	0.2
Plants at least 2’ tall at maturity	0.3
Tree canopy for all trees 2.5” to 6” in diameter	0.5
Tree canopy for new trees 6” in diameter or larger	0.6
Tree canopy for preservation of existing trees 6” to 24” in diameter	0.7
Tree canopy for preservation of existing trees 24” diameter or larger	0.8
Vegetated wall, plantings on a vertical surface	0.6
Vegetated roofs	
Extensive vegetated roof over at least 2” but less than 8” of growth medium	0.6
Intensive vegetated roof over at least 8” of growth medium	0.8
Permeable paving	
Permeable paving over at least 6” and less than 2’ of soil or gravel	0.4
Permeable paving over at least 2’ of soil or gravel	0.5
Other	
Enhanced tree growth systems	0.4
Renewable energy generation (area of)	0.5
Water features (using at least 50% recycled water)	0.2
Bonuses	
Native plant species	0.1
Landscaping in food cultivation	0.1
Harvested stormwater irregation	0.1

3403. Landscape element eligibility conditions for GAR

- Landscaped areas & plantings
- Bioretention = rain gardens, bioswales
- Trees – new and preserving existing
- Vegetated walls – further specifics on how to measure
- Vegetated roofs

3403. Landscape element eligibility conditions for GAR

- Permeable paving
- Water features
- Enhanced tree growth- structural soils
- Renewable energy generation
- Native plant species
- Food cultivation
- Stormwater irrigation



3404. Submittal Requirements for GAR

- Requires certified landscape experts
  - MD or VA ASLAs; Certified Arborists, LEED GA
- Submit landscape plan with typical elements
  - Location & size of elements
  - Maintenance plans
- Flexibility for weather, seasons, reasonable changes
  - Temporary C of Os
  - Extensions for weather

3405. Special Exception for GAR

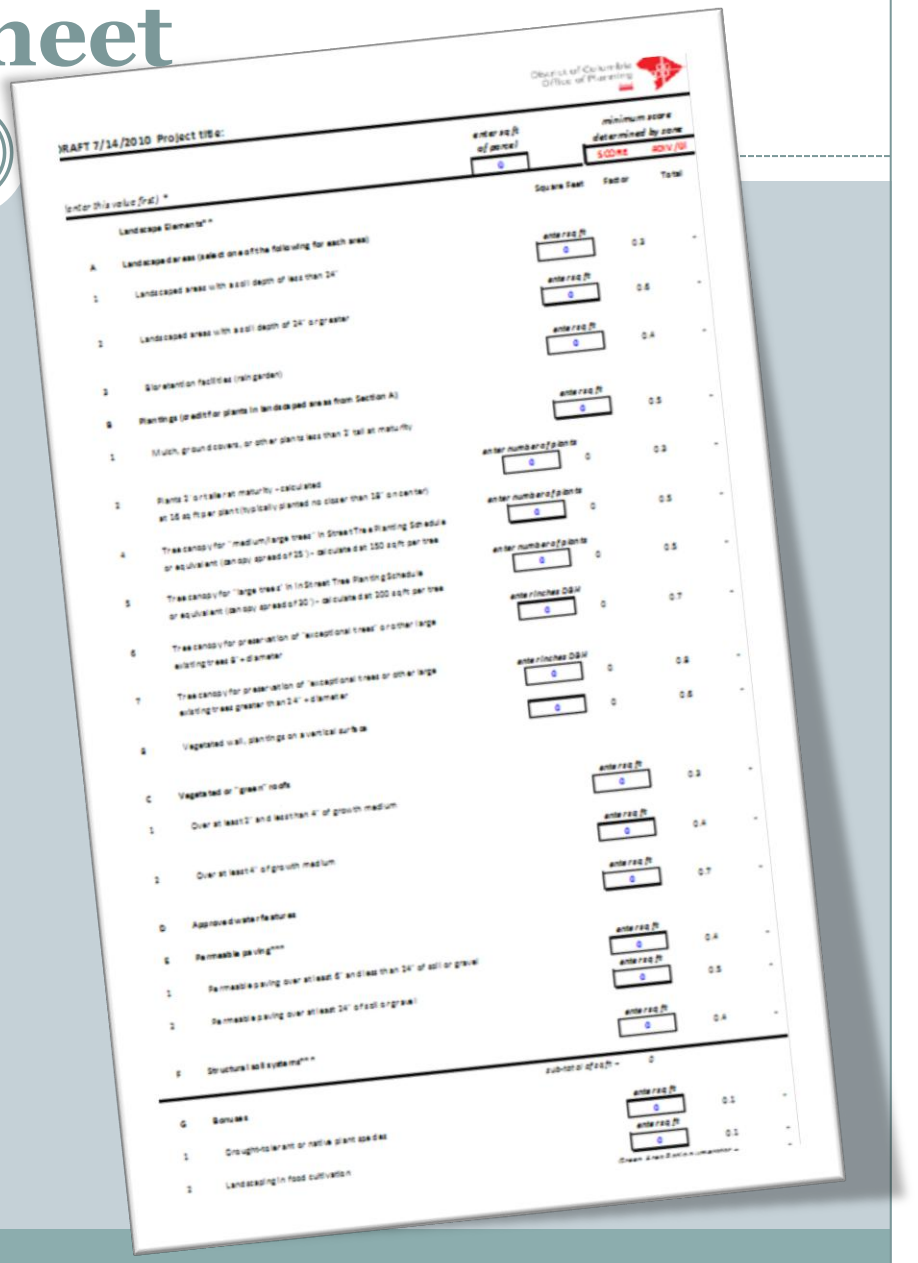
- Allow flexibility for our properties already demonstrating the intent of the GAR through other measures not included in the GAR

3406. Maintenance Requirements

- To ensure that environmental performance is maintained over time

GAR Sample Scoresheet

- Sample resources
- Guidebook under development
- Webpage: ddoe.dc.gov/GAR
- Training sessions in October at DCRA

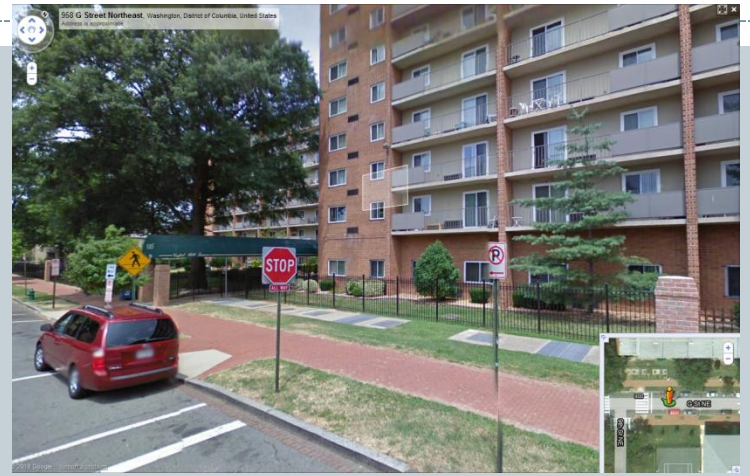


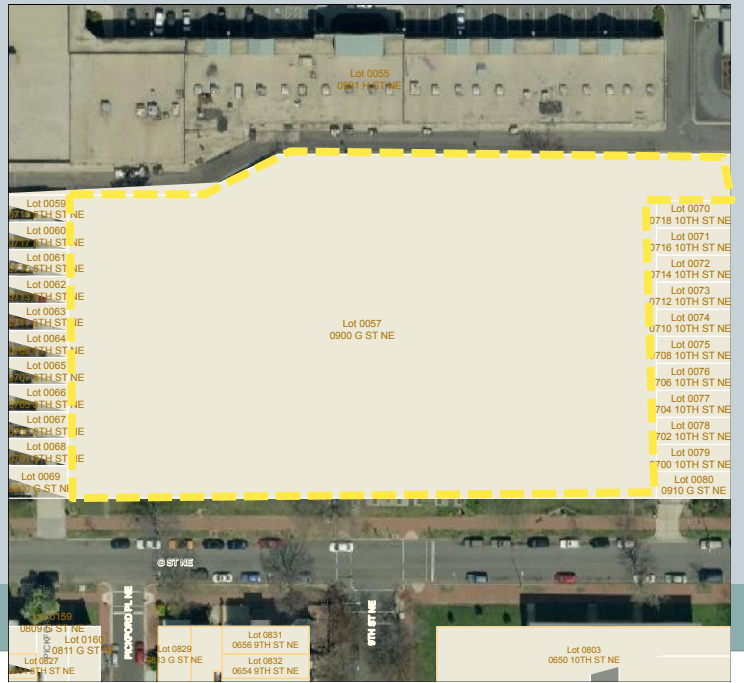
Related Zoning Requirements

PERVIOUS SURFACE REQUIREMENTS
LANDSCAPING FOR PARKING LOTS

Case Study : High Density Multi-family Residential: 900 G Street NE

- Zone: R-5-D
- Existing GAR = **0.18**
- Paved areas to permeable paving + trees = **0.36**
- Above + ½ green roof = **0.488**
- All of Above + raingarden = ≥ **0.5**





Questions?

LAINE CIDLOWSKI, URBAN SUSTAINABILITY PLANNER

202.442.8809

Laine.Cidlowski@dc.gov