# GWK Drainage District
## Multi-Community Collaboration
### Stormwater Standards and Code Enforcement Project

## Friday, December 7

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OHM
Advancing Communities

Birchline Planning LLC
Great Waters + Great Communities

# MS4 Permits

- Municipal Separate Storm Sewer System (MS4) Permits
  - 8 of the 14 GWK communities have both separate (MS4) and combined sewer systems
  - Post-Construction Stormwater Permit Requirements
    - Development/Redevelopment Sites
    - Channel Protection Volume Control (requires green infrastructure)
    - Channel Protection Rate Control
    - Water Quality Control
    - Operations and Maintenance Requirements

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# MS4 Permits

- Regional Stormwater Standards Committee
  - Oakland, Wayne, Macomb, Livingston, Detroit
    - 9th meeting in December
  - Letter and MDEQ Meeting
    - Embrace Regional Collaboration
    - Simple Standards (alternative proposed)
    - Consistent Standards (work in progress)
    - Practical Regional Schedule
      - Regional Consensus (Ongoing 2019)
      - Stakeholder Rollout (Ongoing, mid-2019)
      - Implementation (Jan 2020)

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# GWK RTB Permit

- Retention "Treatment" Basin
  - Disinfection
  - Screening
  - Settling
  - Dry weather flow to GLWA WWTP
- New Post-Construction Requirements
- Similar to MS4 Post-Construction Requirements
- Leverage progress on new MS4 standards
- Coordinated permits (MS4 and combined) for consistency

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# GWK RTB Permit

## OCWRC Response to RTB Permit Changes

- OCWRC Strategy for Permit Compliance:
  - Focus on Water Quality (RTB outfall meets permit limits)
  - Frequency and duration of overflows should ***not*** be the key measure
  - Key water quality concerns stem from MS4 outfalls
    - Focus resources on MS4s
  - Commitment to community collaboration
    - MS4 Water Quality Sampling (wet and dry weather)
    - Develop/Recommend consistent SW Standards (detention, retention)
    - Develop a Triple Bottom Line (TBL) study to summarize the benefits of GI in the GWK district (economic, environmental, social)
      - Benefits of GI will vary between the GWK RTB district and MS4 areas
    - Complete a Code Audit to remove barriers to GI
    - Share innovative GI / stormwater strategies and technologies

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# Green Infrastructure in GWK Area

- Permit Requirements "Plus" Community Interest
  - Recent GI Survey
    - 10/14 communities interested in GI
    - City stormwater ordinance? yes: 4, no: 3
    - Detention? none:4, 10-yr: 5, other: 2
    - O&M Required? none: 5
  - Royal Oak/Detroit
  - Improve local stormwater system performance
  - Consistency with Stormwater Utility funding (GI credits)
  - Triple Bottom Line benefits (economic, environmental, social)
  - Green Cities = Cool Cities
  - Economic and Environmental Sustainability

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# Why Are We Here?

- SEMCOG Grant (Multi-Community Planning)
- Regulatory Pressures (RTB Permit for George W Kuhn Drainage District)
- Ongoing efforts to standardize stormwater rules and streamline planning/design

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Two part project with two goals:

*Aligning Stormwater Management Standards*

+

*Supporting Green Infrastructure*

- Reduce runoff volume – especially in combined sewer service areas

- Improve water quality

- Protect infrastructure & downstream properties

- Facilitate redevelopment (or at minimum, don't create a dis-advantage for one community vs. another)

- Enhance community quality of life

- Increase resilience & reduce urban heat island effects

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Two part project with two goals:

*Aligning Stormwater Management Standards*

+

*Supporting Green Infrastructure*

***Spend less money on wastewater treatment / redirect to local infrastructure***

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*SEMCOG Multi-Community Planning Grant for Green Infrastructure*

+

*Oakland County WRC Stormwater Planning*

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## Project Components:

- Municipal "audits" of current stormwater standards/ practices and adopted regulations
- Assess 'friendliness' to green infrastructure and recommend community-specific changes

*SEMCOG Multi-Community Planning Grant for Green Infrastructure*

+

*Oakland County WRC Stormwater Planning*

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## Project Components:

- Understanding local practice and concerns around stormwater and green infrastructure, needs for information & support

**- + -**

- Coordination with development of regional post-construction stormwater standards and stormwater funding mechanisms

# Focus for this Project: GWK Communities

Berkley, Beverly Hills, Birmingham, Clawson, Ferndale, Hazel Park, Huntington Woods, Madison Heights, Oak Park, Pleasant Ridge, Royal Oak, CT of Royal Oak, Southfield*, Troy (*Audit completed 2016)

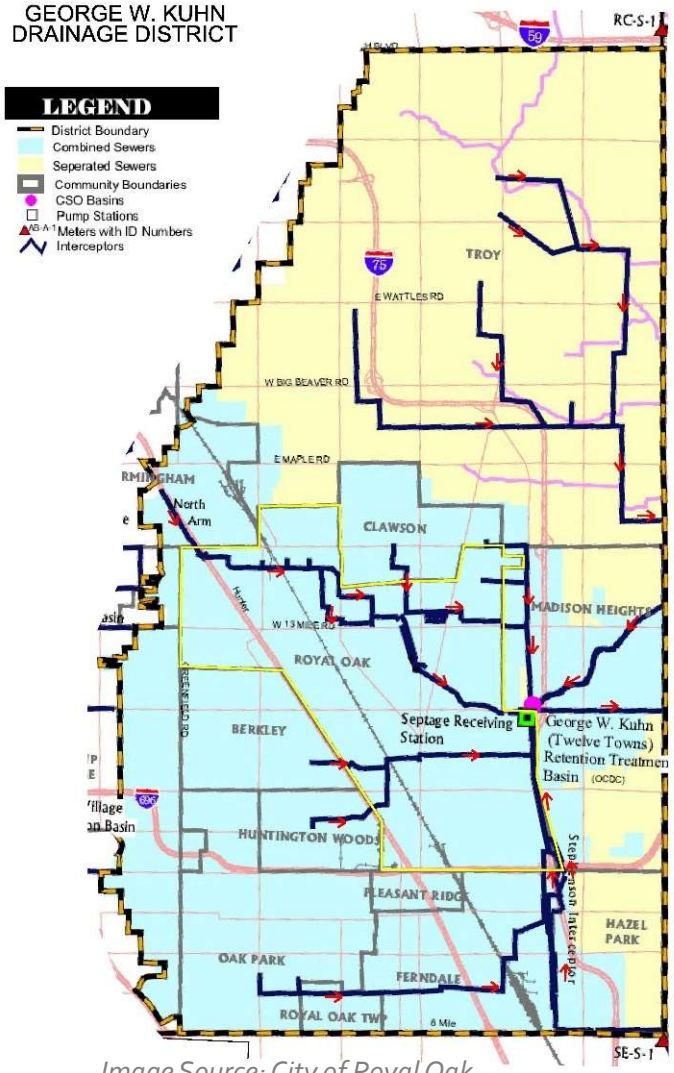


*Image Source: City of Royal Oak*

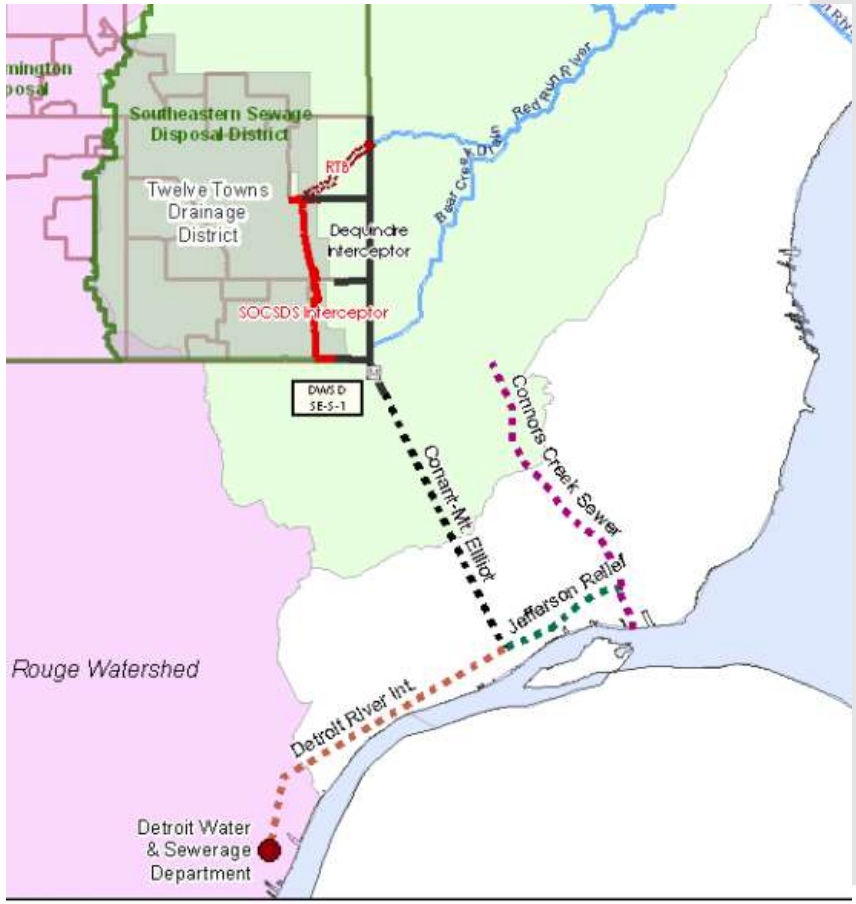


*Image Source: City of Berkley 09/17/17 Presentation*

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# What is the role of the Oakland County WRC?

- Nothing mandatory!
- Each community will have tailored recommendations for amending codes
- Expect collaborative effort for post-construction stormwater standards
- What do we do next?
  - County standards:
    - Which stormwater rules do we focus on?
    - Keep it simple: regional rules should address CSO issues in the context of local economic, social, and environmental needs
    - Can OCWRC standard be adopted by reference, or into local regulations? We want your input
  - Funding (stormwater utilities)

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# Municipal audits:

# AUDITS ARE SCARY!

# What does an audit look like?!

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## *Why Focus on Green Infrastructure?*

- **MDEQ standards** focus on frequent hydrology (smaller storms such as the 1-inch and up to 2-yr/24-hr)
- **Green infrastructure** offers multiple benefits – when properly designed, installed and maintained
- Need to **develop local standards,** knowledge



Audit Process:

*Working with each community on standards and practices*

**Request to Municipal Partners: Engagement + Feedback**

1. Meet with OHM/Birchline to verify, revise, or add to the "Paper Audit"
2. Consider and provide feedback, starting today:
   - What are your **requirements, investments, policies,** and **actions** that deal with stormwater runoff? The "unwritten standards"
   - What would change for your staff, development community, municipal projects with **new water quality regulations**?
   - Where and why **is green infrastructure use limited – if at all** , and what policies or practices would promote greater use?
3. Provide feedback on potential regional standards; what would be easiest to adopt or align with municipal code?
4. What other areas for stormwater management would benefit from support, information?

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Four Areas for Consideration:

1

Adopted Codes & Standards – What Does the Language Say?

2

Un-written practices – how do things *actually* work?

3

Regional standards: looking ahead at OCWRC efforts towards regional stormwater standards

4

Financing future investments: **Stormwater Utilities**

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# Audit Focus:
# What do we do in our municipality because of the fact that:

## Sometimes,

## it rains

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# Audit Components

## 1. What's Written Down: Team Review of Adopted Codes, Standards & Ordinances

- **DRIVERS of IMPERVIOUS SURFACE/ STORMWATER RUNOFF**
- Lot/building coverage limits
- Parking requirements: Required ratios; dimensions of spaces; stacking/ loading areas; shared and off-site parking
- Limits on parking on required yards/permeable areas
- **LANDSCAPE STANDARDS**
- *Can green infrastructure be located in landscaped areas?*
- Are berms, evergreen hedges, other features required that either create runoff (berms) or prevent use of runoff-reducing practices?
- **PUBLIC WORKS SPECS/ STANDARDS**
- **PROVISIONS NOT IN CODES OR STANDARDS**
- Examples: guidance, standards, definitions for using green infrastructure
- **STORMWATER REQUIREMENTS**
- Reference to County regulations, or are there local standards/ thresholds?

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# Examples:

| | Berkley | Birmingham | Clawson |
|---|---|---|---|
| Shared parking permitted | Yes | Yes | Yes |
| Off-site parking permitted | Yes | Yes | Yes |
| Parking ratios | | | |
| Parking lot surfacing | Asphalt | N/A | Asphalt or Concrete |
| Incorporates County SW standards by reference | Yes | N/A | Yes |
| Permeable surfacing allowed? | N/A | Yes | N/A |

Audit summary (above); specific language on landscaping and stormwater (below)

Landscaping

Zoning only contains a tree management plan. Landscaping is determined through the City's Master Plan.

Mention of County/Stormwater

**Sec. 126-206. - Method used.**

The Oakland County Method of Retention Basin Design, as made available by the Oakland County Drain Commissioner's office, shall be utilized in determining the volume of retention required. Basins with orifice or pumped outlets will be required to hold the volume for a ten-year storm while basins with no outlets will be required to hold two 100-year storms. Discharge on an orifice or pumped outlet must be throttled to a restricted rate of 0.2 cfs per acre, or throttled to a restricted flow of 0.3 cfs if the total property area requiring retention is 1.5 acres or less.

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# Bacteria + other pollutant source reduction:

# Additional area of code audits and discussion

- Code Change: V. Simple.
- Staff training: Has to happen
- Applicant complaining: You'll get some
- Fewer beach closures 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?

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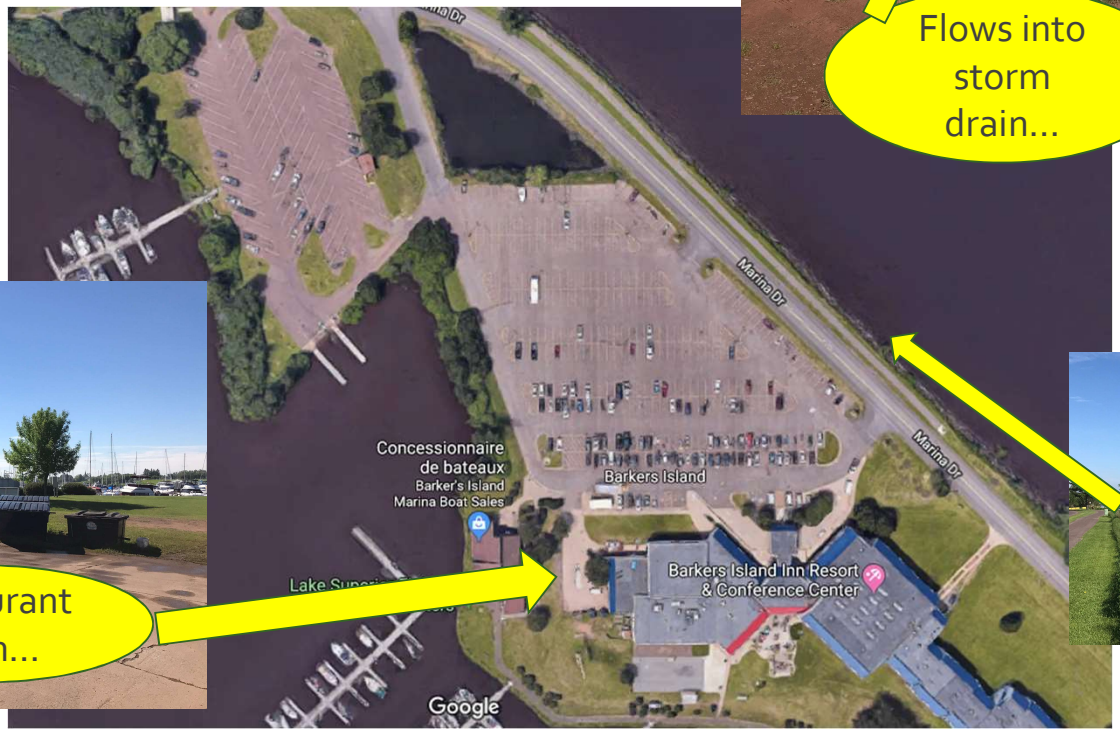
# Why codes and site plan review affect pollution prevention:

Flows into storm drain…




Restaurant trash…

…to the BEACH :o

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# Barriers to GI "in practice" if not in code – important to identify as WQ regulations are developed

**AESTHETIC 'HABITS'**

- FOR BERMS, HEDGES, PONDS
- What are the 'preferred' and go-to approaches for landscaping?

**Green Infrastructure concerns**

- Maintenance is different, challenging:
- Have there been pilot projects? What would be good pilot projects?
- Where could green infrastructure advance a local goal OR reduce a localized flooding program?

**'SILOS'**

- IN CODES, PLAN REVIEW AND CAPITAL PROJECT DESIGN
- Who are the 'go to' people for landscaping, stormwater?
- What is her/his knowledge of green infrastructure practices and maintenance?
- What is her/his relationship to development review?

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# 2. What's NOT Written Down: Discussion with Municipal Staff

**FOLLOW UP MEETINGS – Some Questions:**

- **Who reviews stormwater plans?** What is her/his level of knowledge of water quality management, green infrastructure?
- **What are the usual 'go-to' practices for landscaping, stormwater?** What are the typical landscaping requirements, who at the municipality determines compliance, and can these be integrated with water quality BMPs?
- **What types of development will be affected by new water quality requirements**, and who are the developers/ engineers/ designers most likely to deal with the regulations?
- **What are realistic solutions** to control runoff volumes to the GWK system and GLWA treatment plant?
- **How can we finance this work?**

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# How the words (1) affect stormwater management and runoff volumes

A DENSE EVERGREEN HEDGE SHALL BE PLANTED ALONG THE PROPERTY LINE

ALL DRIVES SHALL BE SURFACED WITH ASPHALT OR CONCRETE PER THE CITY'S STANDARD

An applicant is required to submit for approval a stormwater basin landscape plan developed by a licensed landscape architect, engineer or certified wetland consultant, and following installation, provide a written certification that all the required landscape materials have been installed in substantial conformance with the plans as approved by the City.

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# How the interpretation/ people side (2) affects site design, water quality and volumes

Planner: I have to mollify the neighbors who don't want this new use in their neighborhood.

Consulting Engineer: My client really needs this approved so they can construct next year

DPW Deputy: Council is going to have my hide if this thing clogs.

DEQ Regulator: That property owner has already had violations… he won't maintain it properly!

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Fixing what's on paper:

Zoning and code amendments can be developed in consultation with each community

(f) *Parking area minimum landscaping requirement*. A landscape area shall be required along the full length of any side of a parking area that abuts any adjoining property (front, rear, side yard lot lines). The landscape area shall be provided between the parking area and the property line, and shall have a minimum width of five feet. The landscaped area shall 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.

Very important! Language in this section is intended to ensure that bioretention "counts" and that there are clear directions to use deep-rooted and other beneficial plantings, without "over-prescribing"

ESD should check to make sure this language/direction to applicants works for their purposes.

b. Parking area and driving lanes to be constructed of 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.~~

district?

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# Audit Components

## 3. Regional stormwater standards

- Current requirements vary by community, but largely focus on flood control for 10-year or 100-year storms.
- Current multi-county effort to regionalize stormwater rules will focus on:
  - Water quality and infiltration for smaller, more frequent storms
  - If adopted and enforced, rules can work to significantly reduce runoff volumes to local collection systems
  - Initially focused on MS4 areas, but COULD be adopted in combined sewer service areas

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# County standards development process

- Current working group status
- Discussion with MDEQ
- Possible outcomes
- Schedule

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# Audit Components

# 4. Stormwater Funding

- Stormwater Utilities in Berkley and Birmingham
  - Revenue covers debt payments to OCWRC (GWK) and ongoing payments for treatment (GLWA/GWK)
- Other Stormwater Utilities being considered (mostly reactive to Class Action lawsuits)
- Future Stormwater Utilities should:
  - Cover the baseline costs (GWK / GLWA)
  - PLUS add revenue for stormwater-related "green" infrastructure:
    - Green Infrastructure
    - Rehab/rehabilitation of gray infrastructure
    - Flood control
  - PLUS costs related to staffing, planning/design, and implementation of regional projects to better manage stormwater

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# Audit Components

## 4. Stormwater Funding

Traditional infrastructure: (transport & treat)


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# Audit Components

## 4. Stormwater Funding

Green infrastructure: remove or reduce at the ***source***

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# Audit Components

# 4. Stormwater Funding

- Managing drainage will require a new revenue model:
  - ***Class-action lawsuits impacting GWK communities***
  - ***Drainage systems will rely on revenue beyond OCWRC payments***
    - ***System rehab/rehabilitation***
    - ***Flood control / dealing with climate change***
    - ***Green infrastructure***

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# Audit Components

# 4. Stormwater Funding

- Berkley Stormwater Utility
  - ~$22/month per Equivalent Residential Unit (ERU)
- Birmingham Stormwater Utility
  - $19.83/month per ERU (South Oakland District)
  - Six tiers for single family residential
  - Most typical properties pay ~$14 - $32 per month (1/8 – 1/2 acre)

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# Audit Components

# 4. Stormwater Funding

- Detroit Drainage Fee
  - Larger than other fees, mostly due to large debt burden for CSO control
  - Program cost is over $150 million/yr (biggest component is debt service)
  - $598 per impervious acre per month
  - Typical residential parcel: $20-$25 per month
  - ***Includes funding for green infrastructure***

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# Audit Components

# 4. Stormwater Funding

- SB 756 / HB 4100 ("Stormwater Utility Act")
  - Did *not* make it through lame duck session
  - Will likely be reintroduced in 2019
- City of Detroit Drainage Fee Lawsuit
  - Recent victory helps to legitimize stormwater utilities, especially in combined sewer service areas

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# What do we do next?

- Week of January 14, 2019
  - Meetings with technical (engineering) staff to discuss site plan reviews, adherence to standards, key design hurdles, and funding needs *(should invite consulting and developers' engineers)*
    - 3 separate meetings (each community can pick an option)
  - One meeting with small subset of planning representatives from communities with complex planning standards
- Mid-February 2019
  - Meetings with planning staff to discuss zoning ordinances, identify hurdles to green infrastructure, and define social benefits to GI
    - 3 separate meetings (each community can pick an option)
  - Follow-up meeting with interested engineering staff to circle back on technical issues and to answer questions (single meeting)
- Mid- to late-March 2019
  - Bring the groups back together (planners and engineers) to discuss key feedback and initial recommendations, including potential stormwater policy framework

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# Questions

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# GWK Code Review Examples

c. General Planting.

1. Ornamental trees may be used to diversify planting requirements, provided two (2) ornamental trees shall be provided for each one (1) required canopy tree.
2. Fractions of trees shall be rounded upward to the nearest whole number.
3. All areas of open space shall contain only living materials and planting beds with the exception of approved sidewalks, bike paths, signs, driveways, essential services, and detention ponds as dictated by site conditions. On redevelopment projects, the Village has the discretion to require installation of live materials in areas currently covered by concrete, asphalt, stone, gravel or other non-living materials to increase pervious surface and enhance the site.
4. Shrub plantings shall be designed to screen parking from being visible from the roadway or adjacent land uses, as necessary.

1. **Can 'stormwater trees' in planter boxes substitute for either type? What happens if too many trees would be located on site without sufficient soil volume, or protection from traffic?

3 is an excellent standard - recommend amending so that bioretention, rain gardens "count" affirmatively as "live materials."

Should define "impervious area" consistently w stormwater rules

4. Requiring "shrub screens" for parking often prevents use of areas for stormwater and can exacerbate runoff volume if bermed/hard turfgrass

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# GWK Code Review Examples

22.09.040 LANDSCAPING.

b. Minimum Planting. All plant material shall be hardy to Oakland County, be free of disease and insects, and conform to the American Standard for Nursery Stock of the American Nurserymen. The minimum plant sizes shall be provided in accordance with the following:

This is a "plant points" approach to landscaping which, if not amended to say how green infrastructure "counts" and for how many plants, discourages use of bioretention or planted bioswales for water quality.

- Plant Type Minimum Plant Size Minimum Spacing Requirements
- Large Canopy Trees Three (3) inch caliper Twenty-five (25) ft on center
- Ornamental Trees Two (2) inch caliper, Six (6) ft height Fifteen (15) ft on center
- Evergreen Trees Six (6) ft height Fifteen (15) ft on center
- Large Deciduous Shrubs Two (2) ft height Four (4) - six (6) ft on center
- Upright Evergreen Shrubs Two (2) ft height Three (3) - four (4) ft on center
- ***Strategy: Add provision for allowing bioretention area to 'substitute' for a portion of the required shrubs***
- ***Strategy: Unless the spacing is specific to a right-of-way or specially designed area, allow the spacing to vary so that species can be 'clumped' which is more typical of naturalized plantings***
- ***Consider: What about ground cover? In this type of code, usually turfgrass/sod is either the only or the specified planting. Allow areas of naturalized or deeper-rooted plantings rather than mowed lawn.***

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# GWK Code Review Examples

**Sec. 138-222. - Parking lot location, design, and construction.**

(d) Construction. All parking areas and drives shall be provided with paving having an asphaltic or portland cement binder at least 4 inches in depth so as to provide a permanent, durable, and dustless surface. Single family residential driveways may be constructed of masonry pavers. All parking areas shall be graded and drained so as to dispose of all surface water accumulated within the area according to Oakland County requirements prior to the issuance of an occupancy permit. Approaches shall be provided with paving having a portland cement binder at least 6 inches in depth. Approaches shall have a 2 foot flare on each side of the driveway.

A zoning certificate shall be required for all driveway replacement and construction.

Barrier to green infrastructure

Need better definition than "masonry pavers" to enable and encourage use of paver blocks

How does city interpret "dispose of" and "Oakland County requirements"? Who does the review?

2' flare on either side adds impervious and requires larger lots/ frontages for developments; this standard is less common today

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# GWK Code Review Examples

(c) Required greenbelts shall contain at least one tree for each 30 linear feet of greenbelt. All such trees shall be ten feet or more in height or a minimum caliper of 2½ inches at the time of planting. The remaining ground surface area shall be seeded, sodded or planted with ground cover. Innovation and design of landscaping, berm placement and use of flowering trees is encouraged. No trees or shrubs shall be placed closer than four feet from any fence line or property line.

(d) Plant materials shall be selected so as to ensure that the root system will not interfere with public utilities and that fruit and other debris (other than leaves) will not constitute a nuisance within public right-of-way or to abutting property owners.

Clarify to ensure that vegetated stormwater management practices would 'count' in greenbelts, where designed and installed to provide stormwater management.

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Form DC–107

**OAKLAND COUNTY WATER RESOURCES COMMISSIONER**
ATTENDANCE SHEET

**DATE:** December 7, 2018 **FACILITATOR:** WRC / OHM / BIRCHLINE PLANNING

**TYPE** (Training, Committee, etc.): **GRANT KICK OFF MEETING**

**TOPIC:** **GWK DRAINAGE DISTRIICT MULTI-COMMUNITY COLLABORATION STORMWATER STANDARDS AND CODE AUDIT PROJECT**

| PRINTED NAME | E-MAIL/EMPLOYEE ID | REPRESENTING/ UNIT | CONTACT NUMBER |
|---|---|---|---|
| Joel Kohn | KohnJ@oakgov.com | OCWRC | 248-858-5565 |
| Valerie Novaes | valerie.novaes@ohm-advisors.com | OHM | 248-935-8557 |
| Jim Winekta | WINEKAJ@OAKGOV.COM | OCWRC | 248-858-1901 |
| Debbie Wooley | DWooley@cityofclawson.com | | 248-563-8028 |
| Erin Quetell | equetell@ferndalemigov | Ferndale | 248 8603944 |
| Nancy Russell | nancy.russell@ohm-advisors.com | OHM | 248-388-6600 |
| Jim Schafer | jimschafer@madison-heights.org | M Ht | 248-583-0831 |
| Joe Vitali | JOEVITALI JR@ MADISON-HTRIGHTS.ORG | MAD HGTS | (z) 589-2294 |
| Derrick Schueler | dschueler@berkleymi.net | Berkley | 658-3490 |
| Tim Thwing | tint@romi.gov | City of Royal Oak | 246-3280 |
| Matt Baumgarten | mbaumgarten@Berkley.Mich.net | Berkley | (248) 672-0290 |
| Scott Finlay | finlaysg@troymi.gov | TROY | 248-524-3386 |
| Scott E Krees | KREES@OAKGOV.COM | OAKLAND Co. | 248-858-0389 |
| Ryan Dividock | dividockr@oakgov.com | Oakland County | 248.858.4071 |
| Kristen Wiltfang | WiltfangK@oakgov.com | Oakland County | 248.975.4267 |
| George Nichols | nicholsg@oakgov.com | OCWRC | 248-975-9571 |
| John M Ruffin | ruffinj@oakgov.com | OCWRC | 248 858 3272 |
| Brandy Siedlarczek | bsiedlarczek@cityofsouthfield.com | Southfield | 248-796-4804 |
| Kevin Vetrano | Vetrano@semcog.com | SEMCOG | 313-324-3357 |
| Katie Grantham | grantham@semcog.org | SEMCOG | 248-904-5520 |
| James Kriza | KrizaJ@ROMI.GOV | Royal Oak | 248-246-3204 |
| Joe Valentine | jvalentine@bhamgov.org | Birmingham | 248-530-1809 |
| Matt Callahan | mattc@romi.gov | Royal Oak | 248 246 3260 |

Form DC–107

| | | | |
|---|---|---|---|
| Ryan Wolaszyk | Wolaszyk r@oakgov.com | OCWRC | 248 2495756 |
| Greg Kacvinsky | greg.kacvinsky@ohm-advisors.com | OHM | 217-979-0422 |
| Amy Sullivan | asullivan@hwmi.org | Huntington Woods | 2485812632 |
| GERRAD W SURLES | gsurles@oakparkmi.gov | OAK PARK | 248691-7580 |
| TIM YOUNG | TYOUNG@HAZELPARK.ORG | HAZEL PARK | (248)542-3460 |
| Steve Karth | Karths@oakgov.com | OCWRC | 248-858-7598 |
| Gary Nigro | Nigrog@oakgov.com | OCWRC | 248-858-5243 |
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