CHARLOTTE

COUNCIL ENVIRONMENT COMMITTEE

Wednesday, February 26
1:30 p.m. – 3:00 p.m.
Room 280

AGENDA

I. LED Streetlights
Staff Resources: Hyong Yi, Phil Reiger, Rob Phocas

II. Focus Area Plans Updates
Staff Resource: Hyong Yi, Pat Mumford, Rob Phocas

III. Extension of Mitigation Options
Staff Resource: Daryl Hammock

IV. Illegal Dumping
Staff Resource: Barry Gullet

V. Coal Ash @ Mountain Island Lake
Staff Resource: Hyong Yi and Rob Phocas

VI. Hot Topics

Next Scheduled Meeting
April 9 at 2:00 p.m. in Room CH-14

Distribution: Mayor/City Council, Bob Hagemann, Ron Carlee, City Manager, Stephanie Kelly, Executive Team, Environmental Cabinet

Environment
Strategic Focus Area Plan

"Charlotte will become a **global** leader in environmental sustainability, preserving our natural resources while balancing growth with sound fiscal policy."

The City of Charlotte recognizes that environmental stewardship is fundamentally important to quality of life and essential to maintaining a vibrant economy. Protecting our natural resources, promoting conservation, and improving the environment all enhance the City's mission to preserve **its citizens'** quality of life.

Charlotte will become a **globa**l leader in environmental sustainability by:

- Promoting and participating in the development of an environmentally sustainable community;
- Leading by example by practicing environmental stewardship in City operations and facilities;
- Seeking and supporting collaborative and regional solutions to environmental problems;
- Facilitating the growth of the clean energy industry, including the alternative energy sector.

Specific initiatives in the Economic Development and Transportation Focus Area Plans (FAP) relate directly to Charlotte's environmental goals. The Economic Development FAP includes an initiative to grow and retain businesses in several industry sectors, including the energy/environmental sector. The Transportation FAP includes an initiative for enhancing multi-modal mobility, with measures such as reducing vehicle miles travelled and increasing access to public transit.

FY2014 Initiatives	Example Indicators
Promote and participate in the development of a sustainable community	Reduce residential waste
	Maintain a significant and healthy tree canopy
	Maintain a safe and adequate drinking water supply for the community
	Continue the positive trend in community reductions of emissions that result in ozone
	Reduce impacts **of waste and energy usage to air, water, and land quality** through community engagement
Lead by example by practicing environmental stewardship in city operations and facilities	Reduce energy use
	Reduce storm water pollution
	Reduce air pollution emissions from and improve fuel economy **of** the City's fleet
Seek and support collaborative and regional solutions to environmental problems	Collaborate and participate in public and private sector partnerships to positively impact air quality, energy efficiency, water resources and reduction of waste
Facilitate the growth of the clean energy industry, including alternative energy sector	Work with partners to attract and grow the clean energy industry sectors in Charlotte

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LED Street Lighting Update
Environment Committee
February 26, 2014

Overview

- Why LEDs?
- City/Duke Background
- LED Street Light Pilot Overview
- What's happened since the pilot?
- What's next?
- LED Street Light Summit
- LEDs & City Facilities
- Next Steps

Why LEDs?

- Use less energy = less carbon emissions
- Longer service life
- More durable = Less maintenance
- Comparable light quality

The only remaining question is **cost**?

City/Duke Background Information

Ownership:

- Duke Energy is the owner/operator of City street lights.

- NCDOT owns interstate lighting (I-77, I-85, I-277, I-485, parts of US 74).

Quantities:

- There are approximately 72,000 street lights in the city.

- City adds approximately 1,300 lights annually.

- Average Price: $11.50 / light /month.

LED Pilot Project: **Area**

- April 2012: City Council approved Uptown LED pilot project.
- Installed 229 LED light fixtures w/ smart monitoring technology.
- Tested 3 manufacturers' products.

LED Pilot Project: **Cost**

- **$178,610** paid for the purchase and installation of the 229 LED street lights.
- In return for paying the upfront fee, the City received a lower monthly rate of **$7.16** per month per pole (instead of $21.51/month/pole).
- The installation of 229 LEDs saves approximately **$7,800** annually.
- Duke Energy provided the smart monitoring technology at no cost to the City.

LED Pilot Project: **Outcome**

- Energy Savings: **168,144 kWh/yr.**
  - Equates to:
    - 119 metric tons of CO2
    - Greenhouse gas emissions from 25 passenger vehicles.
    - CO2 emissions from 13,300 gallons of gasoline consumed.
- Maintenance: Only three failures reported to date.
- Citizen Response: Positive.

LED Pilot Project: **Aesthetic Benefit**

Before

After

What's happened since the pilot?

- In January 2014, NC Public Utilities Commission (PUC) approved Duke Energy's first standard rate for LED street lights.
- The LED rates are cheaper than traditional street lighting (approximately 7%-15%) in most cases.
- The LED rates are limited to only new street light installations and mercury vapor replacements.
- The City is adopting LED street lights as its new standard.

What is next?

- While Duke's rate case was before PUC, several North Carolina municipalities were discussing converting to LED street lights.

- The North Carolina League of Municipalities (NCLM), on behalf of these cities, filed a motion in Duke's rate case and had discussions with the PUC public staff.

- Results:
  - PUC established the new LED rates
  - PUC ordered Duke Energy to meet with NC municipalities to discuss next steps in LED conversions.

LED Street Light Summits

- Discussion among consortium of NC cities
  - How do we advance adoption of LED street lights in a cost efficient manner ?

- Cities recognized the need for a “street light summit” modeled on one held in Michigan.

- Asheville, Raleigh and Cary moving forward with LED conversions (all in Progress territory except a small part of Raleigh).

- Evolution of monthly meeting with Duke Energy: focus on street lights.

LED Street Light Summits

- The City of Charlotte and Duke met to introduce the idea of a summit.
- Duke agreed to host.
- The summit will allow Duke to comply with PUC Order.
- Duke hosting 3 full day summits in 3 locations across the state.
  - February 27th, Cary
  - March 6th, Hickory
  - March 13th, Greensboro

LED Street Light Summits

- Four general areas of discussion:

1. Duke Energy Outdoor Lighting: Where are We Today and Tomorrow?

2. Financing strategies for municipal ownership.

3. Municipalities' experiences with LEDs.

4. Small group breakout discussions.

Next Steps after Summits

- NCLM filed an answer to PUC order requesting the establishment of a working group.
  - Currently, NCLM is awaiting PUC's response.

- Rocky Mountain Institute invitation to eLab Accelerator: A Bootcamp for Electricity Innovation. 3/31 – 4/3

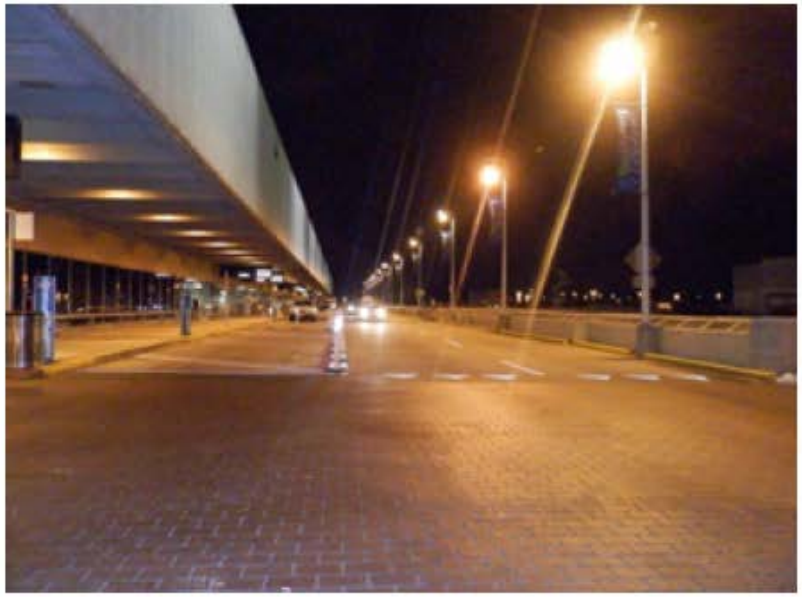
  - RMI brings together project teams from around the country to advance innovative work at the distribution edge of electricity system.

  - Project Team:
    - Charlotte;
    - Raleigh;
    - Duke Energy;
    - UNC School of Government;
    - 3rd party expert (TBD).

LEDs and City Facilities

- Airport:
  - Arrival area LEDs.
    - **12** light fixtures
    - Energy use: **28%** reduction; **6,300** kWh saved/yr.
    - Cost savings: **$550/yr**.
    - CO2 reduction: 4.5 metric tons / yr.
  - New Entrance roadway LEDs.
    - **53** light fixtures
    - Energy use: **40%** reduction; **27,857** kWh avoided/yr.
    - Cost savings: **$4,000/yr.**
    - CO2 reduction: 22 metric tons/yr.

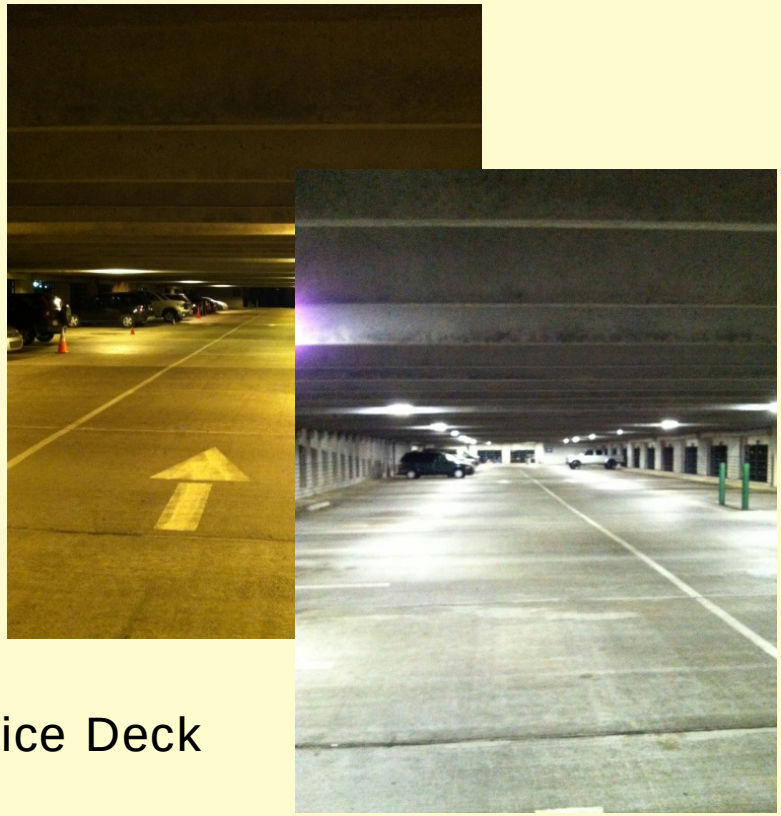
Airport LEDs: Before & After



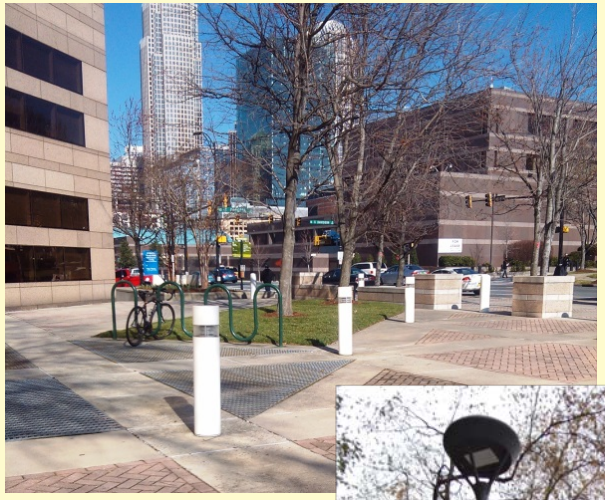
LEDs and City Facilities

- E&PM Projects
  - CMPD Deck Replacement
    - **301** lights; 24/7 use
    - Energy use: **307,000** kWh saved/yr.
    - Cost savings: **$12,000/yr**.
    - CO2 reduction: 215 metric tons of CO2/yr.
  - CMGC Plaza lighting
    - **17** poles, **2** flags, **54** bollards
    - Energy use: **9,000** kWh saved/yr.
    - Cost savings: **$700/yr.**
    - CO2 reduction: 6 metric tons of CO2/yr.

E&PM: Before & After



Police Deck



CMGC

Next Steps

- Street Lights:
  - Set street light policy to include LED Street Lights
  - Participate in street light summits
  - Continue discussions with RMI
  - Develop working group with Duke Energy

- Facilities:
  - Staff currently evaluating lighting options on a case by case basis (induction or LED).
  - Developing city-wide energy management strategy as part of Internal Environmental Operations Plan.
  - Strategy will require use of energy efficient lighting where feasible (induction or LED)

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ENGINEERING & PROPERTY MANAGEMENT

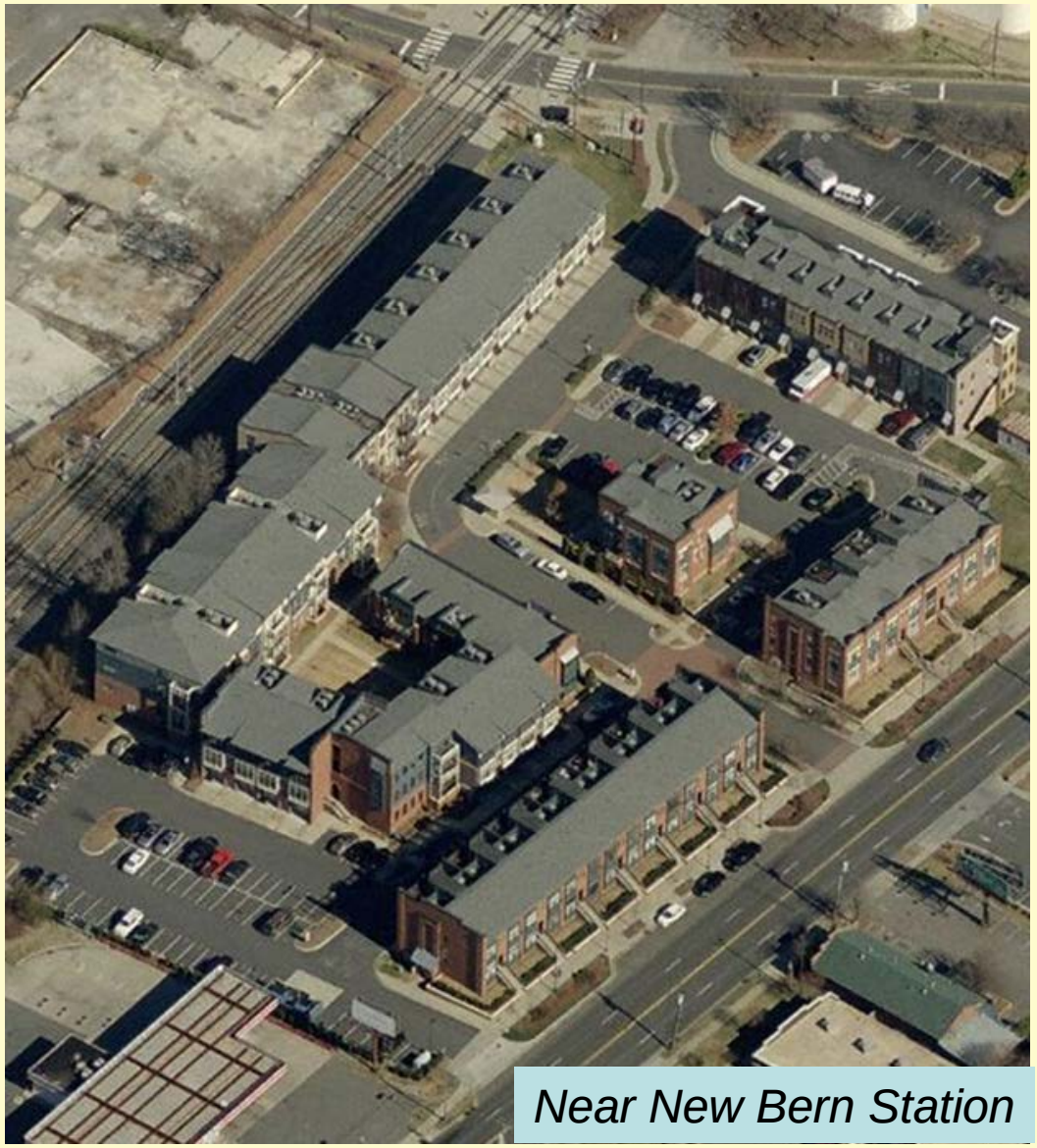
Extending Mitigation Options in the Post Construction Controls Ordinance

Environment Committee

February 26, 2014

Synopsis

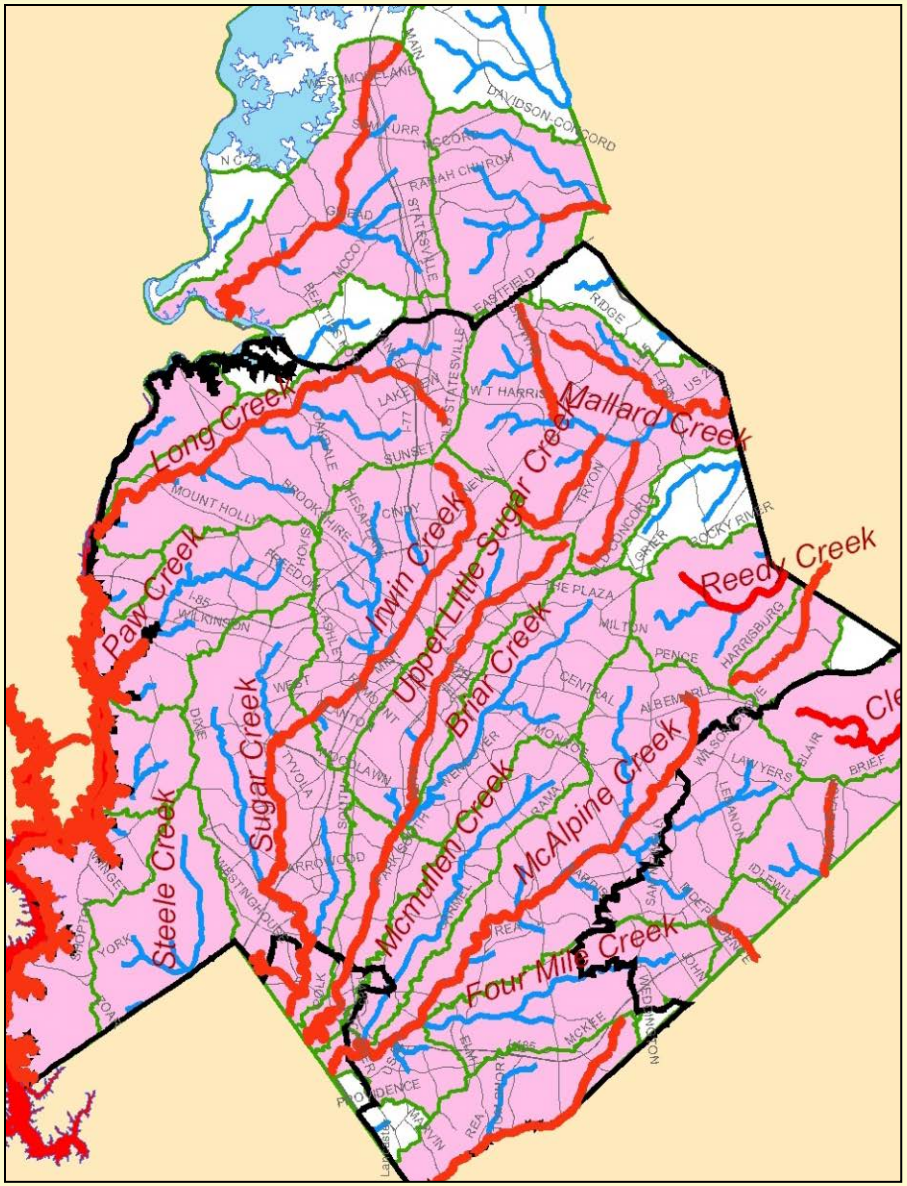
- Paved surfaces causes runoff that impairs surface waters
- Post Construction ordinance requires on-site measures
- Redevelopment faces challenges accommodating storm water controls on-site
- A mitigation fee caps compliance costs and increases flexibility
- A mitigation fee promotes surface water protection
- Staff proposes to extend the temporary mitigation option



Near New Bern Station

Runoffs' Harmful Effects

- All Charlotte streams are designated as *impaired* by Clean Water Act Standards
- Urban runoff is the stated cause, and conditions must improve
- Existing impervious contributes to existing impairment
- The ordinance lessens pollution and flooding as sites redevelop



The Benefits of Extending the Mitigation Fee

- Redevelopment sites often face substantial challenges accommodating runoff controls on-site
- Caps the compliance cost of affordable housing, redevelopment projects, and increases economic development opportunities
- Increases flexibility, and predictability for redevelopment projects
- Reduces greenfield development by making redevelopment more affordable
- Accelerates watershed recovery by encouraging redevelopment over green field development

Fee-in-Lieu Mitigation Projects

Mitigation fees are used to construct regional, cost-effective control measures

A regional pond retrofit project

A new regional wetland that filters pollutants from runoff.

A new "Rain Garden" filters and controls runoff from a parking lot

Fee-in-Lieu Mitigation Projects

Mitigation Project	Watershed
Birnen Pond	McMullen
Chantilly Wetland & Pond	Briar
McAlpine Wetland	McAlpine
Pickway Pond	Irwin
McDonald Pond	Irwin
Lakewood Sand Filter	Irwin

Acres Redeveloped: 79.7

Acres Mitigated by City Projects: 153.7

Assurances are in place to ensure environmental and cost effectiveness.

Summary

- The temporary expansion for redevelopment in all areas expires in April
- Expiration will result in mitigation option only being available in transit corridors or revitalization geography
- The Storm Water Advisory Committee unanimously recommended extension
- Recent State legislation requires unanimous Council approval for ordinance changes
- Staff recommends continuing this option for all areas of the City through December 31, 2018

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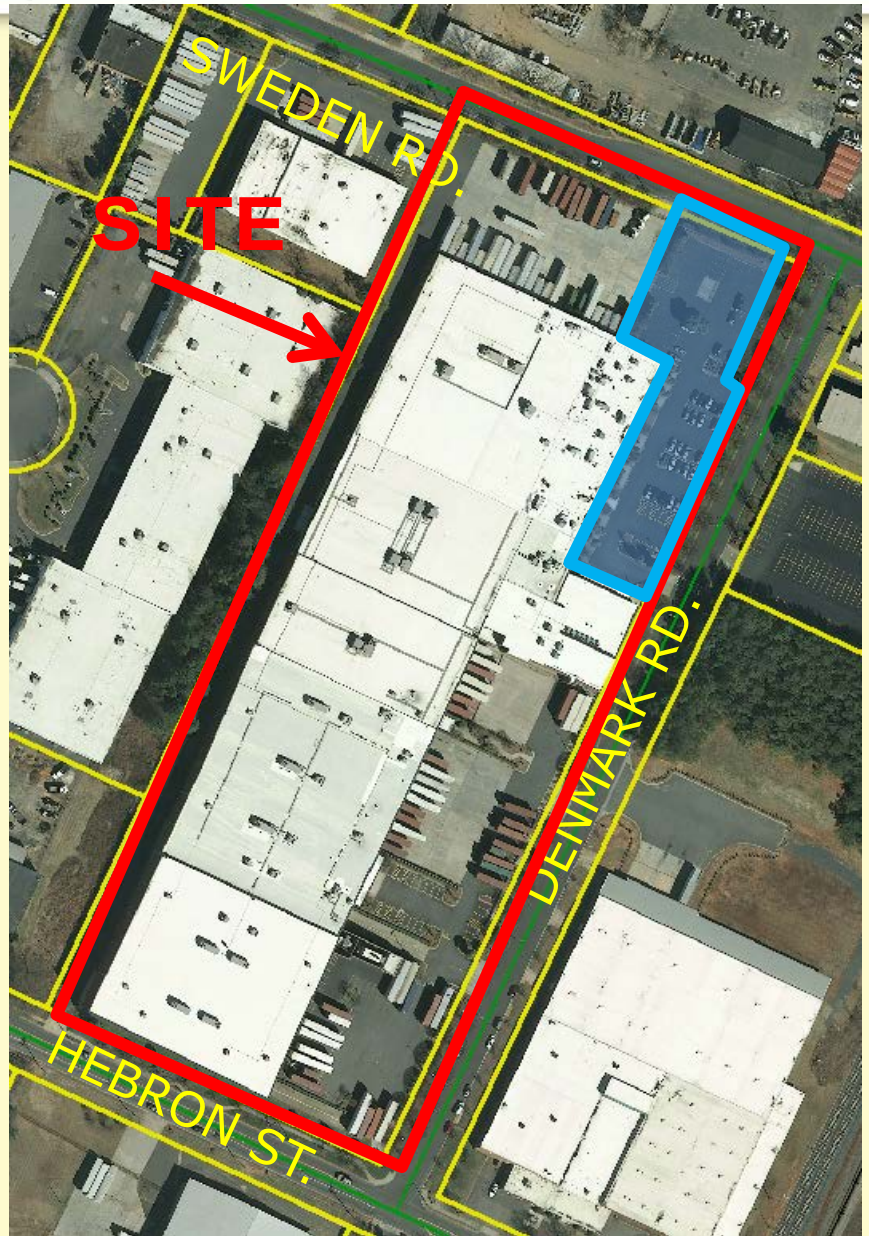
- Extra information…

Example



- Site owner wishes to add a new building
- Ordinance requires stormwater management facilities on-site
- Site is just outside of Arrowood Transit Station Area; not eligible for mitigation fee option
- Only place on-site to install underground stormwater management facilities is within the truck delivery court, which requires critical 24-7 operation

Purpose and Need

Redevelopment sites often face substantial challenges accommodating stormwater controls on-site

- Difficult topography
- Underground utility conflicts
- Lack of available space onsite
- Economic considerations
- Brownfield sites
- Maintain site operations

- Accelerates watershed recovery by encouraging redevelopment over green field development
- Extending the mitigation option adds flexibility for developers and may be a catalyst for more redevelopment

Proposed Fee Structure

***For Example**, a 2 acre redevelopment site outside the transit/distressed areas would pay a $150,000 fee in lieu of onsite controls.*

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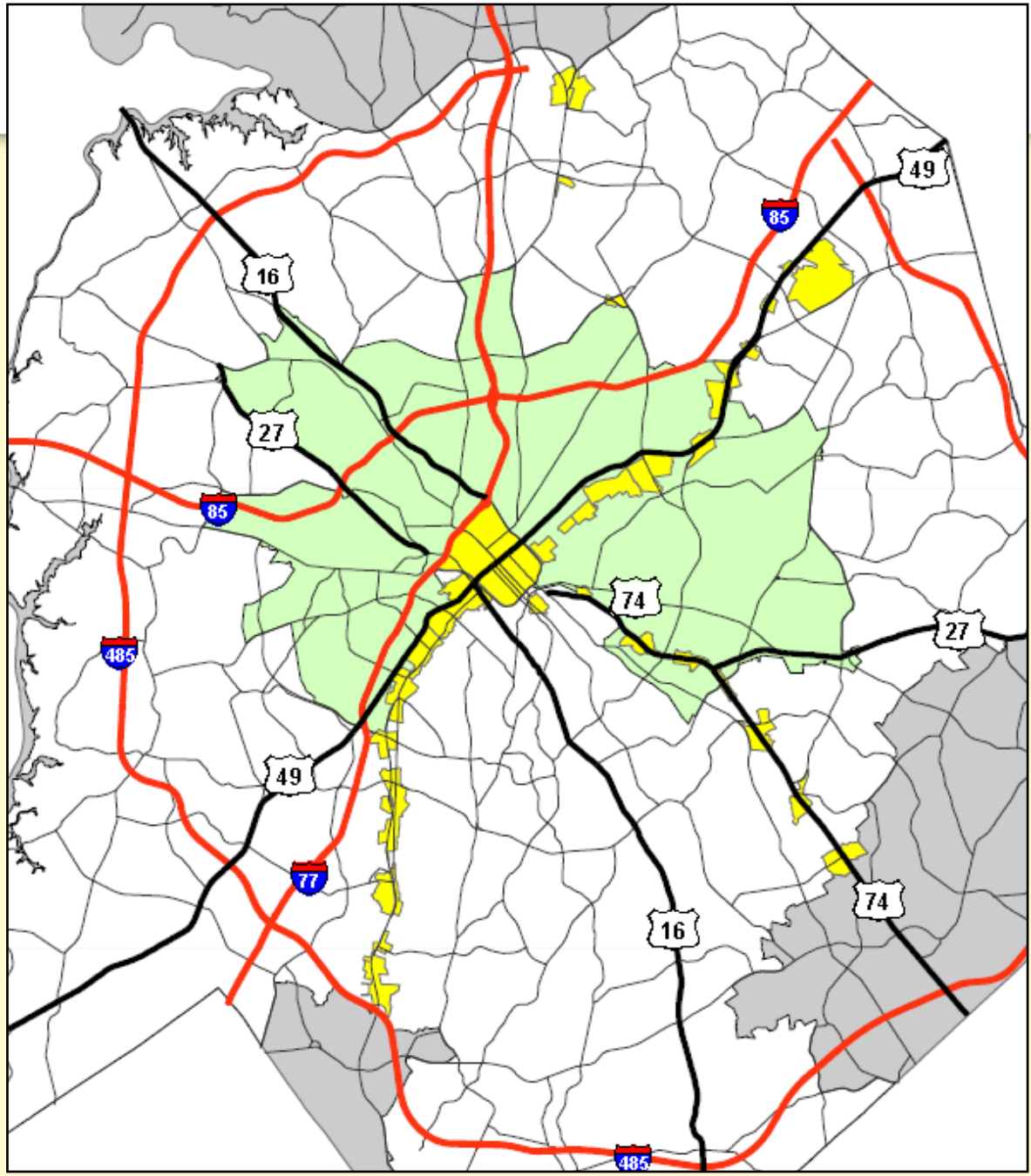
Mitigation Fee Options Available Since 2008

Business Corridor Revitalization Geography

Transit Station Areas

City Limits + Extra Territorial Jurisdiction

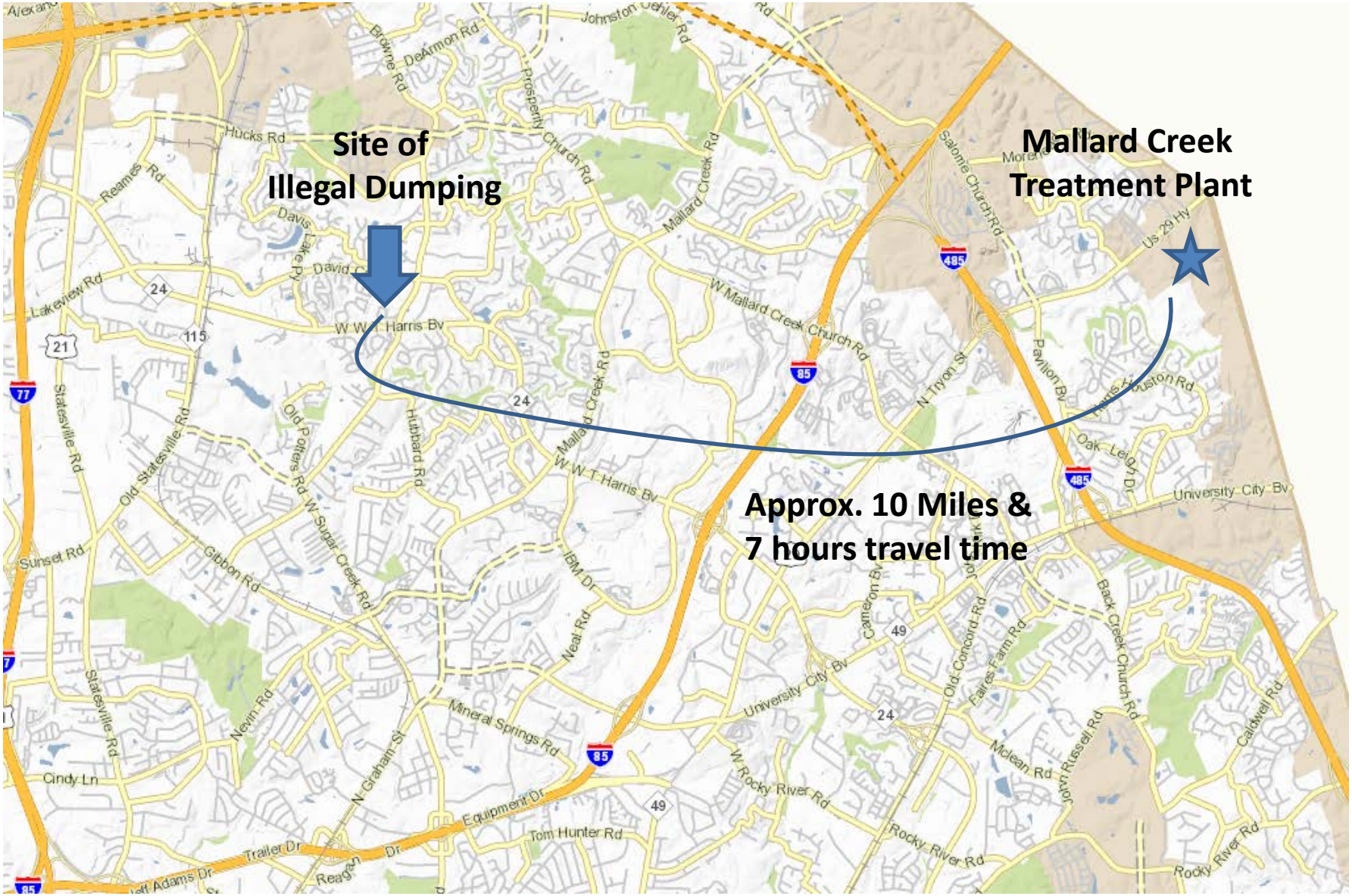


Chantilly Plan

Centers, Corridors, & Wedges Framework

- Provides a vision to grow and develop to meet the needs of an expanding and changing population
- Sets an expectation for additional infill and redevelopment as a key part of future growth
- One of the guiding principles is to bring redevelopment to economically challenged business and residential areas

"How the City responds and accommodates growth, with redevelopment being the highest priority, will determine the type of city that Charlotte will become."


Site of
Illegal Dumping
Mallard Creek
Treatment Plant
Approx. 10 Miles &
7 hours travel time
Hucks Rd
Reames Rd
Davis Lake Pl
David
Lakeview Rd
W W T Harris Bv
Prosperity Church Rd
Mallard Creek Rd
W Mallard Creek Church Rd
Salome Church Rd
Us 29 Hy
Pavilion Bv
N Tryon St
Houston Rd
Oak Leigh Dr
University City Bv
Statesville Rd
Old Statesville Rd
Old Potters Rd
W Sugar Creek Rd
Hubbard Rd
Sunset Rd
Gibbon Rd
IBM Dr
Neal Rd
Cameron Bv
Old Concord Rd
Fairies Farm Rd
Back Creek Church Rd
Caldwell Rd
Nevin Rd
Mineral Springs Rd
N Graham St
Cindy Ln
Equipment Dr
Trailer Dr
Tom Hunter Rd
W Rocky River Rd
Rocky River Rd
Mclean Rd
John Russell Rd
Jef Adams Dr
Reagan Dr
21
24
115
77
85
49
495


10 ton