



Strategic Energy Action Plan Discussion and Path Forward

City Council
Action Briefing
December 3, 2018

Process Toward a Sustainable & Resilient Charlotte

- Mayor & Council Actions History
- Strategic Energy Action Plan Framework
- Context and Key Considerations for Delivery
- Path Forward



History – Global Covenant of Mayors

- Mayors Clodfelter, Roberts, & Lyles signed Global Covenant of Mayors for Climate & Energy commitment (GCoM).



- Goal: reduction of greenhouse gas emissions from municipal operations and communities to meet goals of the Paris Climate Agreement

History

- November 2017, City Council considered a Clean Energy Resolution; referred to Environment Committee.
- Sustainable & Resilient Charlotte by 2050 Resolution.
- June, 2018 full City Council adopted Resolution.
- June, 2018 – December, 2018: SEAP Development.



History - Sustainable and Resilient Charlotte by 2050 Resolution

- 1) By 2030, strive to source 100% of City's energy use in its buildings and fleet from zero carbon sources.
- 2) By 2050, strive to become a low carbon city (average 2 tons CO₂e/person).
- 3) Develop an action plan as a framework to achieve goals.

Global Context

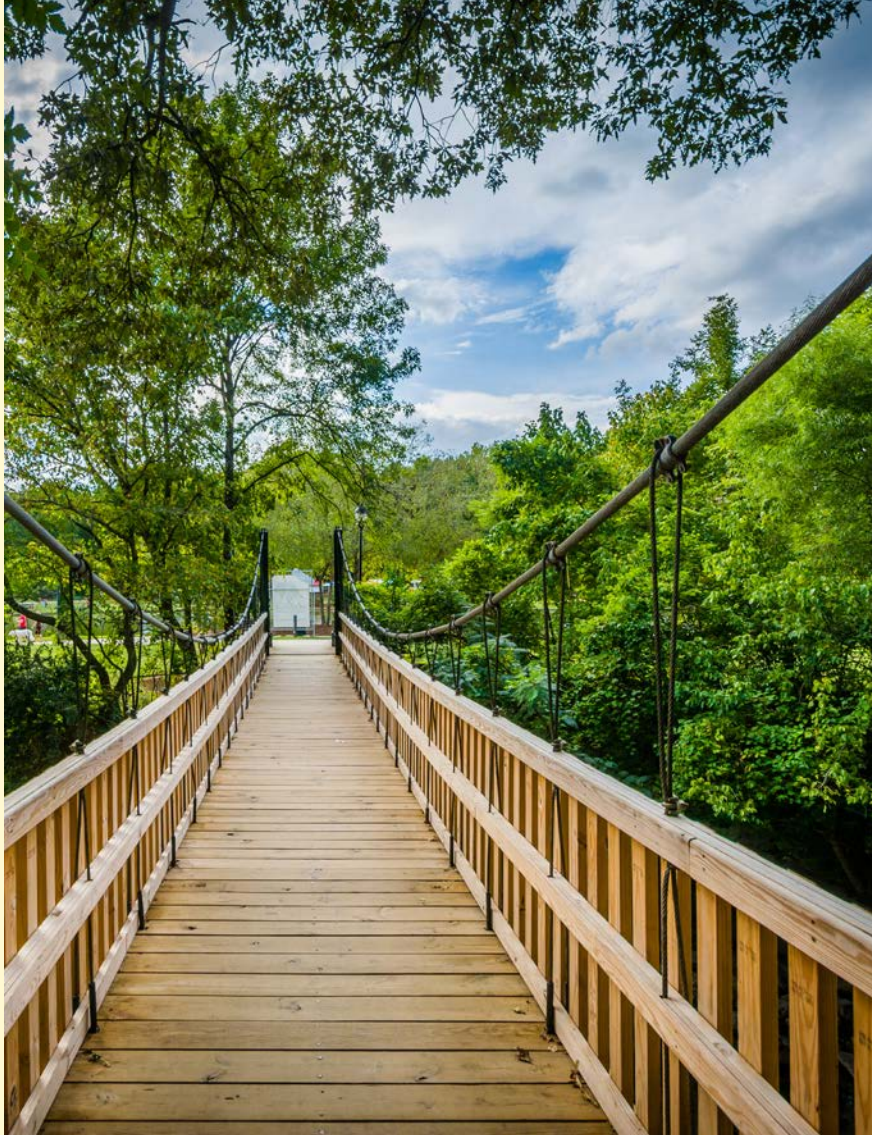
- Conversation among global leaders
 - Intergovernmental Panel on Climate Change, 5th Assessment Report (October)
- Conversation among US leaders
 - Fourth National Climate Assessment (November)
 - Bloomberg American Cities Climate Challenge
- NC Governor's Executive Order No. 80
- Environmental Defense Fund's Cities Initiative
 - Raleigh, Cary, Durham, Ashville, Greensboro, Wilmington, Fayetteville

Global Context

- No city has found the exact recipe for success
 - Cities, Nonprofits, Companies, Academia working together
 - USDN Workgroup
 - Monitor improving technologies
 - Costs will be refined continuously
 - Grants, Partnerships, Innovative Funding
- Rigorous analysis of costs and benefits
 - Total Cost of Ownership including Social Cost of Carbon



Strategic Energy Action Plan (SEAP)



- Focuses on GHG emissions reduction, and includes opportunities to align economic development policy.
- Developed in partnership with Envision Charlotte and Carbon Captured, Ltd.
- Three core components:
 - (1) a baseline assessment;
 - (2) a vision with targets; and
 - (3) a framework for achieving targets.
- Living document; reviewed biennially

SEAP Engagement

Goal: All Voices Are Heard

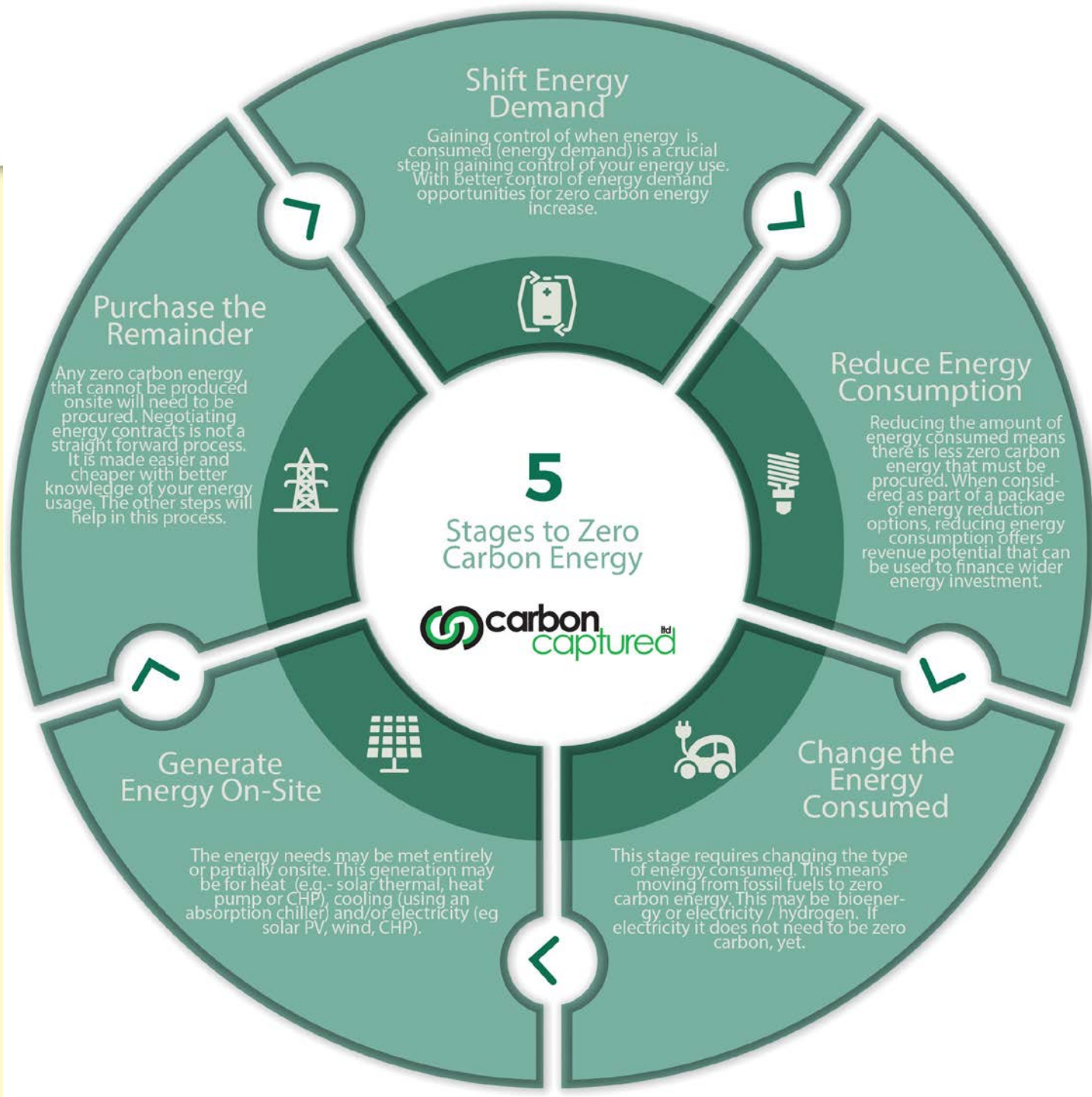
- To Date
 - City Departments
 - Community
 - Stakeholders
 - Experts
- Going Forward
 - More neighborhood-level and community group interactions, e.g., SEAP roadshow
 - Tuesday Morning Forum
 - Charlotte Rotary



SEAP Contents

- Focuses on:
 - 1) Buildings;
 - 2) Transportation; and
 - 3) Energy Generation.
- Foundation of innovation, workforce development and equity/inclusion.
- 11 Linked Action Areas:
 - 6 internal-focused
 - 5 community-focused
- 5 Stages to Zero Carbon Energy





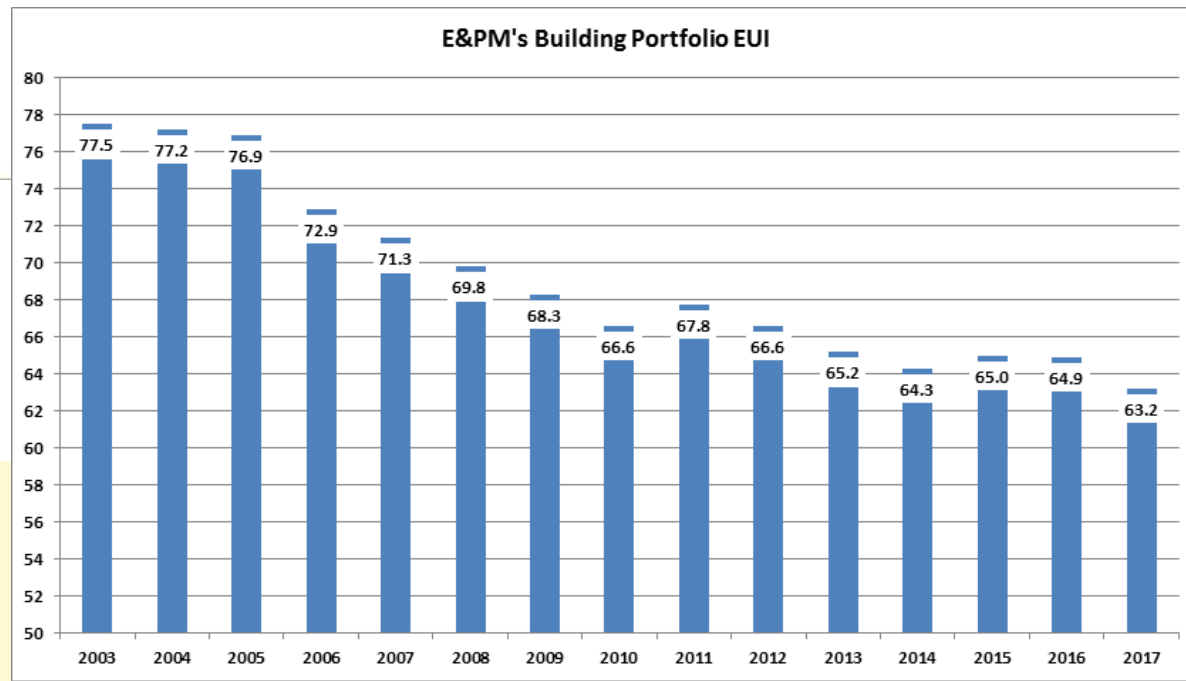
SEAP Delivery Structure

- Workgroups:
 - Internal steering team
 - 3 Internal
 - 4 External:
 - Member Selection Process
- Stakeholder Engagement
- Content Expert Advisory Group
- Quarterly Updates to Environment Committee
- Periodic Updates through Action Briefings





Our Track Record: Facilities



- \$29M Savings from 2003 to 2017
 - Efficient Replacement Equipment
 - Deep Energy Retrofits
 - Electric rate analysis and adjustments
 - Duke's Incentive Program
- Energy Star Certifications
 - 2016: 6 facilities
 - 2018: 4 facilities
- LEED: 3 Gold, 2 Silver, 1 Certified
- Green Globes: 1 3-Globe

Facility Portfolio Low Carbon Potential



Cultural Facilities
Fire/Police Stations
Office Buildings/Labs/Shops

Approximately 6M square feet

Green-highlighted facilities are good candidates** for transitioning to lower/zero carbon for many operational uses.

**Energy retrofits may carry significant cost.

Water/Wastewater Treatment Plants
CATS Facilities
Airport Facilities

Yellow-highlighted facilities could be more difficult to transition to lower/zero carbon due to concerns about operational risks, costs of alternatives, or technological readiness.



Our Track Record: Fleet



- 5000 vehicles/equipment
 - 10 Electric, 27 Hybrid, 29 CNG
 - 40 Hybrid Buses
 - Buses will transition to CNG/biofuel, paying attention to improving EV technology
 - CMPD piloting hybrid pursuit vehicles
 - Charging capacity at all new facilities
 - NAFA "Top 100 Fleets" 2014 – 2018
 - Government Fleet Magazine "Leading Fleets 2015 – 2018"
 - NAFA "100 Green Fleets" 2018



Fleet Portfolio Low Carbon Potential



| | | |
|---|--|--|
| | Green-highlighted vehicles are good** | |
| Non-Public Safety Sedans | candidates for transitioning to | |
| <i>**upfront costs are higher</i> | lower/zero carbon for many operational uses. | |
| <i>**fueling/charging infrastructure will be required</i> | | |
| | | |
| Passenger Buses (Airport/CATS) | Yellow-highlighted vehicles could be more difficult to transition to lower/zero carbon due to concerns about operational risks, costs of alternatives, or technological readiness. | |
| Vans | | |
| Sport Utility | | |
| Light Duty | | |
| CMPD Patrol | | |
| Medium Duty | | |
| Heavy Duty | | |
| | | |
| | Red-highlighting indicates that there are currently no options or extremely limited options | |
| Fire Trucks | for transitioning to lower/zero carbon due to concerns | |
| | about operational risks, costs of alternatives, | |
| | or technological readiness. | |

Pathways to Success in 2030

Pathways may include:

- New construction, retrofit facilities, new or converted vehicles
- Change behaviors
- Large solar fields
- “Purchase” low/zero carbon electricity sources – LAST RESORT

The Variables include:

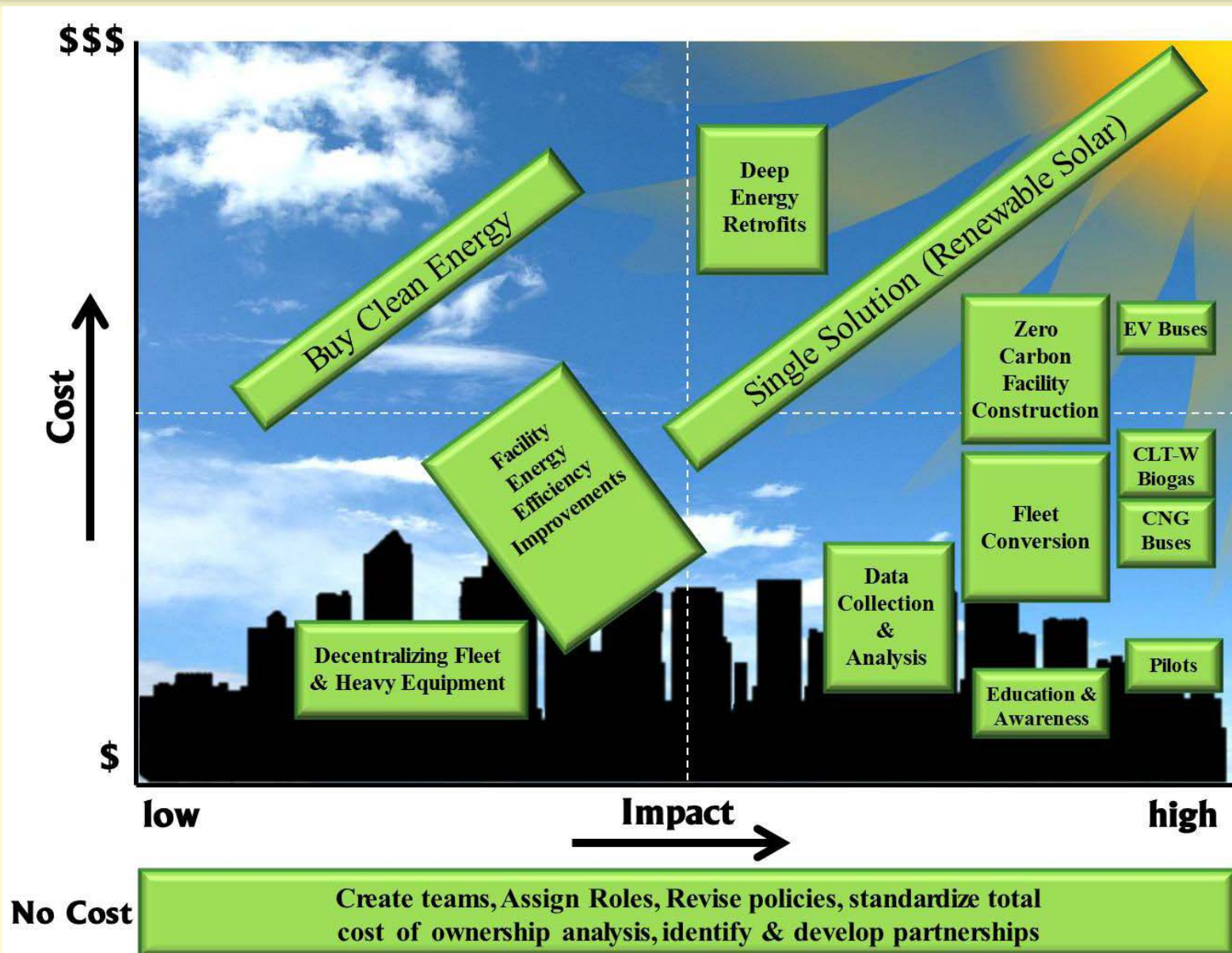
- Changing Duke Energy mix
- Technology advances and opportunities

Funding Approaches may include:

- Utilization of energy savings
- CIP/Enterprise Funds/Tourism Fund
- P3 Opportunities
- Grants
- Performance Contracts
- Green Bonds
- TOTAL COST OF OWNERSHIP



A Tool for Visualizing Relative Costs and Impacts



2019/2020 Activities

- Readiness for grant/partner opportunities
- Further clarify upfront costs and total cost of ownership
- Formation and chartering of teams
- Policy recommendations
- Education, awareness, marketing
- Exploration and expansion of partnerships
- Data-gathering and analysis
- Get projects “shovel ready” to leverage opportunities

- SEAP Action Area 2 devoted to Communication
 - Communications plan
- Marketing Charlotte as a leader among cities
- Demonstrating Leadership by Example for the community
 - Team Work Makes the Dream Work
 - Opportunity for co-branding with partners
- Economic Impact
 - Re-energize Energy Capital effort
 - CRVA

City Council's Role

- Continued commitment to the goals set out in Resolution
- Consideration of:
 - Policy Recommendations
 - Annual Budgets, Grants Acceptance
 - Condition Assessments/Audits/Analyses
 - Design Contracts, Construction Contracts
 - Performance Contracts
 - Partnership Agreements
- Employ New Lenses
 - Total Cost of Ownership
 - Horizontal application of SEAP
- NCGA Legislative Agenda
 - e.g., explore procurement and building code changes
- Biennial review/update of SEAP
 - Occasional presentations to full Council
 - Quarterly reports to Environment Committee

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Next Step



- December 10th:
SEAP on Council
Agenda for
consideration and vote