Parking as a Climate Tool

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Why Parking?

- Crucial factor in the built environment’s “sustainability fabric”
- Complements “greener” buildings, drives transportation sustainability
Parking in the Built Environment

- Where transportation and buildings meet
- Garages and lots typically occupy “negative” space
- Buildings have been getting “greener” but parking has been left out…until now
Parking’s Direct Impact

- Environmental and land cost: hundreds of millions of parking spaces
- Excess energy consumption, urban heat island, stormwater runoff, traffic congestion, pollution
- Poor design = negative climate impacts
Sustainable Transportation Goals

- Fewer Vehicles
- Lower Emitting Vehicles
- Increased Public Transportation Utilization
- Low/No Carbon “last mile” pedestrian/bicycle access
The Way Forward

• Adopt Green Parking Concepts
• Think Holistically
• Follow Best Practices
• Parksmart Certification
Green Parking Strategies

- Mobility
- Air Quality
- Land Use
- Energy
- Water
- Community
- Operations
Land Use: How and Where

- Site Selection
  - Location
  - Reuse/Reclamation
- Right-Sizing
- Shared Parking
- Efficient Layout for Traffic
  Ingress/Egress
Transportation Connectivity

- Pedestrian Connectivity
- Bike Parking
- Bike Sharing
- Intermodal Hub

Bus, Trains, Ferries, Air
Reducing Fuel/Traffic

- Wayfinding/Traffic Management
- Car Share
- Carpool/Vanpool
- Alternative Fuel Vehicles (EV)
- Low Emitting Vehicles
Energy Efficiency

- Efficient Lighting
- Advanced Controls
- Light Pollution
- HVAC
- Mechanical Systems
Energy: Clean Energy Integration

PV offsets 50% typical building usage

One Carport yields 9,000 EV miles/year!
Integrate EV Charging
Energy Resiliency & Storage

- Mitigates Peak Demand Charges
- Demand Response Programs
- Smart-Grid Support (Micro-Grid)
- Emergency Backup
- Smooths Generation
Water Innovations

• 1 Acre ≈ 1 Million Gallons/Year

• Stormwater Management
  • Mitigates Flooding/Water Treatment
  • Swales, Pervious Surfaces
  • Tree (= 4 spaces)
  • Rain Gardens
  • Raise Building – Resiliency

• Rainwater Harvesting – Irrigation, Cleaning
Air Quality Improvements

- Heat Island Mitigation
- Safer to breathe!
- More Energy Efficient
Community & Placemaking

Physical Placemaking • Event Space • Green Space
Neighborhood & Community Engagement
Operations and Management

Recycling/Waste Handling
Composting
Cleaning & Maintenance
Coatings/Paints
Purchasing Practices
Construction Practices
Think Holistically

- Assess the entire parking system (inputs/outputs)
- Simple changes create Comprehensive Payback
- Environmental and Social Connection
- Consider Secondary Benefits
Multiple Benefits: Tree Canopies

- Tame urban heat islands
- Reduce HVAC use
- Reduce runoff and protect water quality
- Lower respiratory problems
- Beautify and create place
Landscape Design: Land/Air/Water

Green Habitat
Use native species
Attract pollinators
Minimize lawn/hardscape

A benefit for people and nature!
Secondary Benefits: Solar Carports
Recognizing Excellence

Buildings
LEED
GREEN
Green Globes

Neighborhoods
Envision
LEED-ND
EcoDistricts

Infrastructure
PEER
SITES

Mobility

[Images of buildings, neighborhoods, infrastructure, and mobility]
Ft Lauderdale–Hollywood Airport

Placemaking
Technology
Water Management
Cincinnati Zoo & Botanical Garden

Photos by Dan Ciarcia
Motorcars Honda

- 70% power offset (~40 homes)
- 1 work week gained per storm
- Reduced liability insurance
Climate Benefits

- Smaller environmental footprint
  - Water, Land, Air, Energy
- Climate Resiliency
- Neighborhood connectivity
- Intangible Benefits
- Efficiencies == Financial Gain
Thank you!

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