

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



Mike Nothum/Power Parasol

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



Parking Rates	
0-15 Min. Grace Period/ 16-20 Min.	\$1.00
Each Additional 1/2 Hour	\$1.00
Maximum Per Day	
Ticket Minimum	

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



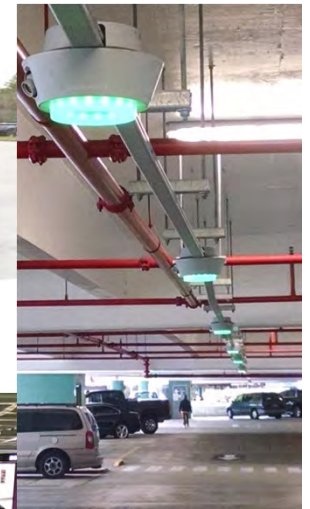
Natur243 (CC-BY-SA-4.0)

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 \approx 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 breath!
- More Energy Efficient



Community & Placemaking



Physical Placemaking • Event Space • Green Space
Neighborhood & Community Engagement



Operations and Management

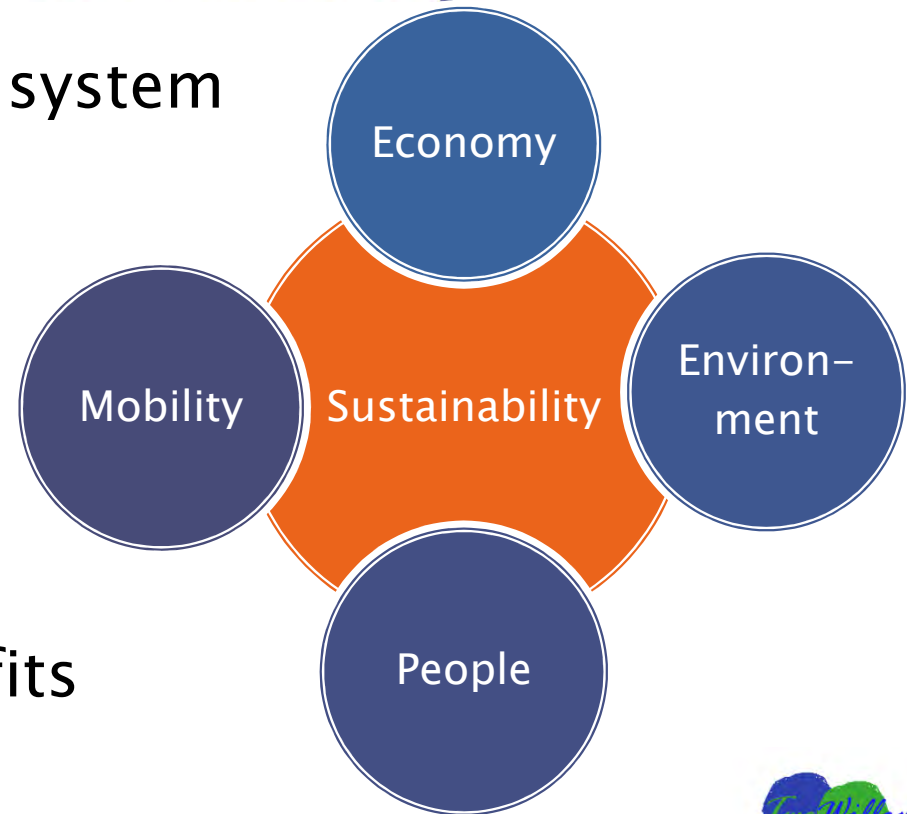


Recycling/Waste Handling
Composting
Cleaning & Maintenance
Coatings/Paints
Purchasing Practices
Construction Practices



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

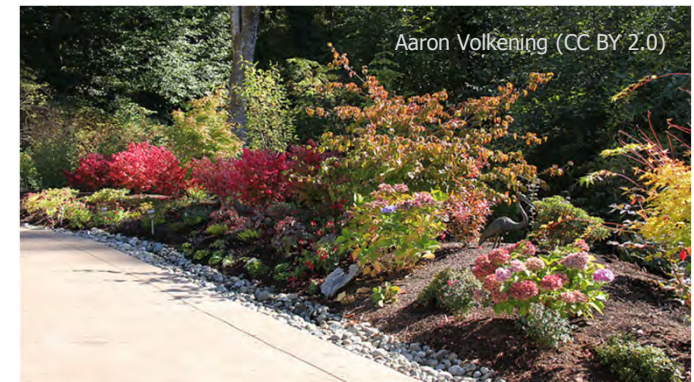


Green Habitat

Use native species
Attract pollinators

Minimize lawn/hardscape

A benefit for people and nature!



Secondary Benefits: Solar Carports



Staples HQ (Courtesy Solaire Generation)



<https://www.flickr.com/photos/theregeneration/2897088200>

Recognizing Excellence



Buildings
LEED
GRES
Green Globes



Neighborhoods
Envision
LEED-ND
EcoDistricts



Infrastructure
PEER
SITES

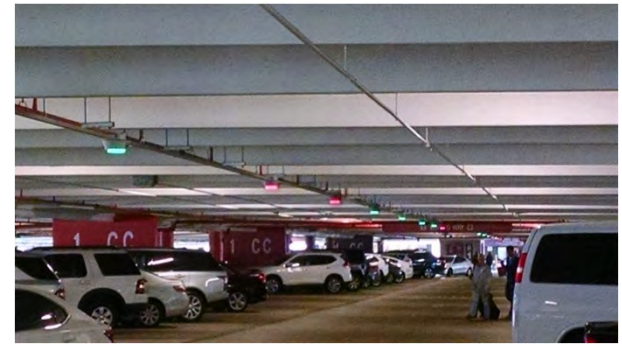


Mobility

Parksmart

Ft Lauderdale-Hollywood Airport

Placemaking
Technology
Water Management



Cincinnati Zoo & Botanical Garden



Motorcars Honda

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



Image © Google



Climate Benefits

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



Thank you!

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