

WHY SMART CITIES?

Cities are the Problem; Cities are the Solution

PROBLEMS

SOLUTION

- Global urban population will account for6.3 billion people by 2050
- Cities produce nearly 80% of world's carbon emissions
- Every day, the urban population grows by 180,000+ people
- Posing Immense Challenges for Cities: Energy? Water? Waste? Food? Pollution? Congestion, Traffic, Old Infrastructure? Affordable Housing? Education? Economic Growth? Health and Prosperity for All??

"60% of the buildings that will make up the world's fastest growing cities by 2050 are yet to be built."

WHY SMART CITIES?



Our society faces major challenges to achieve sustainability: social, economic and environmental. We must do our part in the built environment by accelerating green buildings, smart cities.

- UN Sustainable Development Goals 2016~2030
 - ✓ Linking World GBC goals to the **17 SDG's**
- COP21: Striving for Net Zero by 2050
 - ✓ All new buildings and major renovations should be net zero starting in 2030.
 - \checkmark 100% of building stock should be net zero by 2050.
- Accelerating Climate Action in the built environment.
 - ✓ Green building certifications vs. Net Zero
 - ✓ Net Zero legislation has begun





WHY SMART CITIES?

relmagining cities foundation

People,

Planet

Profit.

Environmental Sustainability

Economic Sustainability

P

Climate Change

Sustainability

Social Sustainability

4

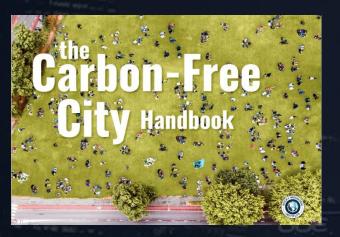
Carb City

CityHnitiate Medhanism Projects:

- Energy
- Subside
 - **Coarts**a
- Pablie
- Partne
- Efédit
- Pro-pel
- Entergr

Carbon-Free Carbon-Free Carbon-Free Carbon-Free

¢



Belo Horizonte Public-Private Partnership (PPP) for LED Lighting

In 2016, Belo Horizonte, the sixth-largest city in Brazil, put in place a public-private partnership to upgrade over 175,000 streetlights with efficient LEDs. The contract was executed for **US\$300 million over a 20-year** time frame, and was the largest public street-lighting contract in Latin America.

Sustainable Melbourne Fund

Established in 2002 by the Melbourne City Council (AUS), the Sustainable Melbourne Fund (SMF) operates as a trust to support building owners, businesses, investors, and local councils to reduce their environmental footprint. SMF offers Environmental Upgrade Finance, which is a loan provided to support building improvements; repayments are administered through the local council.



Belo Horizonte Public-Private Partnership (PPP) for LED Lighting

In 2016, Belo Horizonte, the sixth-largest city in Brazil, put in place a public-private partnership to upgrade over 175,000 streetlights with efficient LEDs. The contract was executed for US\$300 million over a 20-year time frame, and was the largest public street-lighting contract in Latin America.





Personal Rapid Transit 100% renewable energy Citizen engagement **Health& well-being** Attract global investors Recreational parks Smart living Technology innovation Attract global talent **Electric vehicles** Job growth **Green Finance Energy efficiency Energy storage** e-government **Bike-ability** Clean air Thermal comfort Wireless networks (ICT) Walkability **Sustainability vision** Indoor air quality Net zero energy Deep energy retrofit **Smart transportation Biomass** Biophilia Solar PV & thermal Education **Public transit** Flood management Geothermal **Noise pollution** Water management Waste-to-energy **Local food** Living lab platform **Community engagement** Reduce-reuse-recycle GHG emission roadmap Clean water **Smart industries Carbon neutrality E-government services** Eco-tourism Smart healthcare Natural ventilation Open platform Natural daylighting Mobile connectivity District energy Resilience management Shared mobility Smart parking Zero waste Passive design **Biodiversity Autonomous vehicles** Wind power Data driven urban policy **Smart street-lighting** Smart, urban farming Local economy growth Internet of things (IoT) **Smart city Action plan Public-private partnership**





Smart Government	Green Building	Smart Energy	Eco- mobility	Smart Infrastructure	Smart Economy	Nature & Environment	Smart citizen & Community

Attract Public Private Partnerships with a Smart City Vision

Smart City -AmSMARTerdam

- Amsterdam, which has been working toward a "smart city" for 7 years, offers insights into the complexities facing city managers who see the opportunity with data.
- In April 2013, the City of Amsterdam held a design contest to create an international technology institute.
- Public-private platform that is formally named the Amsterdam Smart City (ASC) initiative, which encompasses projects across eight categories
- Amsterdam is a Smart city with "living labs," redeveloping areas where it is easy to try new kinds of infrastructure experiments



Attract Public Private Partnerships with a Smart City Vision

Smart City -AmSMARTerdam

Amsterdam Smart City with Public-Private Partnerships

100+ partners, 36 municipalities, 70+ projects, 75+ foreign delegations





Attract Public Private Partnerships with a Smart City Vision

Smart City -AmSMARTerdam

Integral Approach: 3 Living Labs





CONVERGENCE OF REAL ESTATE AND TECHNOLOGY



PHYSICAL ASSET LAYER

smart, sustainable development

Digital Technology Layer

Tremendous Added Value in "Big Data"

- Aligned with Smart City policy & objectives.
- Attract global tenants who provide smart city solutions
- Big data business in "public-private" partnerships to nurture economic growth

Physical Asset Layer

Traditional Value in the "Bricks & Mortar"

- Green is too expensive is a misperception!
- "Showcase" smart, sustainable development
- Must be financially attractive.
- Net zero ready

