Future Cities Made Real - *Efficient, Liveable, Sustainable*.

James Anderson, VP Smart Cities

Team Florida, January 2013

Schneider Electric

Schneider Electric – the global specialist in energy management

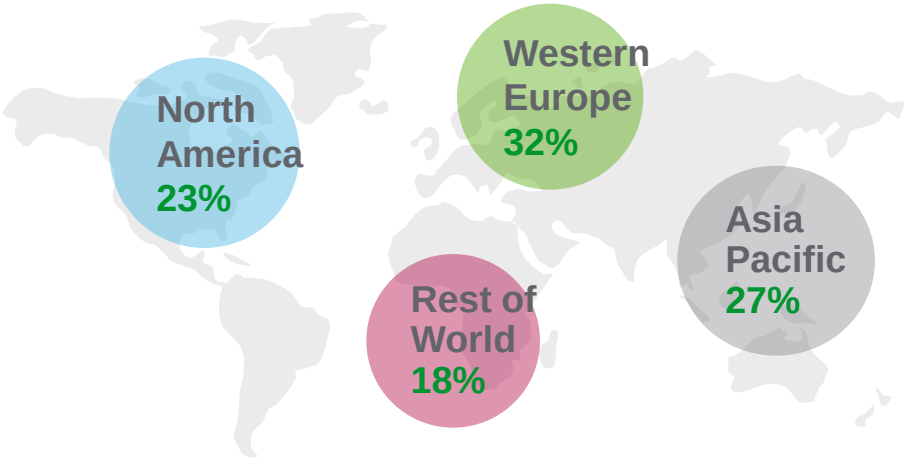
22.4
billion € sales
(last twelve months)

39%
of sales in new economies
(last twelve months)

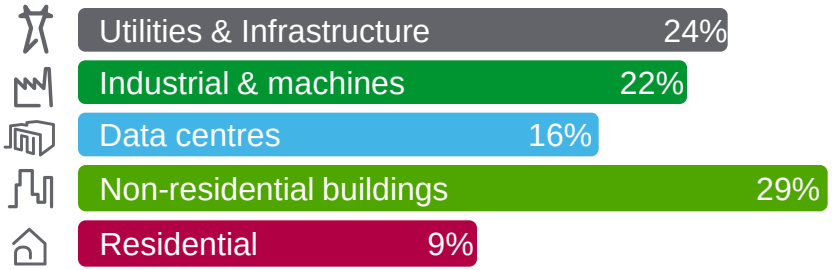
137 000+
people in 100+ countries

4–5%
of sales devoted to R&D

Balanced geographies – FY 2011sales



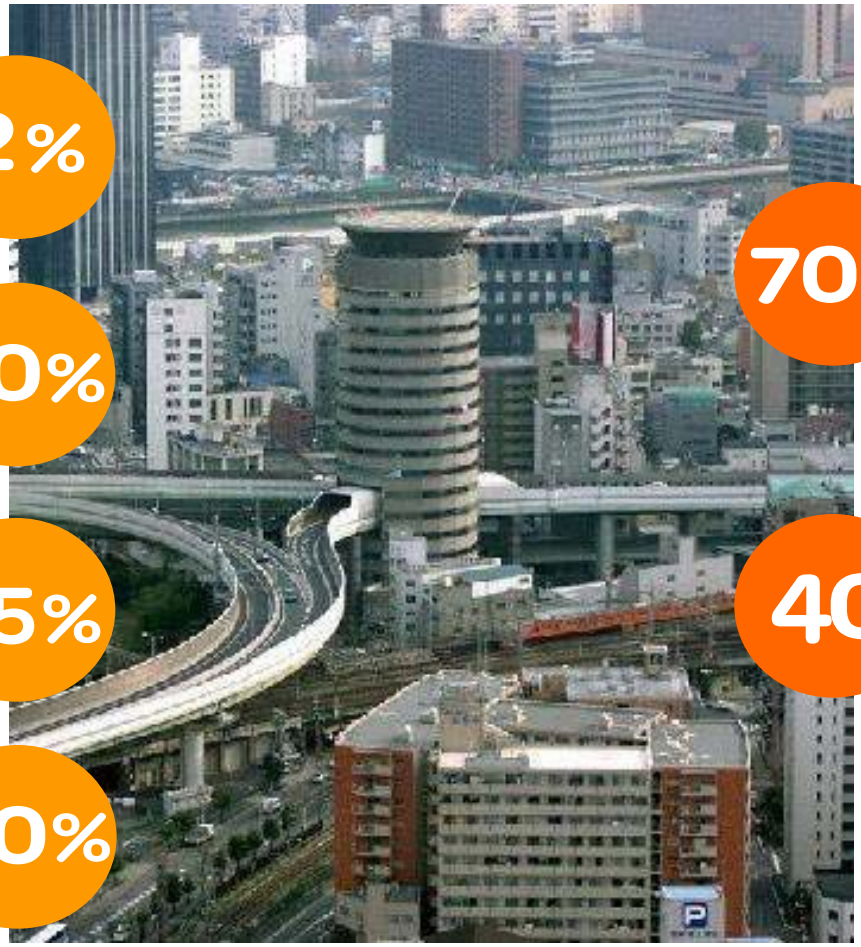
Diversified end markets – FY 2011 sales



The Global Energy challenge…

Cities today…

…and by 2050



Earth's surface **2%**

World population **50%**

Global energy consumption **75%**

Global CO_2 emissions **80%**

70% **World population**

40 **Years to double the urban capacity developed over the past 4000 years**

…will take place in Cities

As cities grow, so do their challenges…

- Scarcity of resources
- Aging and overloaded infrastructure
- Traffic congestion
- Environmental targets & pollution
- crimes

- Reduce costs & manage debt
- Attract global investment, jobs, talent

…of long term sustainability!

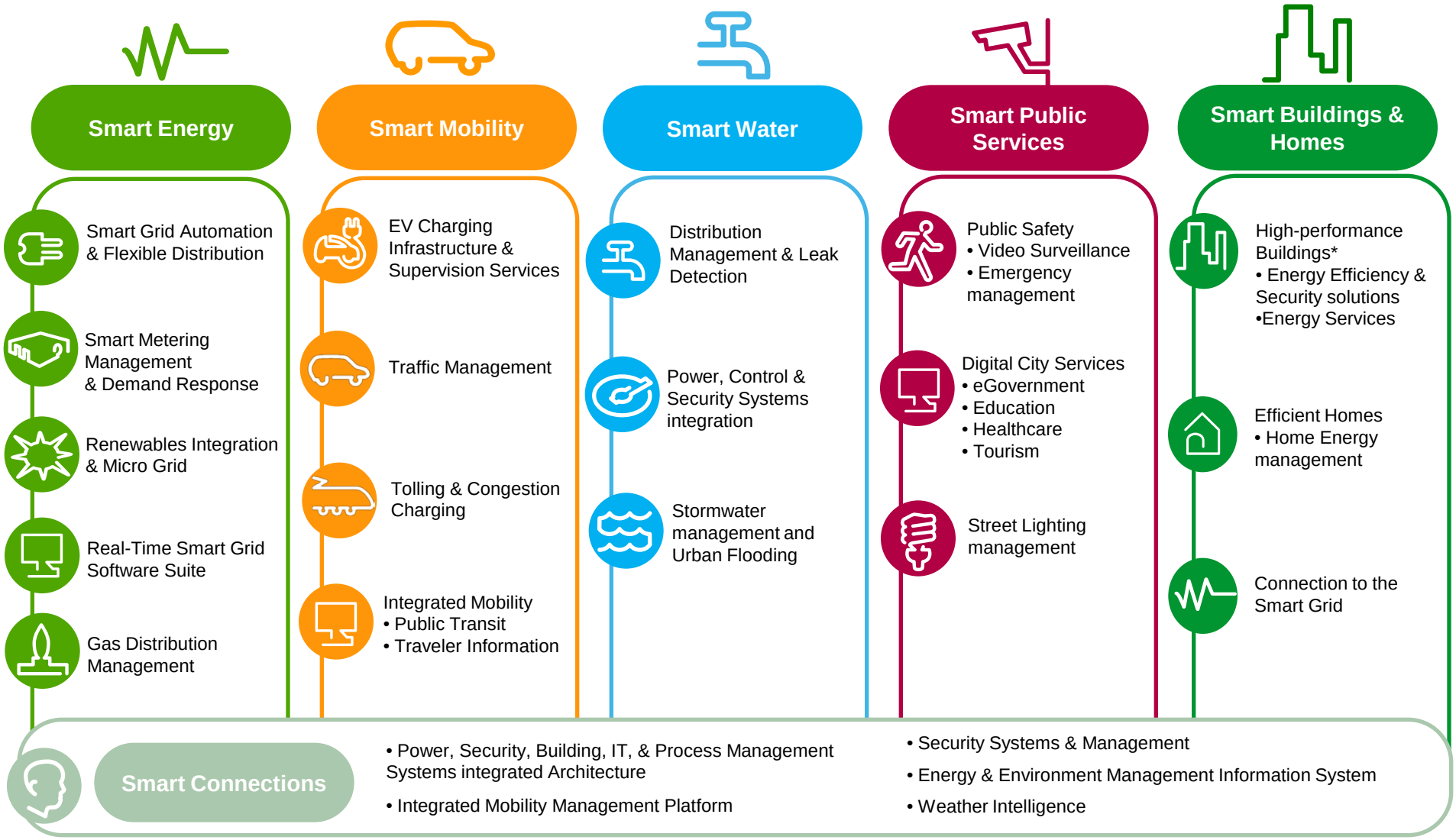
Cities need to become smarter

Urban efficiency delivers liveability and sustainability

5 steps to ‘smart’

1. Set the vision: an **efficient + liveable + sustainable** city.
2. Combine hardware + software **solutions** to improve the efficiency of urban operating systems
3. Bring in **integration** to improve overall city efficiency (operation & information).
4. Add **innovation** to make a holistic sustainable future a reality.
5. Drive **collaboration** between best-in-class global and local players across the whole Smart City value-chain.

6 areas of infrastucture…



* Hospitals, industrial facilities, datacenters and commercial buildings

Mobility Challenges - By the Numbers

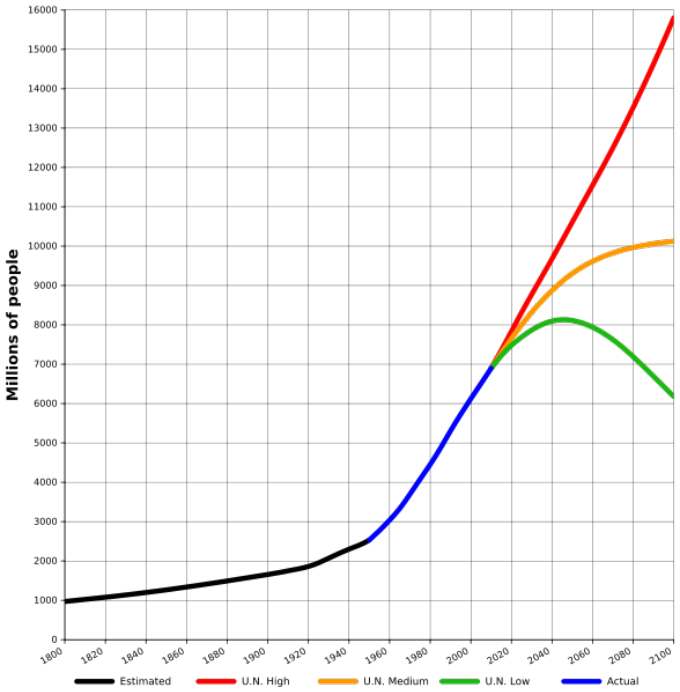
34
hours of delay per commuter per year
(14 hours more than 1982)

$100 billion
cost of delay per year
($750 per commuter and growing; by 2015 will be $133B total and $900 per commuter)

40%
of total delay outside of “typical rush hours”
(making it harder to avoid congestion)

Source: 2011 Urban Mobility Report, Texas Transportation Institute

10.5 billion
world population by 2050

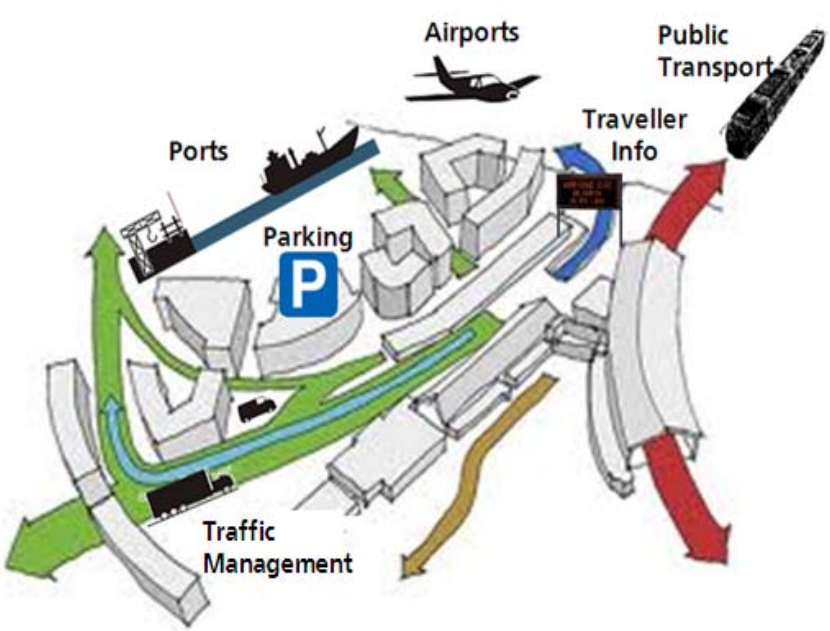


By 2050, cities will be home to an astounding 70 per cent of our population, necessitating more urban infrastructure.
Source: World-Population-1800-2100 - Wikipedia

Smarter Mobility Solutions

Solution Categories

- Traffic Management
- Electric Vehicle Charging Infrastructure
- Tolling & Pay-As-You-Drive
- Traveler Inforrmation
- Transit Management



Key Benefits

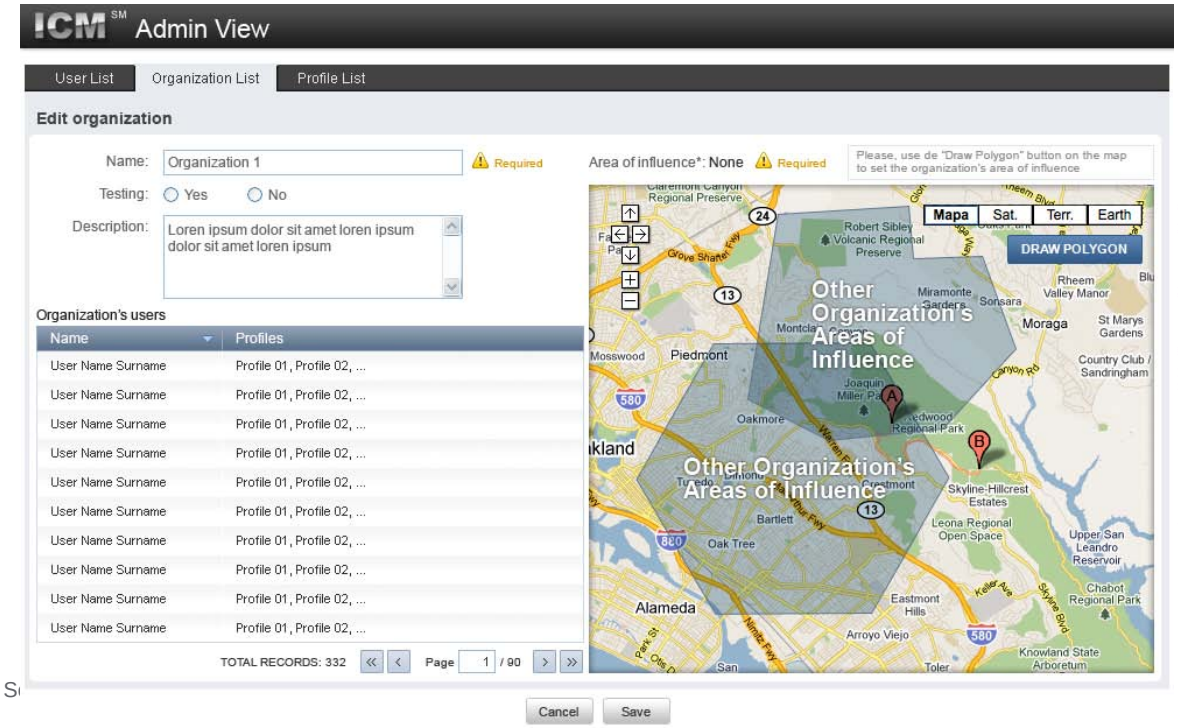
Better City Management
Better management of multi-modal transit network and increased resiliency to disruptions

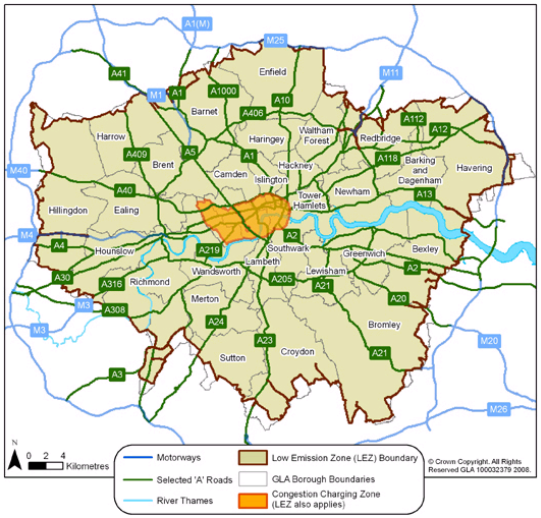
Increased Sustainability
Reduction of traffic congestion, increased public transit use & lower emissions

Improved City Services
Better transit information and facilitation of easier travel across modes of transport

Multi-Agency Collaboration

- **Smarter Cities; Smarter Communities; Smarter States**
  - **Mobility management is inherantly multi-agency**
  - **Collaboration is better than centralized control**
  - **Areas of Responsibility – fixed & dynamic**
  - **Work Flow Management for optimal group decision making & response**





Proactive Mobility Management

Operational Strategies based on Regional Goals & Policies

- Arterial Management
- Expressway Management
- Public Transport Priority Management
- Predictive Analytics
- Traveler Information Dissemination
- Managed Lanes: HOV HOT ATM
- Weather Forecasts & Air Quality Alerts

Performance Monitoring for Optimal Results

Business Intelligence – Dashboards

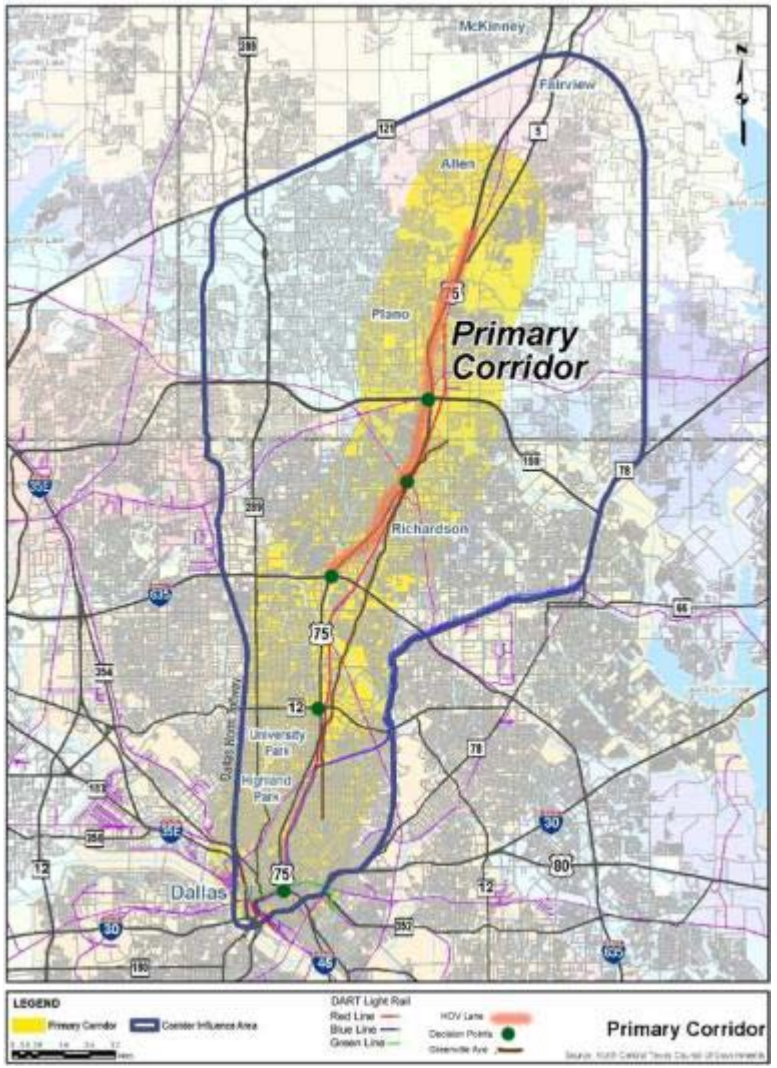
- **Real-time status & trend data – visible to all**
- **Can only manage what you can measure**
- **Continuous improvement in key performance indicators (KPIs)**
- **Optimal use of limited resources**

Integrated Corridor Management

- The integrated management of freeway, arterial, transit, and parking systems within a corridor
- Management of the corridor as a system, rather than the more traditional approach of managing individual assets

US 75 Corridor Networks

- Freeway with continuous Frontage Roads
- Managed HOV lanes
- Dallas North Tollway
- 167 Miles of Arterials
- DART Bus Network
- DART Light Rail
- 900 Signals
- Multiple TMCs
- Regional ATIS



ICM Strategies

- **Advanced Traveler Information (all scenarios)**
  - Better pre-trip, en-route, and multi-modal information
- **Route Diversion Strategy (minor incident)**
  - Diverts traffic to parallel frontage roads
- **Route Diversion Strategy (major incident)**
  - Diverts traffic to frontage road and strategic arterials
- **Mode Diversion Strategy (major incident)**
  - Diverts travelers to DART Red Line
- **Combined Route and Mode Diversion Strategy**
  - Diverts travelers to frontage roads, strategic arterials, and DART Red Line

ICM Applications

- Responsive Traffic Signal System
- Arterial Street Monitoring System
- Third Party Data
- Transit Signal Priority
- Parking Management
- Real-Time Transit Vehicle Information
- Freeway & HOV Systems
- Weather
- SmartNET
- Decision Support System
- 511


Smart Cities is not a concept –
it is about urban efficiency,
and it is happening today.

Make the most of your energy™