Designing a Driverless World

22 October 2014
ULI Sustainable Development Council: Lightning Round

John Eddy, Principal, Arup
Who is in the Game?

- Mercedes-Benz, GM, Ford, Continental Automotive Systems, Autoliv Inc., Bosch, Nissan, Toyota, Audi, Volvo, and Google

- In 2010, four electric autonomous vans successfully drove 8000 miles from Italy to China.
Imagining a Future with Driverless Cars

- Door to door autonomy
- Full take-up
- Mobility as a service
- Per capita fleet size reduction
- Road capacity increases
- Electric, quiet, non-polluting
- Goods delivery is automated
- Automated emergency response
- Transit will be automated
- Pricing and incentives balance demand
- No new infrastructure
- Mobility costs will decrease
Decreasing Cost of Mobility

2012

Privately Owned Vehicle

55.5¢

Future

Full Autonomous Vehicle

15¢
How would you design streets and places differently?
Access to Mobility: A chauffeur for all
Road Network Form: Road Diet
The Urban Intersection
Blurring the Road Hierarchy
Residential Form: Is the garage extinct?
Watch-It: Sprawl

Heaven or Hell

Less Sprawl

More Sprawl
“In a suburban environment, about half of developed land is car storage, so that opens up great opportunity for infill development.”

– Hans Larsen, Director of Transportation, City of San Jose
Safety: Cars don’t hit people; people do
When?

1908
2014
2017
2020
2025
User Experience: What will you do?
Thank You!
A Solar Breakthrough from the Ground Up
Agenda:

- Background
- Decision Making Process
- First-of-its-kind Application
- Results
Community of Crestone, Colorado
Former School
New School
New School Building

“Cheap to Keep!”
Solar Resource Map
Solar Collectors
Thermal Collectors - 60° Tilt
Load Profile vs Solar Availability: The case for Seasonal Shift
Ground Battery
“Solar Pantry” Concept

Crestone Solar Pantry Heating System

KEY
- Harvest
- Storage
- Distribution
Results

• Median School = 123 kBtu/sf-yr
• DOE Bnchmrk = 97 kBtu/sf-yr
• CCS Actual = 11 kBtu/sf-yr

“I would recommend this system to any school district in Colorado.”

-Michael Hays, CCS Director
Total utility costs for 15,000sf building: $4,900/yr

Savings of about $29,000/yr compared to DOE Benchmark

Equates to savings of about $2,160 per student over their K-8 career.
More about $$$

• In the ‘Real World’…IRR would be about 8 years.
  – Downsized base heating plant by 50%
  – Relatively high utility rates (for Colorado)
If this system is of value in Crestone…

It is certainly a strong consideration for other applications and locations:

- Colder climate (zones 6, 7, 8)
- Owner-operated facilities
- Adequate space for solar panels
- Low-rise
- Utility rebates are helpful
Questions?
Community Center
Community Center

• Harry and Mark---
We just had our first community event at the new CCS ---a halloween carnival. It was wildly joyful and successful. If there was any doubt that this building has entirely changed the meaning and configurations of community that are possible here---the simple act of the home-made halloween carnival completely confirmed the power of this building. People filled the building... ...People who don’t even have KIDS came and just hung out. Why? Because there is a space for it now. THANK YOU!!!! just incredible to see it filled with so much community life and helping to create that community in new ways. Thank you and pass on my love to all. k
Champion Station: (Re)developing a Healthy Workplace
Silicon Valley
Neighborhood
Neighborhood
Campus Availability

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Timeline.

• 1992-1995- Construction of 810,000 SF campus serving as Cisco Systems Corporate HQ

• 2006-2012- Cisco workforce reductions and densification

• 2012- Cisco hires JLL to market campus.
  – Four rounds of bidding
  – 7 bidders
  – Brutally competitive

• September 2013- TMG acquires Site A for $159,000,000

• January 2014- Cisco vacates 230 and 250 West Tasman

• March 2014- TMG begins rebranding and remodeling 210-250 West Tasman

• June 2014- Broker Open house

• Currently marketing 190-250 West Tasman to single/multiple building users