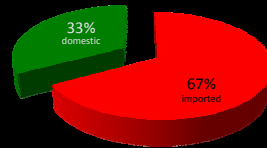


Our transportation systems are almost entirely dependent on oil



10

Where our oil comes from



2008 US Net Petroleum Trade Deficit: \$300 B

EIA, 2008

11

Our transportation systems are almost entirely dependent on oil

imported

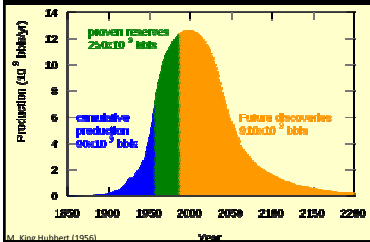


12

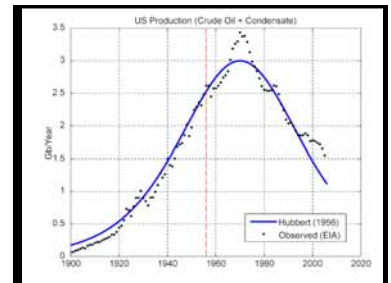
“Peak Oil” is about price, not supply

13

The Original Hubbert Curve



M. King Hubbert (1956)



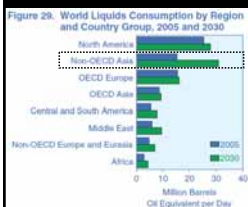
14

US Oil Consumption (million barrels per day)



EIA, Annual Energy Review, 2007. "Reserves and Production, Annual Review of Energy" (2007). © EIA, Bureau of Economic Analysis

Petroleum Demand by World Region



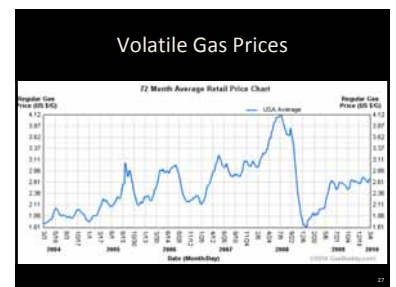
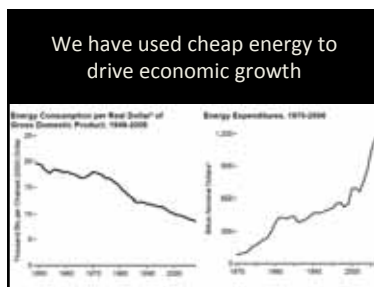
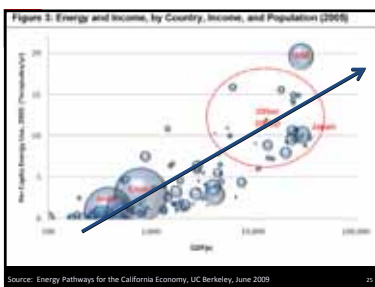
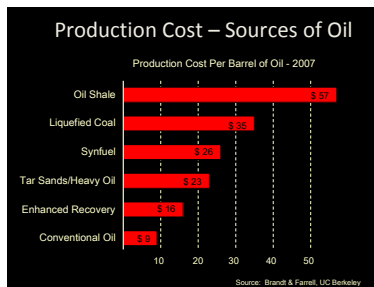
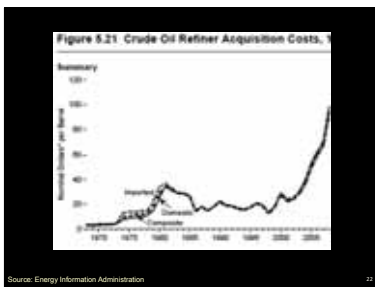
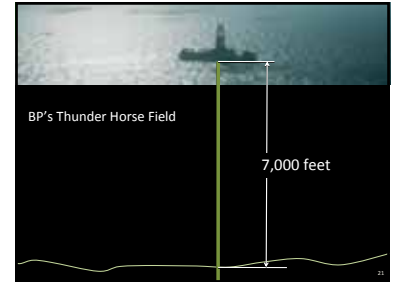
India & China will double their demand for petroleum by 2030

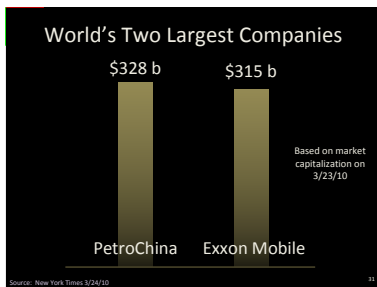
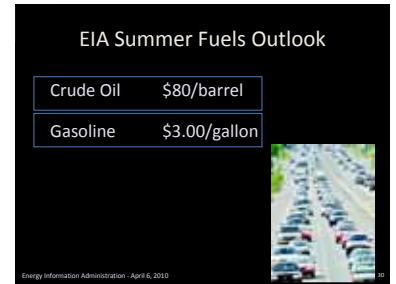
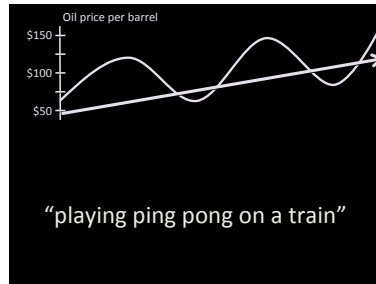
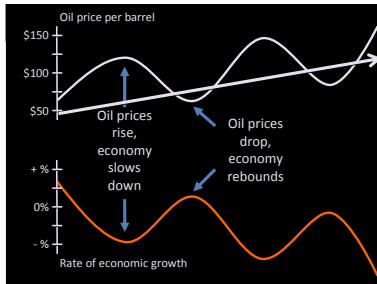
Source: United States Energy Information Administration, International Energy Outlook 2008

The oil is not gone...

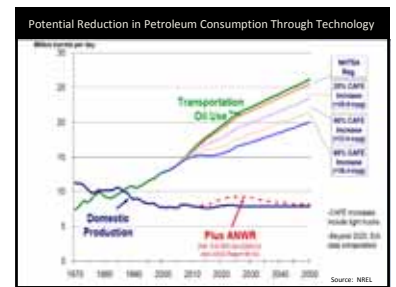
...but the cheap oil is gone.

15





Maybe technology will save us?



Electric cars have a role to play, but...

...will be expensive and...

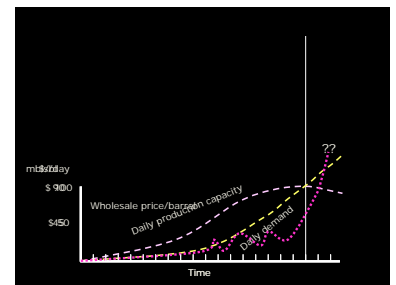
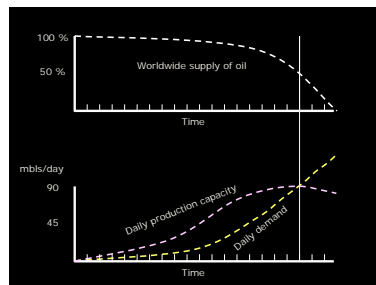
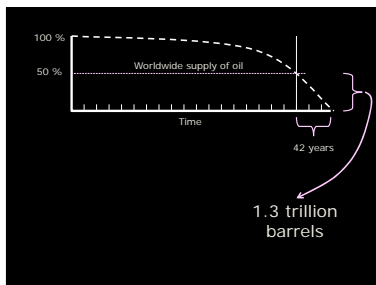
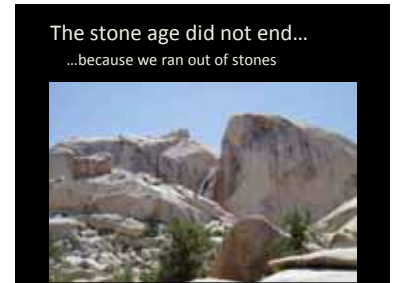
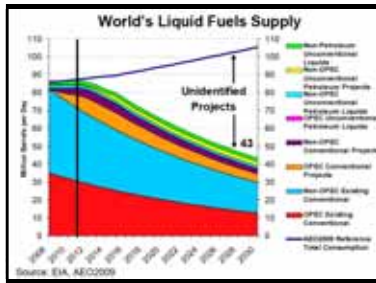
...will create energy demand issues.

Total Motor Vehicles in Service in US in 2010 250,000,000

Total Electric Autos in Service by End of 2012 100,000

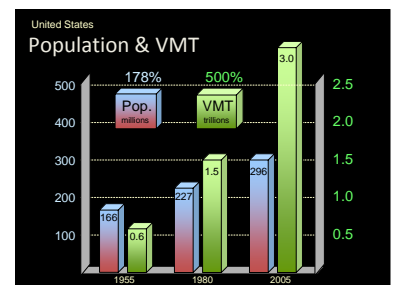
0.04%

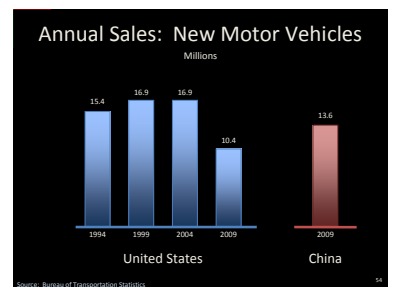
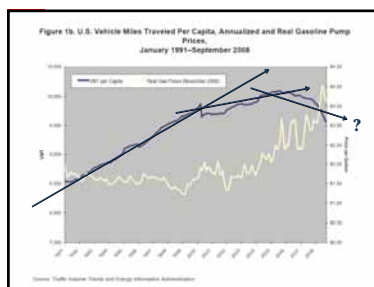
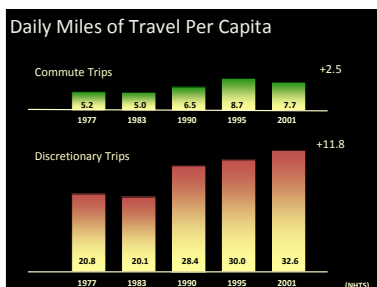
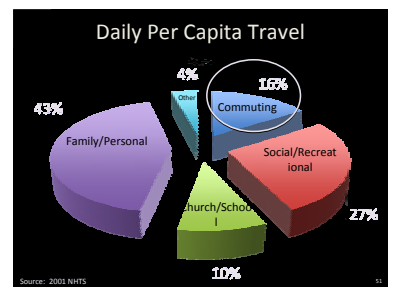
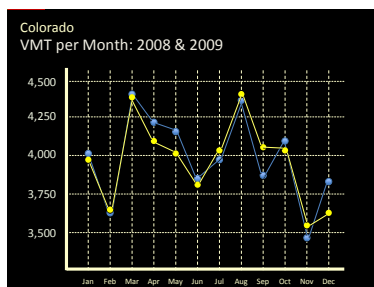
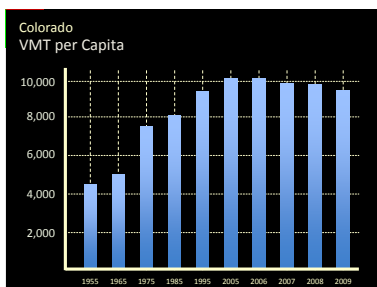
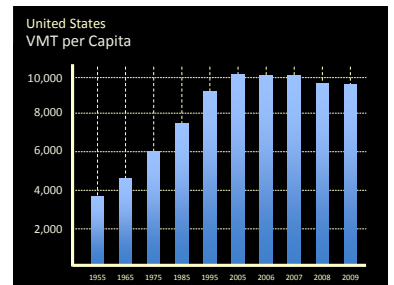
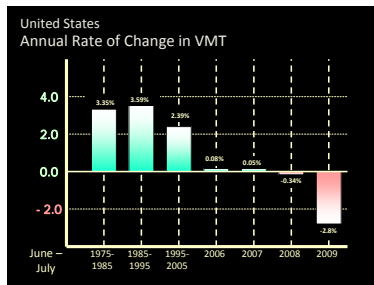
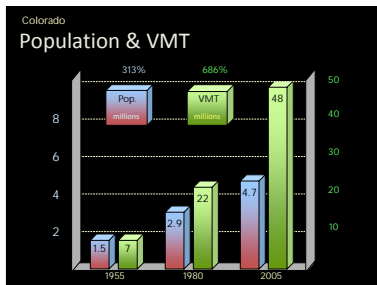
Technology will not save the day



The oil is not gone...

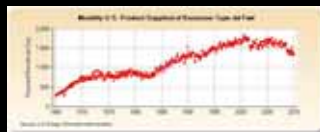
...but the cheap oil is gone.





Other economic sectors

15



Aviation is entirely dependent on petroleum



16

Oil Prices & Transpacific Shipping (China – North America)

Oil Price	Daily Cargo Ship Fuel Cost
\$30/barrel	\$9,500
\$100/barrel	\$31,700
\$150/barrel	\$47,500

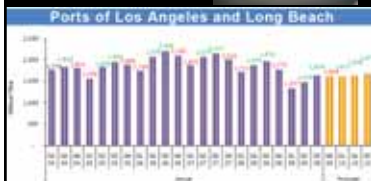
17

Oil Prices & Transpacific Shipping (China – North America)

Oil Price	Fuel Cost as % of Freight Value
\$30/barrel	2%
\$100/barrel	8%
\$150/barrel	13%

18

Oil Prices are Affecting Trade Balances



19

Colorado Agriculture



20

2



Strategy

21

Community & Regional Development



22

Land Use/Growth Management



23

where matters

"location efficiency"

64

Location efficiency:

complete neighborhoods + regional access

Neighborhood
Completeness

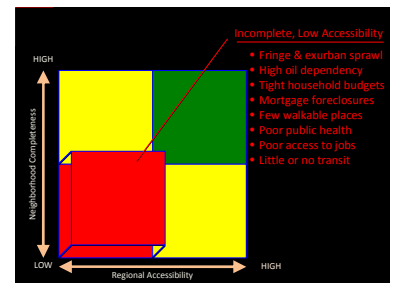
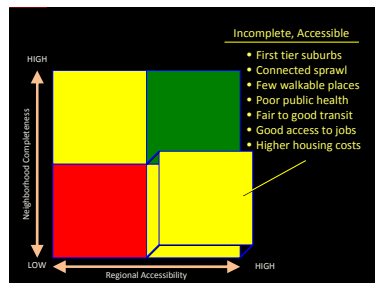
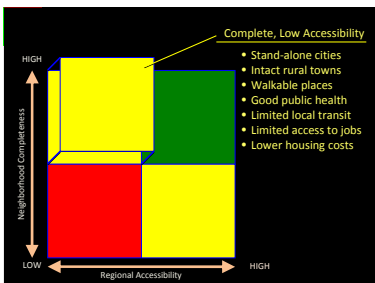
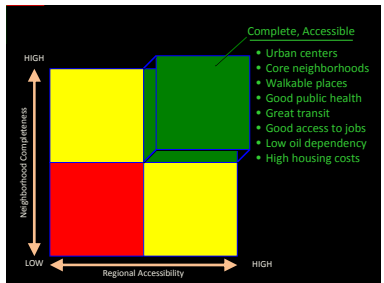
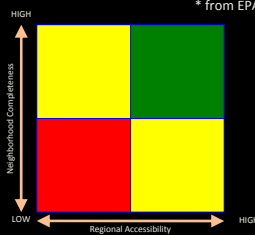


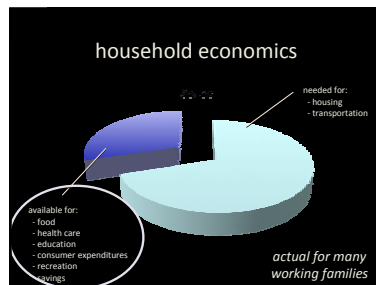
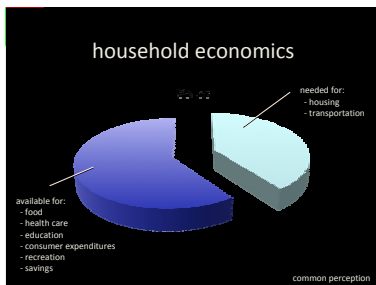
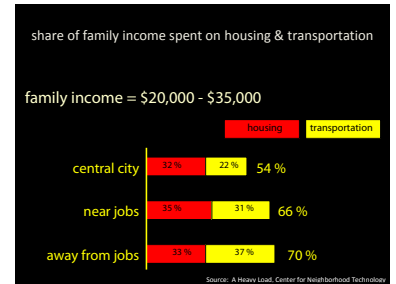
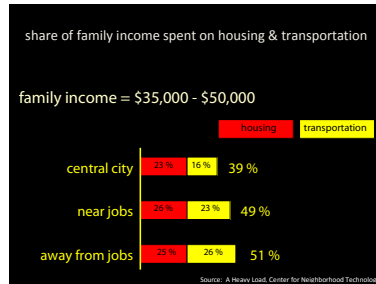
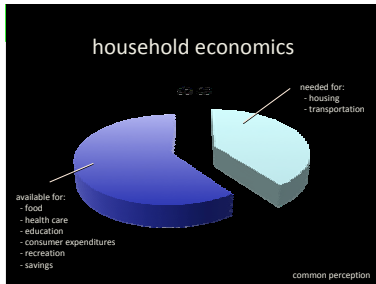
Regional Accessibility



Place Types

* from EPA/Caltrans work





Impact on Local Economies

How much household income is left for:

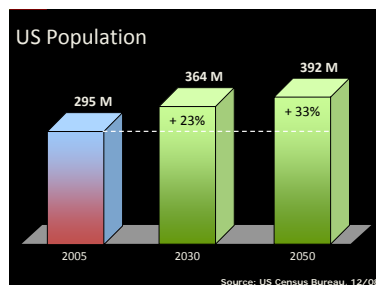
FOOD	...cheaper, less nutritious foods
HEALTH CARE	...less insurance, less preventive care
EDUCATION	...less higher education
SHOPPING	...lower sales tax receipts
RECREATION	...less sports activity, less exercise
SAVINGS	...lower savings rate, higher cost of capital

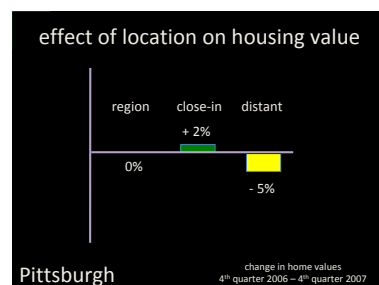
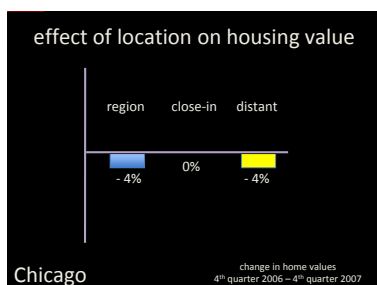
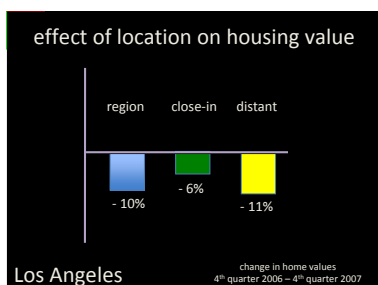
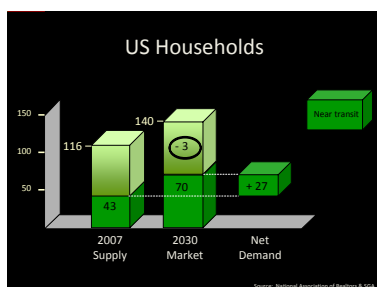
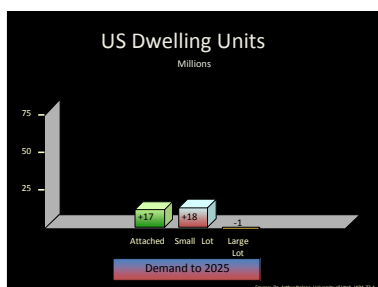
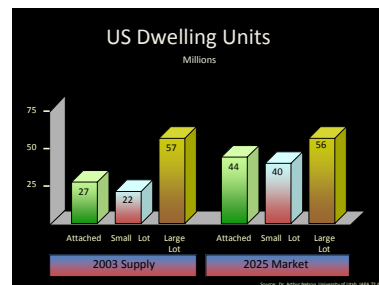
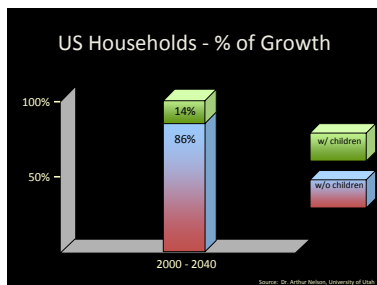
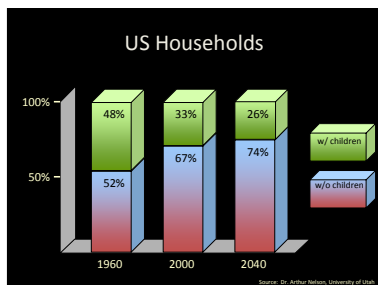
Housing Markets are Reacting

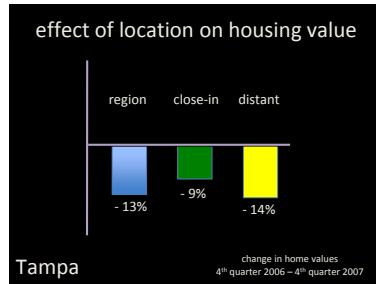
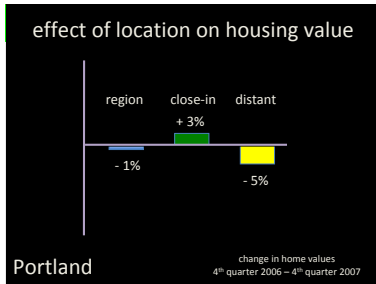
Affecting:

- ✓ starter homes
- ✓ workforce homes
- ✓ luxury homes
- ✓ second homes

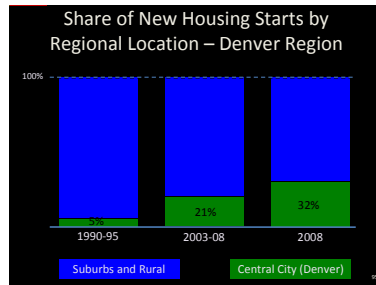
74







this is beginning to affect developers and housing starts



Walkability and House Value*

City	Walkability Premium
Austin, TX	+ \$24,871
Dallas, TX	+ \$4,278
Fresno, CA	+ \$7,427
Phoenix, AZ	+ \$18,689
Sacramento, CA	+ \$34,345
San Francisco, CA	+ \$32,837
Seattle, WA	+ \$19,789
Tucson, AZ	+ \$10,841

* difference in house value: citywide median WalkScore compared to 75 percentile and above

the complete neighborhood

- ¼ mile radius
- 160 – 200 acres
- schools
- local retail
- services
- parks
- diverse

the complete neighborhood

- walkable
- mixed-use
- transit-served
- urbanism



the complete neighborhood

- stable
- increasing value
- less VMT/capita
- in demand
 - ✓ boomers
 - ✓ millennials

Walkable, mixed-use urbanism will be the primary market for new housing

Walkable, mixed-use urbanism – housing stock available in 2010

5%

Walkable, mixed-use urbanism – housing demand to 2040

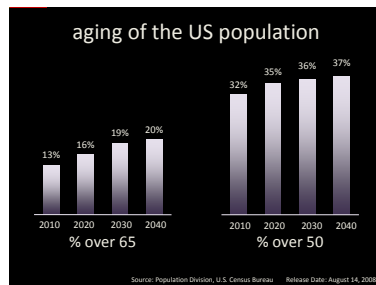
33%

Chris Leinberger, Brookings Institution

seniors

millennials

two groups, same housing market:
mixed-use, transit-served, walkable neighborhoods



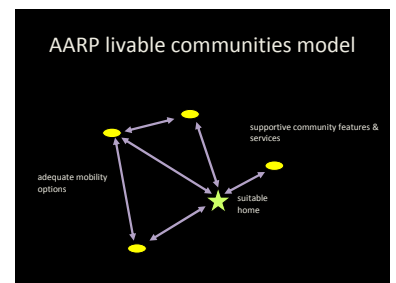
senior mobility

“universal mobility”

ADA & universal design

AARP: a livable community has...

- affordable & appropriate housing
- supportive community features & services
- adequate mobility options
- which facilitate personal independence & the engagement of residents in civic and social life.





4 essentials: senior mobility

- land use mix
- pedestrian supportive environment
- connected street network
- high frequency transit service

4 essentials: senior mobility

- land use mix
- pedestrian supportive environment
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- high frequency transit service

supportive community features & services

1. active living	5. family
2. third places	6. shopping
3. convenience retail	7. medical
4. provisions & services	8. cultural

1. active living

- pedestrian-oriented environments
- trails, parks and open space
- gyms and exercise facilities

2. third places

- coffee shops, cafes
- bookstores, libraries
- churches
- bars
- plazas, parks
- senior centers

3. convenience retail

- corner market
- convenience store

4. provisions & services

- grocery
- bank
- cleaners

5. family

- grandchildren
- other family



6. shopping

- hardware
- clothing
- book store
- optical
- electronics



7. medical

- clinics, doctors
- hospitals
- pharmacy
- physical therapy
- opticians
- other specialists



8. cultural

- theater
- movie Theater
- museums
- symphony
- art gallery
- restaurants



destinations

	daily	weekly	monthly
1. active living	X		
2. third places	X		
3. convenience	X		
4. provisions		X	
5. family		X	
6. shopping		X	
7. medical			X
8. cultural			X

destinations

	daily	weekly	monthly
1. active living	X		
2. third places	X		
3. convenience	X		
4. provisions		X	
5. family		X	
6. shopping		X	
7. medical			X
8. cultural			X

should be within
a short walk

destinations

	daily	weekly	monthly
1. active living	X		
2. third places	X		
3. convenience	X		
4. provisions		X	
5. family		X	
6. shopping		X	
7. medical			X
8. cultural			X

should be
accessible by
walking or biking

neighborhood
completeness



Portland "20-minute neighborhood"



4 essentials: senior mobility

- land use mix
- pedestrian supportive environment
- connected street network
- high frequency transit service



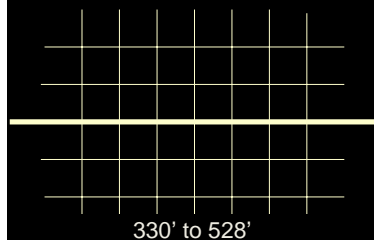
4 essentials: senior mobility

- land use mix
- pedestrian supportive environment
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- high frequency transit service



good connectivity expands the range of walking trips, increasing pedestrian activity

optimum block size for efficient traffic flow



common connectivity standards

- intersections/square mile (min 200)
- maximum block perimeter (1400' – 1800')
- block length (330' – 528')
- links/nodes

4 essentials: senior mobility

- land use mix
- pedestrian supportive environment
- connected street network
- high frequency transit service

boulder community transit network



community transit network



4 essentials: senior mobility

- land use mix
- pedestrian supportive environment
- connected street network
- high frequency transit service

senior mobility



"universal mobility"



Western Colorado's cities and larger towns could achieve walkable, complete neighborhoods...



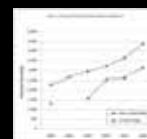
...but will struggle to provide regional accessibility

3




Credibility

Measuring & Reporting Performance



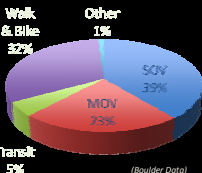
- ✓ Vehicle miles of travel (VMT)
- ✓ VMT/capita
- ✓ VMT/job
- ✓ VMT/\$1 retail sales



Data Sources:
Traffic counts
Travel diaries

145

- ✓ Mode share



(Boulder Data)

Data Sources:
Travel diaries
Travel surveys

146


- ✓ Land Use Mix



Data Sources:
Mix index
Walk score

147

- ✓ Multimodal level of service criteria



- ✓ Pedestrian
- ✓ Bicycle
- ✓ Transit

Data Sources:
Local observation
GIS layer

148

Fort Collins Multimodal LOS Standards:

Pedestrian

LOS Criteria:



- Directness
- Continuity
- Street Crossings
- Visual Interest & Amenities
- Security

Destination Areas:

- Recreation Sites
- Residential Areas
- Institutional Sites
- Office Buildings
- Commercial Sites
- Industrial Sites

Location Areas:

- Pedestrian District
- Activity Center/Corridor
- Transit Corridor
- School Walk Area
- Other

149


Fort Collins Multimodal LOS Standards:

Bicycle

Based on Connectivity to Bike facilities in connecting corridors

Bike Corridors may contain 1 of 3 types of facilities:

- On-street lanes
- Off-street paths
- On-street routes



150

Fort Collins Multimodal LOS Standards:

Transit

Based on Route characteristics & Land Use characteristics

Standards developed during Transit Development Plan

Standards evaluate service planned by 2015

Mixed Use Centers & Commercial Corridors
or
Remainder of service area



Service Level Standards:

- Hours of service
- Frequency of service
- Travel time factor
- Peak load factor

151

"accountability"

152



2008 Mobility Report Card
Boulder County Department of Transportation

153

