Modern Streets

Supporting Sustainable Places
Our Learned Approach

- Build it fast, build it cheap
- Faster, straighter, wider = better
- Don’t worry about land use
- Just get ‘er done
Modern Streets

Building Sustainable Places
1. Streets & Places

Modern Streets
Deconstructing “Mobility”
<table>
<thead>
<tr>
<th>Mobility Elements</th>
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<tbody>
<tr>
<td>Travel – Moving over distances</td>
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<tr>
<td>Circulation – Moving within areas</td>
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<td>Access – Getting in the door</td>
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## Facilities

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
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<tbody>
<tr>
<td>Travel –</td>
<td>Freeways, arterials, rail transit, express bus lanes</td>
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<tr>
<td>Circulation –</td>
<td>Collectors, connectors, transit routes, bike trails and lanes</td>
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<tr>
<td>Access –</td>
<td>Local streets, parking, sidewalks and crosswalks</td>
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</tbody>
</table>
Built for…

Seattle

Boulder

…travel
Built for…

Boulder

…travel

Denver
Built for...

Flagstaff

...circulation

Redmond
Built for…

Boulder

…circulation

Portland
Built for…

Boulder

Winter Park, Fl

…access
Circulation & access are much more important to places than travel
Human Squirrel Cage

Five persons at a time can ride machine. Others wait their turns or simply watch.
When Streets Are Just “Facilities”
Streets Create the Fabric of Cities and Towns
Prospect
You cannot design a street like this…
...and expect this to result.
Streets can add or subtract value from land
Two Kinds of Commercial/Mixed Use Streets – Land Use Economics

Pass-By Traffic Streets

Destination Streets
Pass-By Traffic Streets

- Auto-oriented retail
- Gas, cigarettes, tires, fast food, cleaners, drive-through banks, grocery stores, convenience retail, liquor stores
- Low employment per square foot
- High parking turn over rate
- High traffic counts, but most of the traffic is pass-by, not “generated” by the land uses
- Low land value & tax base
Destination Streets

- Pedestrian-oriented retail
- Apparel stores, book stores, specialty retail
- Destination restaurants and bars
- Higher employment per square foot
- Lower parking turn over rate
- Lower traffic counts, but much of the traffic is actually generated by the land uses
- High land value & tax base
Bottom Line:

**Streets and Places**

- Good streets add value to land
- Bad streets subtract value from land
- Great places are not found on bad streets
2. Networks: Beyond Corridors

Modern Streets
Windsor, CO – Old Town
Windsor, CO – After 1990
Pod Development
Ideal Block Size for Efficient Flow

330’ to 528’
Impacts of Poor Street Connectivity

- Discourages walking and bicycling
- Increases miles of travel per household
- Creates transit “voids”
- Decreases emergency service access
- Increases congestion at intersections
- Increases sales tax leakage
- Weakens community character & identity
Some Cities Have Connectivity Standards

- Intersections/square mile (min 200)
- Maximum block perimeter (1400’ – 1800’)
- Block length (330’ – 528’)
- Links/nodes

(Simple solution: use LEED-ND)
Good Access Management

- Reduce driveways for safety & flow
- Add intersections for network function

Ideal Block Size for Efficient Flow

330’ to 528’
Network Traffic Systems 101

- A dense network of small streets is much safer and provides more capacity than a coarse network of large streets.
- Lost capacity/efficiency from low connectivity: 25% to 50%.
These are multimodal concepts

Example: Boulder, Co
1996

Transportation Master Plan

- Increase non-auto mode share
- Hold VMT at 1994 level
Budget: $440,000 annually
Plan: 17 grade separations by 2020

Actual: 32 grade separations by end of 2009
Boulder Bike Mode Share – All Trips

1990  4.9 %

2003  7.7 %
Boulder Bike Mode Share – Commute Trips

1990: 10.6%

2003: 21.2%
2 Problems with Traditional Approach

- Confusion about priorities
- Single purpose spending
Priorities

➢ If “LOS” is your objective, you will:
  ▪ Overbuild your streets
  ▪ Emphasize pass-thru over destinations (places)
  ▪ Accelerate sprawl

➢ If economic vitality and redevelopment are your objectives, you will:
  ▪ Improve the walk environment
  ▪ Slow the traffic
  ▪ Provide on-street parking
  ▪ Improve local transit service
Single Purpose Spending

Transportation

Housing

Public Health

Environment

Energy
Integrated, Strategic Investment
Example: Redmond WA
1960s One-Way Pair
Traditional Focus: Traffic Data

Redmond, WA
Facility-Centered Approach
“This project is about creating a vibrant, connected, pedestrian-friendly, downtown district.”

(Consensus Goal)
Desirable Project Outcomes

D1. Pedestrian – Improve pedestrian environment
D2. Mobility – Clear benefits balanced across modes
D3. Circulation – Improve navigation & circulation
D4. Transit – Improve access to transit & transit operations
D5. Safety – Improve traveler safety (all modes)
D6. Economics – Improve storefront & retail environment
D7. Utilities – Utility coordination, address future needs
D8. Investment – Induce investment with good design
D9. Character – Design creates a traditional “main street”
Undesirable Project Outcomes

U1. LOS – Reduce level of service – any mode
U2. Redevelopment – Inhibit infill or redevelopment
U3. Cost – Infeasible or unaffordable project cost
U4. Property – Major negative impacts to property
U5. Trucks/Buses – Make Downtown inaccessible
U6. Surprises – Unanticipated negative consequences
# One-Way Alternative

Desirable Project Outcomes

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# One-Way Alternative

**Undesirable Project Outcomes**

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**MAGNITUDE**

- VH: Very High
- H: High
- M: Moderate
- L: Low
- VL: Very Low
## Two-Way Alternative
### Undesirable Project Outcomes

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**IMPORTANCE**
Green Streets
Kailua, Oahu
Portland Definition – “Green Street”

A green street is a street designed with landscape areas that capture, cleanse, and infiltrate stormwater runoff.
Neighborhood Scale
Neighborhood Scale
NE Siskiyou Green Street

10,000 Square Feet of Drainage

(Project by the City of Portland, designed by Kevin Perry)
NE Siskiyou Green Street

(Project by the City of Portland, designed by Kevin Perry)
Successful “green streets” must reflect local climate, topography, history and culture.
Speed and Safety
Pedestrian Survival Rates = \int \text{Vehicle Speed}

% survive

- 20mph: 95%
- 30mph: 55%
- 40mph: 15%

% die

- 20mph: 5%
- 30mph: 45%
- 40mph: 85%
Street Width
Narrow Streets...

- Reduce initial construction costs
- Reduce maintenance costs
- Consume less land
- Encourage slower vehicle speeds, reduce accidents
- Reduce impervious surface & stormwater volume
- Reduce heat island effects
- Increase neighborhoods attractiveness
- Add value to abutting land
- Reduce traffic noise
- Contribute to community cohesion
- Facilitate active living
Narrow Streets...

Cost less to build...
and then save money
Myths – Street Width

1. Narrow streets save developers money
2. Wide streets provide more capacity
3. Narrow streets are unsafe
4. Wide streets are needed for snow storage
5. Wide streets support emergency service access
Well-connected networks perform much better than “big pipes”
All modes benefit from good street connectivity
Green streets add value, save money
Speed reduces safety but not congestion
Never build a street wider than necessary
3. Streets in Context

Modern Streets
Context Sensitive Solutions

- A specific project
- A planning process
The **Context** in CSS

- Aesthetic
- Archeological
- Community
- Cultural
- Environmental
- Historic
- Recreational
- Scenic
Using Place Types
Urban “Transect”
FasTrack Stations (Denver)
Denver TOD Station Typology

Downtown
Denver TOD Station Typology

Major Urban Center
Denver TOD Station Typology

Urban Center
Denver TOD Station Typology

Urban Neighborhood
Denver TOD Station Typology

Commuter Town Center
Denver TOD Station Typology

Main Street
Denver TOD Station Typology

Campus/Special Events Station
What is the St. Louis Great Streets Initiative?

East-West Gateway launched the St. Louis Great Streets Initiative in early 2008 to expand the way communities think of their streets. Rather than viewing a roadway project as solely a way to move more cars and trucks faster, the goal of the St. Louis Great Streets Initiative is to trigger economic and social benefits by centering communities around interesting, lively and attractive streets that serve all modes of transportation. Learn More ➞

💡 What is a Place Type? Click Here to Learn More!

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**How to Use this Guide -**

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**Design Tutorial -**

The Design Tutorial is a Flash based guide to help users understand the many elements of the street and provide direct links to related articles for all eight place types.

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**Why Great Streets?**
Context

Underlying Principle:
Design should reflect context of the service environment
Streets in Context

- Infrastructure should reflect the character of the places it serves
- Context is local; no two cities are alike
- To understand context, you need help from the citizens
4. Making Streets Complete

Modern Streets
“Complete” = functionally complete
St. Louis region
The diagram illustrates the pedestrian realm in relation to the roadway corridor and adjacent land use. It shows the clear zone, which is 8 ft. min., located between the back-of-curb and the edge of right-of-way. The on-street parking is indicated at the bottom of the diagram. The planter/furniture zone is 4 ft. min., followed by the pedestrian clear zone of 8 ft. min., and the frontage zone of 2 ft. min. The total recommended area is 14 ft. min.
Bottom Line:

Complete Streets

- Completeness costs money
- But complete facilities provide substantially higher benefits
- Incomplete design is bad design
Finally, one last point...
<table>
<thead>
<tr>
<th>Hundreds of Years:</th>
<th>200</th>
<th>400</th>
<th>600</th>
<th>800</th>
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Thanking You
More Information

www.charlier.org