Modern Streets
Building Sustainable Places
Modern Streets

1. Streets & Places
2. Street Design Principles
3. Streets in Context
4. Making Streets “Complete”
5. Federal Policy Framework
1. Streets & Places

Modern Streets
1. Streets and Places

- Deconstructing “Mobility”
- The Fabric of Cities: Warp & Weft
Deconstructing “Mobility”
Humans Evolved to be Mobile
Mobility Elements

- Travel – Moving over distances
- Circulation – Moving within areas
- Access – Getting in the door
Facilities

Travel – Freeways, arterials, rail transit, express bus lanes

Circulation – Collectors, connectors, transit routes, bike trails and lanes

Access – Local streets, parking, sidewalks and crosswalks
Built for…

Seattle

…travel

Redmond
Built for…

Boulder

…travel
Built for...
Built for... Boulder...circulation
Built for… Boulder

Winter Park, Fl

…access
Circulation & access are much more important to places than travel.
When Streets Are “Facilities”
The Fabric of Cities
Warp and Weft
Neighborhood

Abutting Property

Abutting Property

Street
You can’t design a street like this…
...and expect this to result.
2. Street Design Principles

Modern Streets
2. Street Design Principles

- Beyond Corridors to Networks
- Streets and Economics
- Green Streets
- Speed & Safety
Beyond Corridors to Networks
Windsor, CO – Old Town
Windsor, CO - Sprawl
Connectivity Standards

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

- Controls driveways
- Controls intersections
Ideal Block Size for Efficient Flow

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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 – 25% to 50%
Streets and Economics
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
1960s One-Way Pair
Traditional Focus: Traffic Data
Facility-Centered Approach

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

(Consensus Goal)
Desirable Project Outcomes

D1. Pedestrian – Improved pedestrian environment
D2. Mobility – Clear mobility benefits – balanced across all modes
D3. Circulation – Improved way-finding, navigation & circulation (all modes)
D4. Transit – Improved access to transit & transit operations
D5. Safety – Improved traveler safety (all modes)
D6. Economics – Improved storefront mixed use & retail environment
D7. Utilities – Achieve good utility coordination, addressing future need
D8. Investment – Project induces private investment with good urban design
D9. Character – Design creates a traditional “main street”
Undesirable Project Outcomes

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

**Desirable Project Outcomes**

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<th>IMPORTANCE</th>
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# Two-Way Alternative

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One-Way Alternative
Undesirable Project Outcomes

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## Two-Way Alternative

**Undesirable Project Outcomes**

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What Redmond Learned

- If “LOS” is your objective, you will:
  - Overbuild your streets
  - Emphasize pass-thru over destinations
  - 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

Public Health

Housing

Transportation

Energy

Environment

$$$

$\$\$\$

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Green Streets
Kailua, Oahu
Portland, OR
Portland Definition – “Green Street”

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

Credit: Dover Kohl Partners
Neighborhood Scale

Credit: Dover Kohl Partners
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)
SW 12th Avenue Green Street

(Project by the City of Portland, designed by Kevin Perry)
Speed and Safety
Pedestrian Survival Rates – ∫ Vehicle Speed

- **20mph**
  - 95% survive
  - 5% die

- **30mph**
  - 55% survive
  - 45% die

- **40mph**
  - 15% survive
  - 85% die
3. Streets in Context

Modern Streets
3. Streets in Context

- Context Sensitive Solutions - CSS
- Using Place Types
Context Sensitive Solutions - “CSS”
CSS Can Be Applied To:

- A specific project
- A planning process
Core Principles

- Address stakeholder/community objectives
- Increase traveler safety
- Promote community livability
- Preserve environmental, scenic, aesthetic, historic, and/or natural resources
- Incorporate good urban design
- Provide lasting community value
The Context in CSS

- Aesthetic
- Archeological
- Community
- Cultural
- Environmental
- Historic
- Recreational
- Scenic

October 29, 2009
The Experts are Local
Using Place Types
What is the St. Louis Great Streets Initiative?

East-West Gateway launched the St. Louis Great Streets Initiative in early 2006 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!

How to Use this Guide -

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

Why Great Streets?
A SENSIBLE APPROACH TO LAND USE AND MOBILITY
IN THE HOUSTON-GALVESTON REGION

3Cs: CENTERS-CONNECTIONS-CONTEXT

Life in Motion
**3Cs PROGRAM**

**CENTERS • Safe Walkable Places**

Centers are places with concentrations of jobs, shopping, entertainment, public buildings, recreation, housing or all of these together. Well-designed Centers provide safe opportunities to walk, bike, utilize transit and “Park Once.”

**CONNECTIONS • Convenient Choices**

Providing better auto, transit and pedestrian/bicyclist connections between Centers and neighborhoods gives residents, workers and visitors an alternative to congested thoroughfares.

**CONTEXT • Collaborative Solutions**

Early collaboration between stakeholders can produce street designs that meet all user needs and provide lasting community benefits.

**KEY STRATEGIES**

**CENTERS**

- Reinvest in existing downtowns and other already walkable centers and neighborhoods.
- Promote development of live, work and play opportunities near transit.
- Encourage Town and Village Center designs in new development.
- Provide a safe, convenient walking environment.

**CONNECTIONS**

- Establish excellent transit Connections between Centers.
- Provide safe pedestrian/bicyclist access to Centers.
- Design local streets networks to give people alternatives to congested thoroughfares.

**CONTEXT**

- Develop “Complete Streets” that are safe, have transit options, sidewalks, bikeways and landscaping appropriate for the surrounding land uses.
<table>
<thead>
<tr>
<th>TYPES OF CENTERS</th>
<th>VEHICLE TRIP REDUCTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>URBAN CORE</strong></td>
<td>5-20% depending upon the concentration of activities, quality pedestrian environment and level of transit service.</td>
</tr>
<tr>
<td>High-density residential areas with mixed land uses and frequent intersections.</td>
<td></td>
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<tr>
<td><strong>REGIONAL CENTER</strong></td>
<td>Up to 40% of workday vehicle trips. Up to 55% in highly concentrated areas with an outstanding pedestrian environment.</td>
</tr>
<tr>
<td>Areas of concentrated employment or other major trip generators.</td>
<td></td>
</tr>
<tr>
<td><strong>TOWN CENTER</strong></td>
<td>5-7% of home-based “live, work, play” pedestrian trips. Up to 10% with outstanding pedestrian environment.</td>
</tr>
<tr>
<td>Concentration of housing, retail/office and civic destinations within half-mile radius of community gathering place with a good pedestrian network.</td>
<td></td>
</tr>
<tr>
<td><strong>TRANSIT VILLAGE</strong></td>
<td>Up to 20% with increased transit sharing of home-based work and other trips and increased pedestrian sharing of non-work trips.</td>
</tr>
<tr>
<td>High-density housing, retail and other destinations concentrated within a quarter mile to half mile and with good pedestrian access to a high volume transit facility.</td>
<td></td>
</tr>
<tr>
<td><strong>VILLAGE CENTER</strong></td>
<td>Up to 6% of some home-based, non-work, pedestrian/bicyclist trips with reduced traffic on major roads. Up to 7% with good bicycle access.</td>
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<tr>
<td>Clustered neighborhood retail and services with good connections to surrounding neighborhoods.</td>
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Urban “Transect”

T1 NATURAL ZONE  T2 RURAL ZONE  T3 SUE-URBAN ZONE  T4 GENERAL URBAN ZONE  T5 URBAN CENTER ZONE  T6 URBAN CORE ZONE  SD SPECIAL DISTRICT

RURAL  URBAN

October 29, 2009
Context

Underlying Principle:

Design should reflect context of the service environment

October 29, 2009
## Pedestrian Realm

<table>
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<tr>
<th>Physical Characteristics</th>
<th>Pedestrian Intolerant</th>
<th>Pedestrian Tolerant</th>
<th>Pedestrian Supportive</th>
<th>Pedestrian Place</th>
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<tr>
<td>Sidewalk Presence</td>
<td>Local streets have no sidewalks. Arterial streets have sidewalks on only one side of street.</td>
<td>Local streets have sidewalks on only one side of street. Arterial streets have sidewalks on both sides.</td>
<td>All streets have sidewalks provided on both sides</td>
<td>All streets have sidewalks provided on both sides with supplemental traffic-calming measures</td>
</tr>
<tr>
<td>Sidewalk Location and Width</td>
<td>Sidewalks lacking, or provided immediately back of curb. Walkway width &lt; 5’</td>
<td>Sidewalks provided immediately back of curb. Walkway width 5’ min.</td>
<td>Walkway separated from vehicular traffic by a 5’ sidewalk planting strip. Sidewalk 6-8’ wide to accommodate passing and pairs of pedestrians walking side by side. Next to transit stops, sidewalks are 10’ wide and extend to street at boarding spot.</td>
<td>The pedestrian realm includes a sidewalk planting strip/pedestrian furnishings zone next to street, a walk/talk zone, and a sky zone next to buildings. Through walkway space 8’-10’ wide; overall sidewalk width 10-30’ to provide space for pedestrian amenities.</td>
</tr>
<tr>
<td>Sidewalk Planting Strip</td>
<td>None.</td>
<td>None.</td>
<td>5’ minimum, ideally with oversky street trees 20-30’ on center, with clear sight distance triangles at intersections and crossings.</td>
<td>5’-10’ with oversky street trees in parkway planting strips, or none if tree wells and supplemental planters are provided within wide sidewalks, with clear sight distance triangles.</td>
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<tr>
<td>Transit Stops</td>
<td>No furniture groupings provided.</td>
<td>Benches provided at transit stops.</td>
<td>Shelters, benches and trash receptacles provided at transit stops.</td>
<td>Transit stops and amenities are integral in the design of pedestrian places.</td>
</tr>
<tr>
<td>Pedestrian Furnishings</td>
<td>None.</td>
<td>No furnishings along streets not on transit routes.</td>
<td>Pedestrian furniture groupings located intermittently along non-transit streets.</td>
<td>Pedestrian furniture groupings, sculpture, drinking fountains, decorative fountains, wayfinding, etc. are located throughout.</td>
</tr>
<tr>
<td>Lighting</td>
<td>None.</td>
<td>High angle highway lamps, such as cobra heads.</td>
<td>Commercial districts have both: high angle lamps. Additional low angle street lamps for improved lighting at ground level.</td>
<td>Pedestrian places have: overall street lighting. Low placement of tungsten lamps. Additional light emitted from stores that line the street.</td>
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4. Making Streets Complete

Modern Streets
4. Making Streets “Complete”

- Functionally Complete
- Boulder’s Systems Approach
Functionally Complete
October 29, 2009

St. Louis region
The diagram illustrates the relationship between a roadway corridor, pedestrian realm, and adjacent land use. It shows the back-of-curb, clear zone (8 ft. min.), pedestrian clear zone (8 ft. min.), frontage zone (2 ft. min.), and the 14 ft. min. total recommended. The diagram highlights the importance of creating a pedestrian-friendly environment by designating specific zones for parking, planter/furniture, and pedestrian activity.
Kailua
1996
Transportation Master Plan

- Increase non-auto mode share
- Hold VMT at 1994 level

October 29, 2009
Budget: $440,000 annually
Plan: 17 grade separations by 2020

Actual: 32 grade separations in 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 %
5. Federal Policy Framework

Modern Streets
5. Federal Policy Framework

- Local Self-Determination
- Modal Balance
- Climate Change
- VMT
- Money
Finally, one last point...
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Thanking You

October 29, 2009
More Information

www.charlier.org