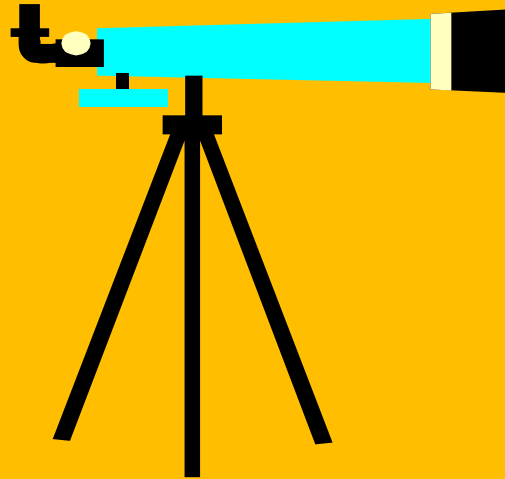


# **Pedestrian**

## **Standards???**

# Pedestrian Science



# Bad Science

# Bad Science

## How We Create Inadequate Walking Environments

- Bad Design
- Bad Planning
- Bad Policy



Bad Design



# Bad Planning



Bad Policy









# **Integrating Bad Policy, Bad Planning and Bad Design**



















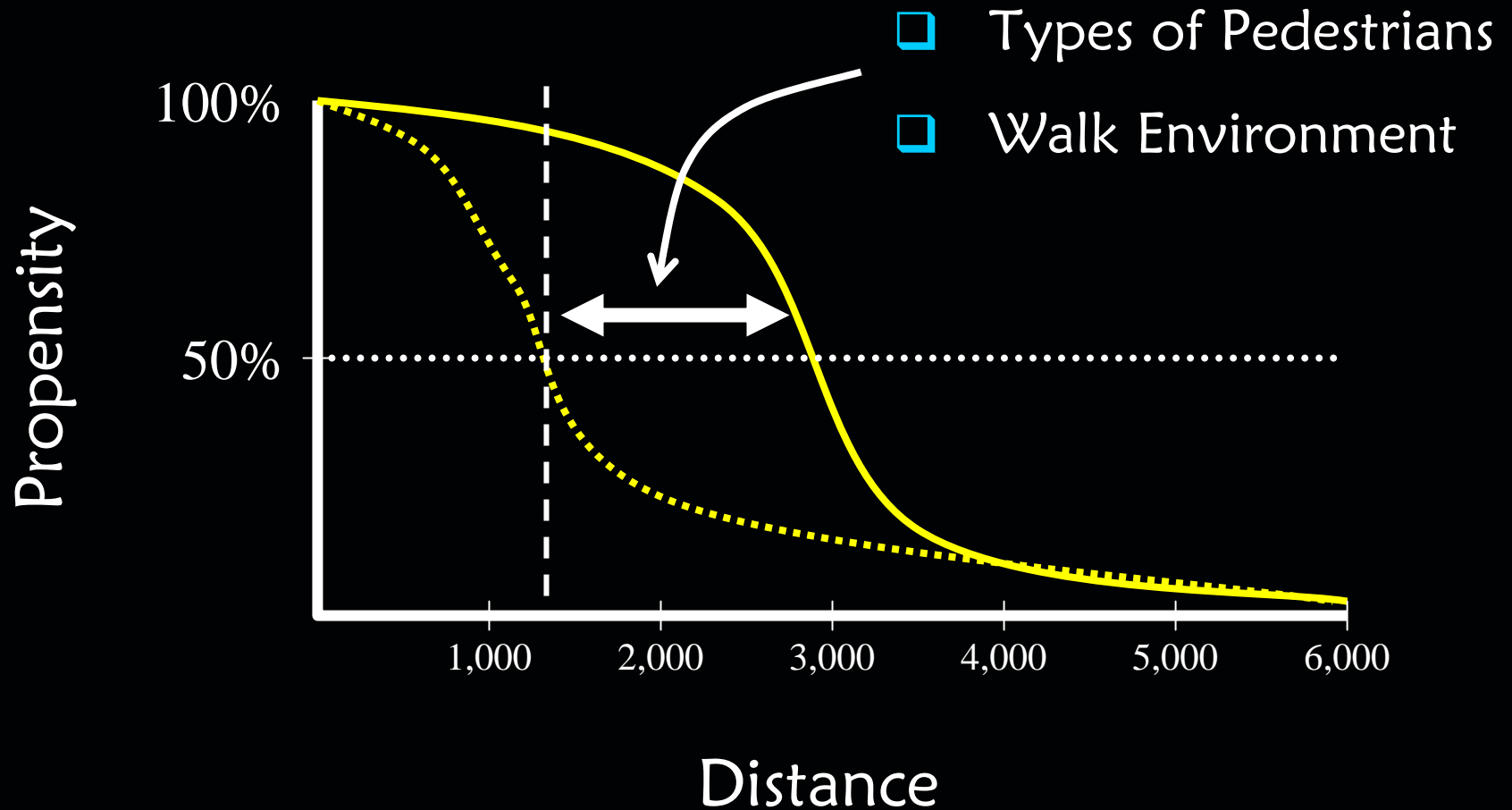
# **Problems with the Underlying Science**

**Dr. Bad Science**  
**says...**

**“Pedestrians will  
walk a quarter mile.”**



# Pedestrian Walk Distance





# East Kapolei Rail Alignment

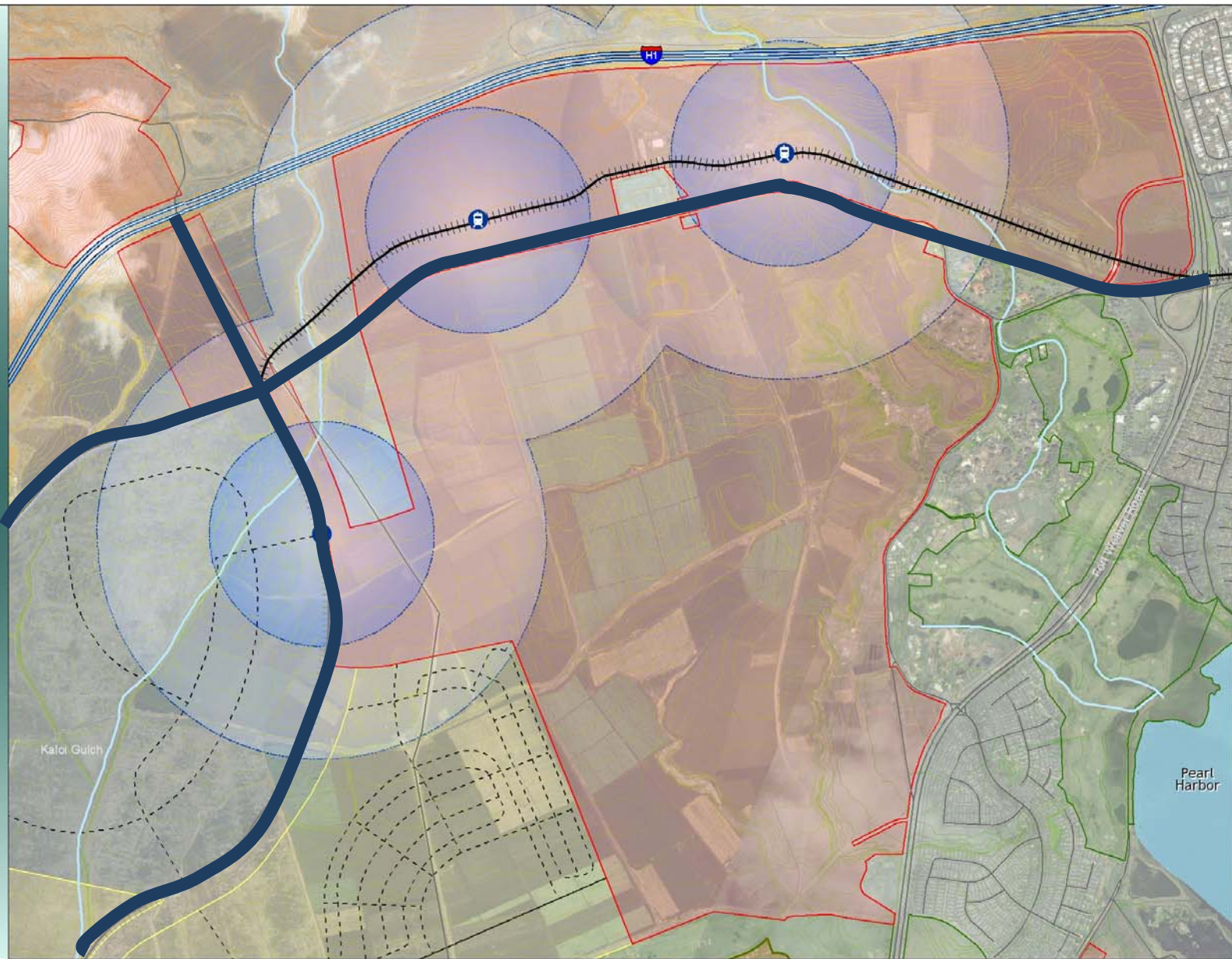
## Option 1

### Legend

-  Rail Option 1
-  Rail Option 1, Other parcels
-  Stations
-  1/4 mile zone of influence
-  1/2 mile zone of influence
-  Interstate
-  Streets
-  Planned Roads
-  Stream/Gulch
-  5' Topography lines
-  East Kapolei
-  UHWO
-  DHHL
-  City parks



0 1/8 1/4 Miles

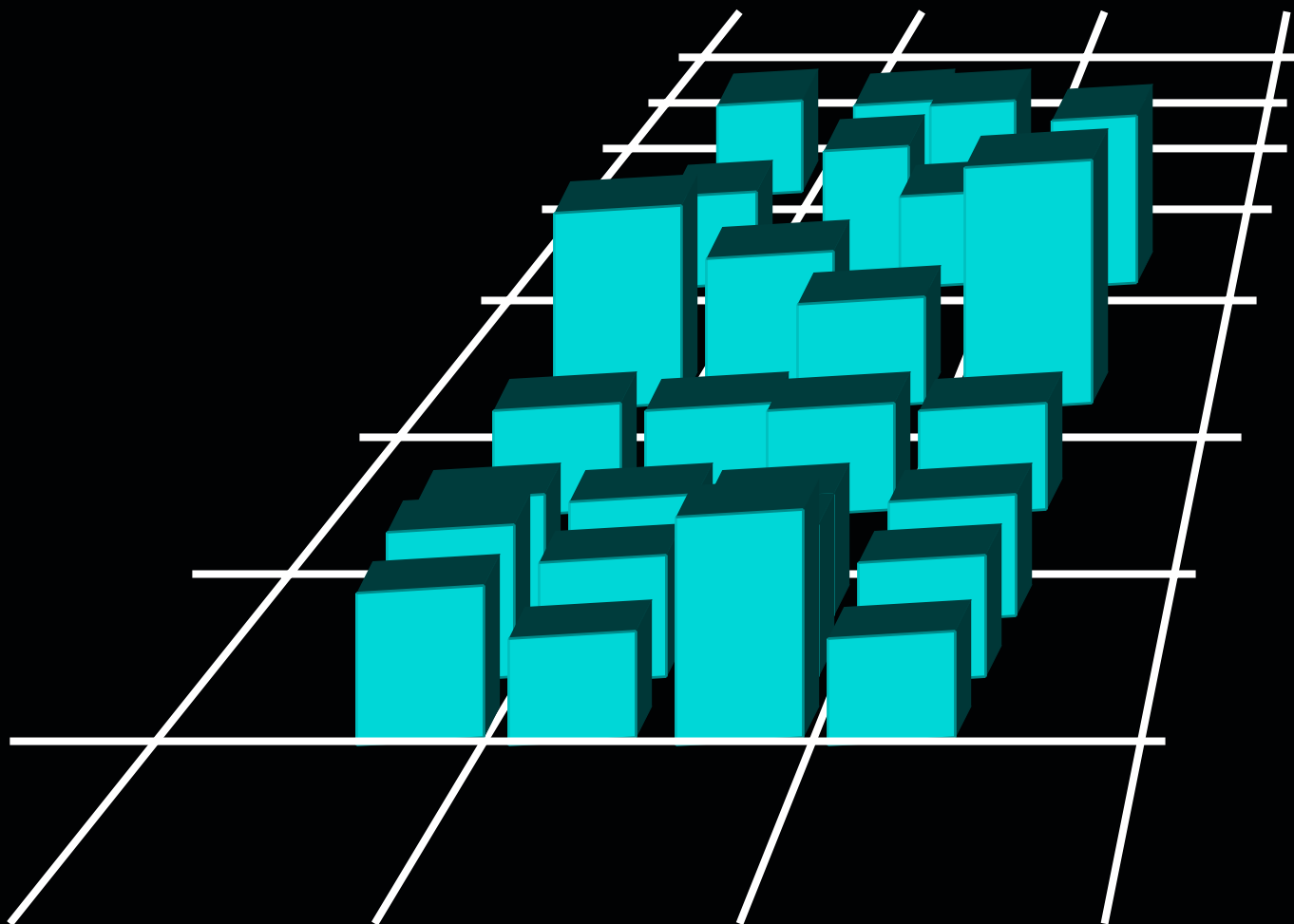












**Dr. Bad Science**  
**says...**

**“Your entire city  
should be ‘pedestrian-  
friendly’”**







SPEED  
LIMIT  
**35**

Boulder

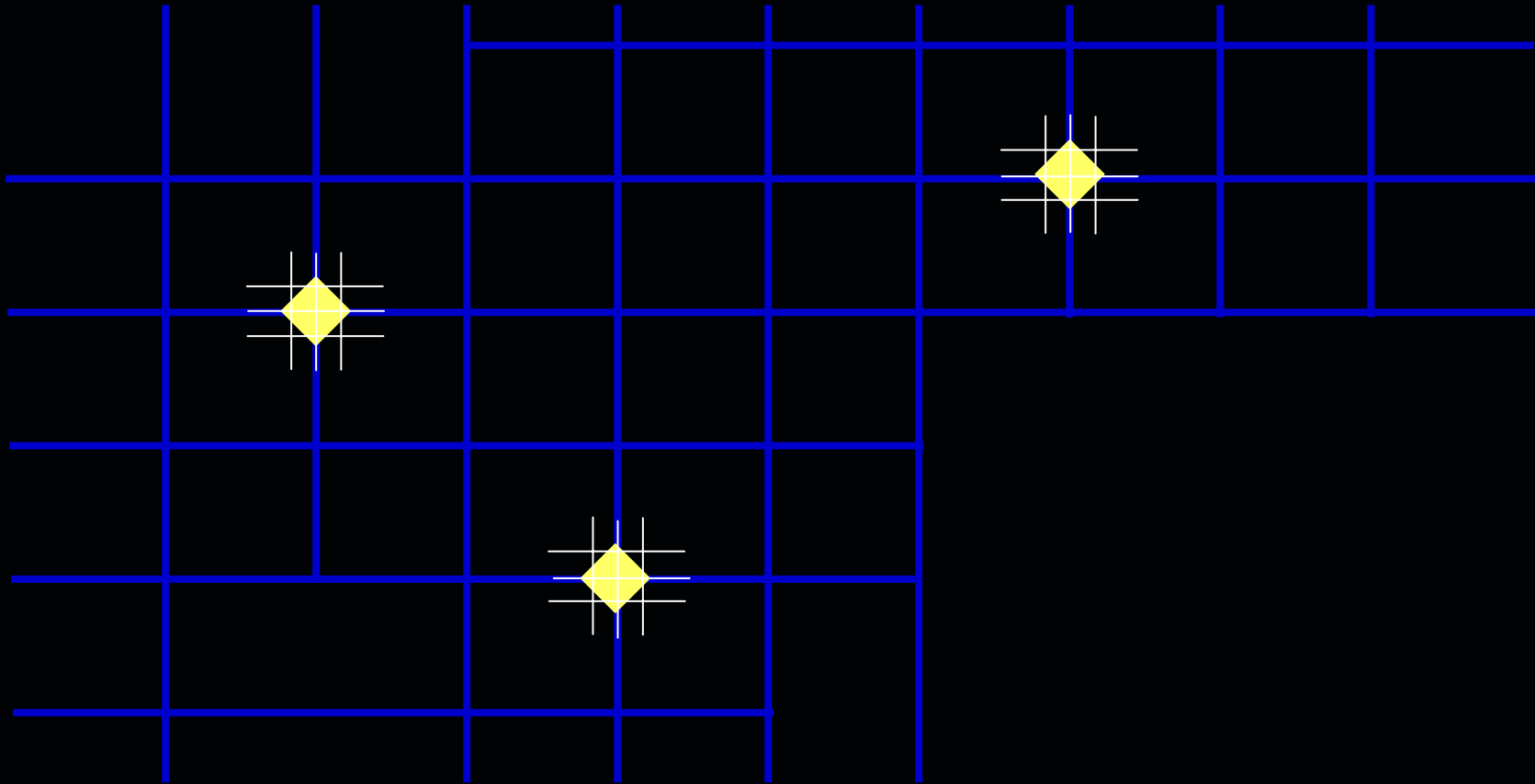




Boulder

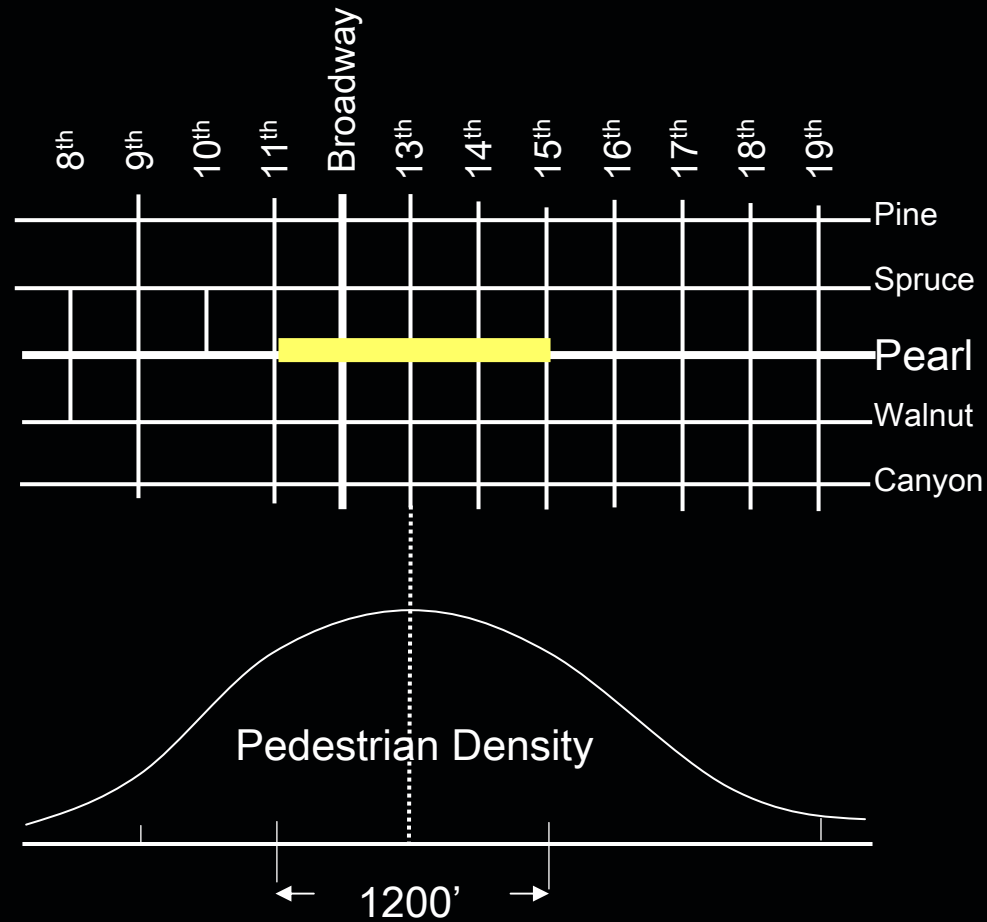


# Pedestrian Macro Structure (Nodes and Corridors)





# Downtown Boulder Pedestrian Mall

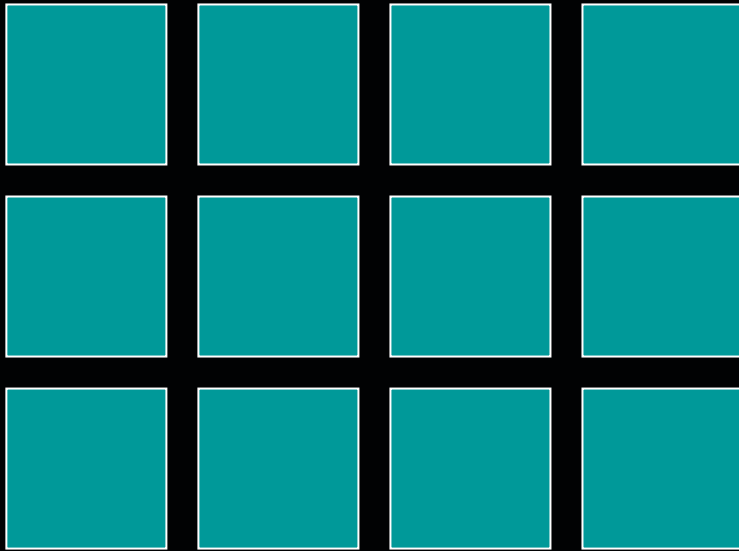


**Dr. Bad Science**  
**says...**

**“Good urban blocks  
should be  
300’ to 528’ long.”**



# Pedestrian Networks



The ideal  
pedestrian “grain”  
is 250’ to 350’







# Honolulu

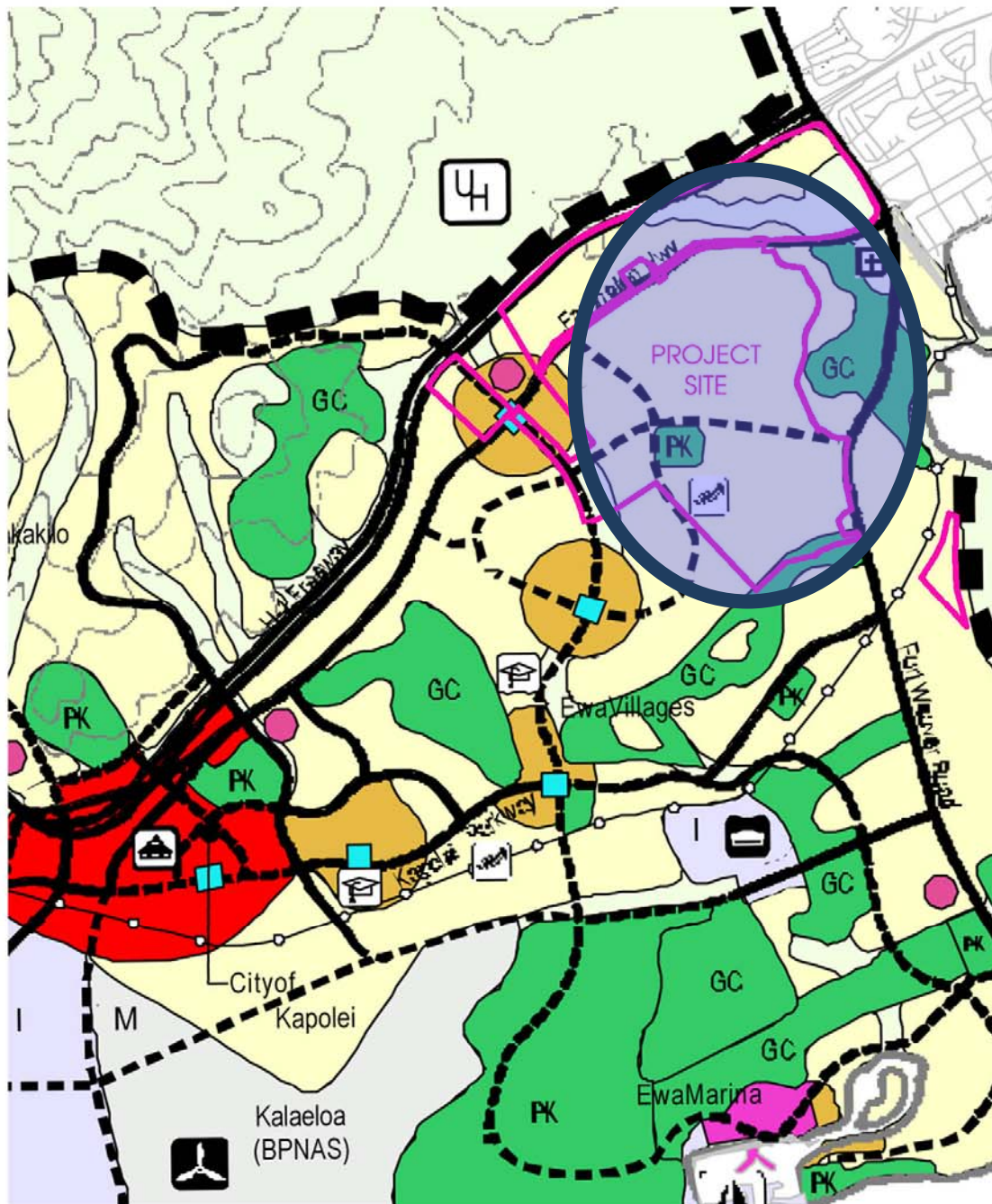




# Ewa Plain







## LEGEND

- Low and Medium Density Residential
- High Density Residential
- Community Commercial Center
- City of Kapolei (High Density Residential and Commercial)
- Resort/Recreation Area
- Industrial
- M Military
- Public Institution
- Agricultural Land Preservation
- PK/GC Parks and Golf Courses
- Transit Node (High Density Residential and Commercial)
- Urban Growth Boundary

## EXISTING FUTURE

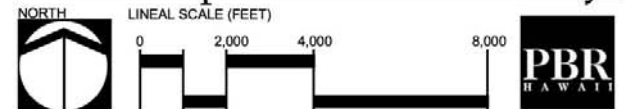
- |   |  |
|---|--|
| <span style="display: inline-block; width: 15px; height: 15px; background-color: black; border: 1px solid white; border-radius: 50%;"></span> | <span style="display: inline-block; width: 15px; height: 15px; background-color: black; border: 1px solid white; border-radius: 50%;"></span> Civic Center                       |
| <span style="display: inline-block; width: 15px; height: 15px; background-color: black; border: 1px solid white; border-radius: 50%;"></span> | <span style="display: inline-block; width: 15px; height: 15px; background-color: black; border: 1px solid white; border-radius: 50%;"></span> Wastewater T.P.                    |
| <span style="display: inline-block; width: 15px; height: 15px; background-color: black; border: 1px solid white; border-radius: 50%;"></span> | <span style="display: inline-block; width: 15px; height: 15px; background-color: black; border: 1px solid white; border-radius: 50%;"></span> Intermediate School                |
| <span style="display: inline-block; width: 15px; height: 15px; background-color: black; border: 1px solid white; border-radius: 50%;"></span> | <span style="display: inline-block; width: 15px; height: 15px; background-color: black; border: 1px solid white; border-radius: 50%;"></span> High School                        |
| <span style="display: inline-block; width: 15px; height: 15px; background-color: black; border: 1px solid white; border-radius: 50%;"></span> | <span style="display: inline-block; width: 15px; height: 15px; background-color: black; border: 1px solid white; border-radius: 50%;"></span> U.H. West Oahu                     |
| <span style="display: inline-block; width: 15px; height: 15px; background-color: black; border: 1px solid white; border-radius: 50%;"></span> | <span style="display: inline-block; width: 15px; height: 15px; background-color: black; border: 1px solid white; border-radius: 50%;"></span> Hospital                           |
| <span style="display: inline-block; width: 15px; height: 15px; background-color: black; border: 1px solid white; border-radius: 50%;"></span> | <span style="display: inline-block; width: 15px; height: 15px; background-color: black; border: 1px solid white; border-radius: 50%;"></span> Airfield                           |
| <span style="display: inline-block; width: 15px; height: 15px; background-color: black; border: 1px solid white; border-radius: 50%;"></span> | <span style="display: inline-block; width: 15px; height: 15px; background-color: black; border: 1px solid white; border-radius: 50%;"></span> Highways, Arterial & Major Streets |
| <span style="display: inline-block; width: 15px; height: 15px; background-color: black; border: 1px solid white; border-radius: 50%;"></span> | <span style="display: inline-block; width: 15px; height: 15px; background-color: black; border: 1px solid white; border-radius: 50%;"></span> Historic Railway                   |

Source: City and County of Honolulu Ewa Development Plan  
Urban Land Use Map (1997)

Disclaimer:  
This graphic has been prepared for general planning purposes only.

Ewa Development Plan

East Kapolei Community











# **Pedestrian Science Objective:**

**Develop a comprehensive, realistic  
system for creating human  
environments in cities that want them.**



**Good Science**

# Pedestrian Science

- **Types of Walkers**
- **Types of Pedestrian Environments**
- **Practical Local Policies**

# Pedestrian Science

## Types of Walking



# Types of Walking

- Rambling
- Utilitarian Walking
- Strolling, Lingerling
- Promenading
- Special Events

# Rambling



Redmond

# Utilitarian Walking



Redmond



Boulder



Strolling, Lingering



Boulder

Promenade





Boulder



Special Events



# Pedestrian Science

## Types of Pedestrian Environments

# **Pedestrian Environments**

**“Pedestrian Friendly”**

# **Pedestrian Environment Continuum**

**Pedestrian Friendliness**



**Pedestrian Place/District**



**Pedestrian Supportive Environment**



**Pedestrian Tolerant Environment**



**Pedestrian Intolerant Environment**



# Pedestrian Place

- Commercial, recreational or institutional setting (not residential)
- Gathering place – identifiable as a PLACE
- Significant pedestrian presence
- Motor vehicles can be present, but may not dominate
- Substantial supportive transportation systems required (parking, transit, bike)

Honolulu/Waikiki



**Pedestrian Place**



Boulder



Pedestrian Place



La Spezia, Italy



**Pedestrian Place**



Winter Park, FL



Pedestrian Place



Miami Beach, FL

Pedestrian Place





Genoa, Italy

GE NOVA 04 Welcome to Genoa European Capital of Culture

TERMINAL FOTO

PIEDISTONE

ISTITUTO SAN ROCCO SAN PIRO DI TORINO

Pedestrian Place

Genoa, Italy

GE NOVA 04 Welcome to Genoa European Capital of Culture

TERMINAL FOTO

PIEDISTONE

ISTITUTO SAN ROCCO SAN PIRO DI TORINO

Pedestrian Place



Vernazza, Italy



**Pedestrian Place**



Riomaggiore, Italy

**Pedestrian Place**





# Pedestrian Supportive

- Commercial, recreational, institutional or residential setting – most but **not all** land uses
- May include gathering PLACES
- Pedestrians present at busy times
- Motor vehicles can be present, but may not dominate

Redmond



**Pedestrian Supportive**



Mt. Vernon, IA

Pedestrian Supportive





Longmont



**Pedestrian Supportive**



Berkeley



**Pedestrian Supportive**





**Pedestrian Supportive**



Boulder



**Pedestrian Supportive**



Boulder



**Pedestrian Supportive**



# Pedestrian Supportive



Gold Hill

# Pedestrian Tolerant

- All land uses except freeway and limited special uses (airport runway, garbage dump, etc.)
- Utilitarian walking and rambling only
- Motor vehicles are present and tend to dominate



Redmond

**Pedestrian Tolerant**



Longmont



**Pedestrian Tolerant**



# Pedestrian Tolerant

Maui



# Pedestrian Intolerant

- Any land use
- Very little if any walking
- Motor vehicles dominate
- Unsafe, unpleasant



Longmont



**Pedestrian Intolerant**

**Pedestrian Intolerant**







**Pedestrian Intolerant**



Flagstaff, AZ



**Pedestrian Tolerant**

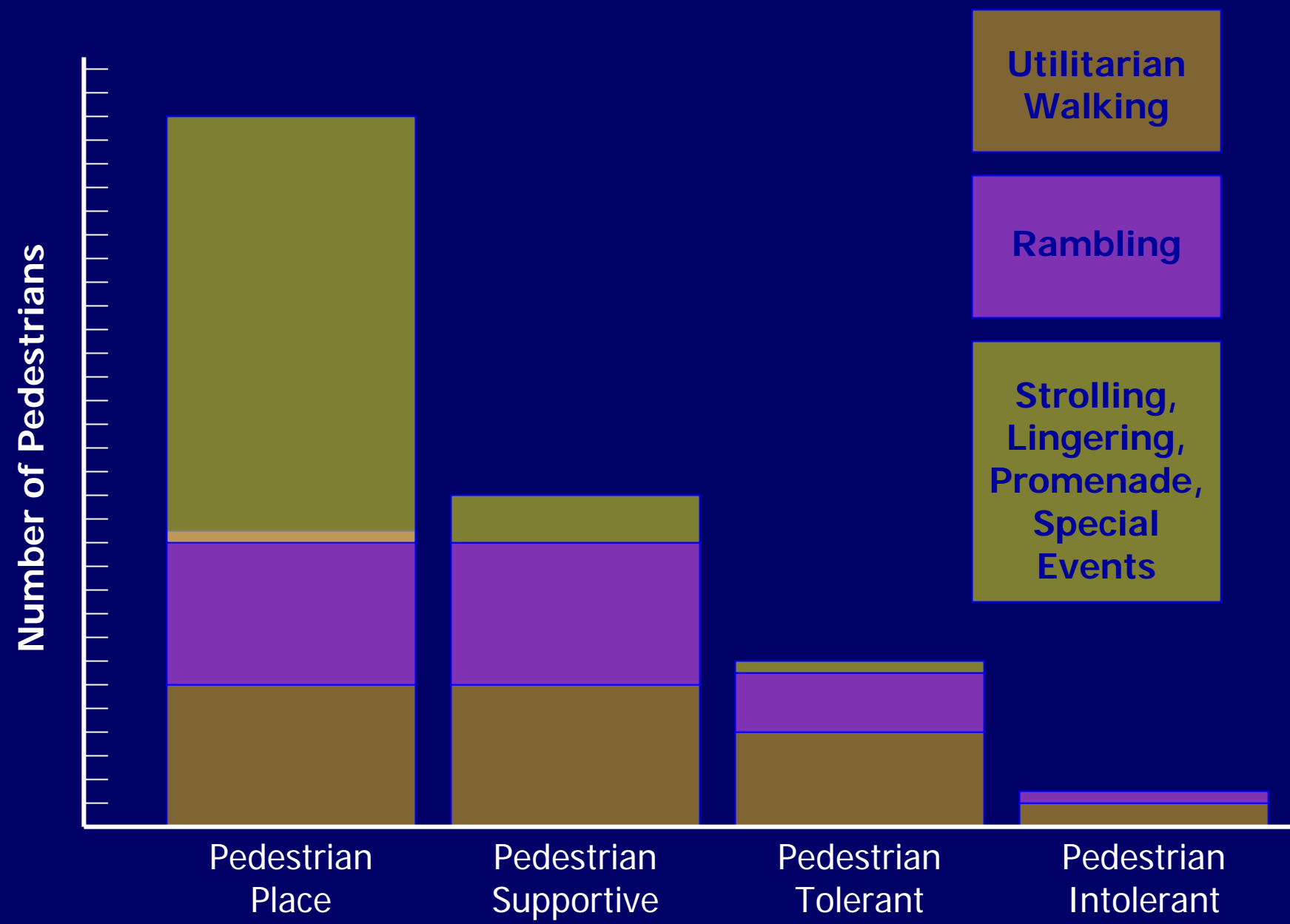


# Pedestrian Intolerant



Flagstaff, AZ

# Walk Environments and Types of Walking





# **Practical Local Policies**

Good Pedestrian Science

# **Pedestrian Districts**

Good Pedestrian Science



# Pedestrian Districts

- People are drawn to the center
- The center will have an axis
- Walk range from the axis is limited
- Sources of pedestrians:
  - Parked cars
  - Nearby residential
  - Transit
  - Nearby lodging

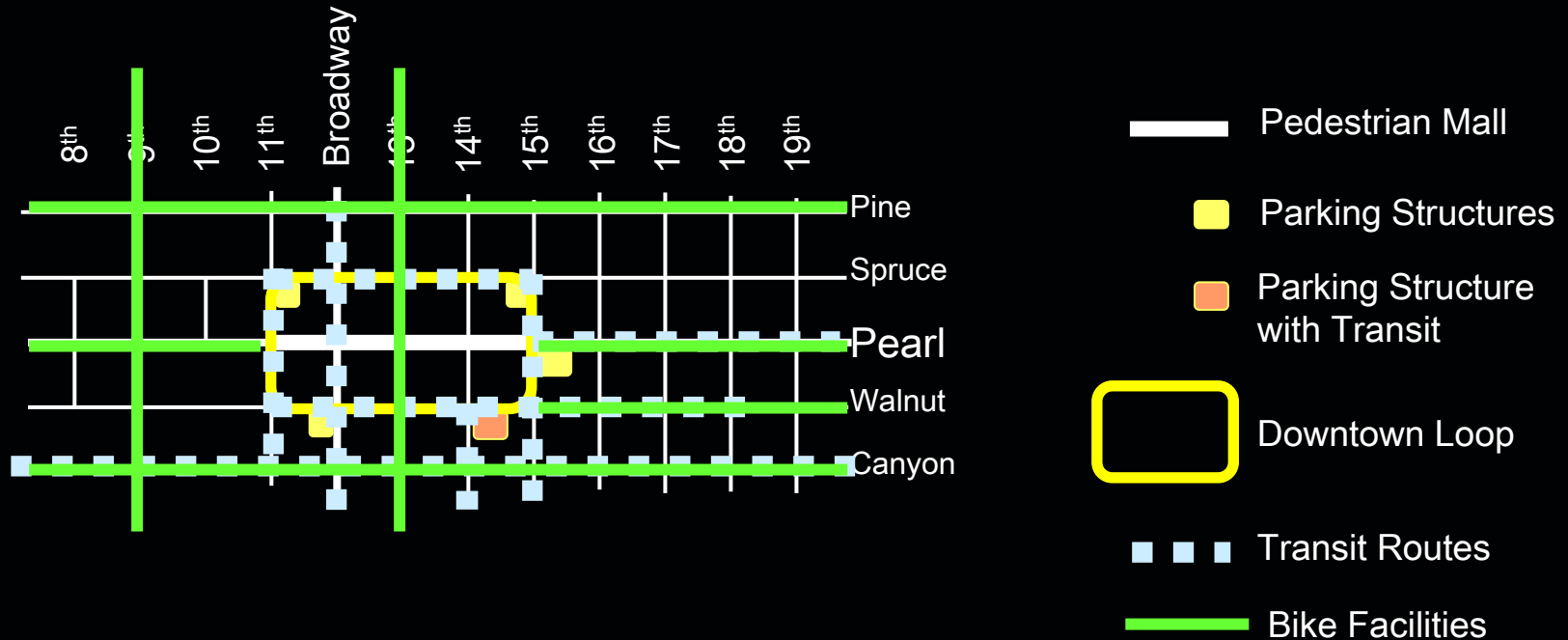




Boulder



# Pearl Street Pedestrian Mall





IOOF  
Odd Fellows  
REBEKAH

SUR

STOP







PUBLIC PARKING

FREE PARKING SAT. & SUN.











NO  
TRUCK  
PARKING







PEARL STREET

Celebrate  
the  
22nd  
Annual  
Wine  
Festival

Bar  
The Brasserie







Boulder's pedestrian mall works  
because ...

... it is supported by a balanced  
multimodal transportation  
system.











The entire city is not going to be  
“pedestrian friendly” any time  
soon...

...addressing this problem requires  
setting priorities.

# Prioritizing Corridors

Good Pedestrian Science



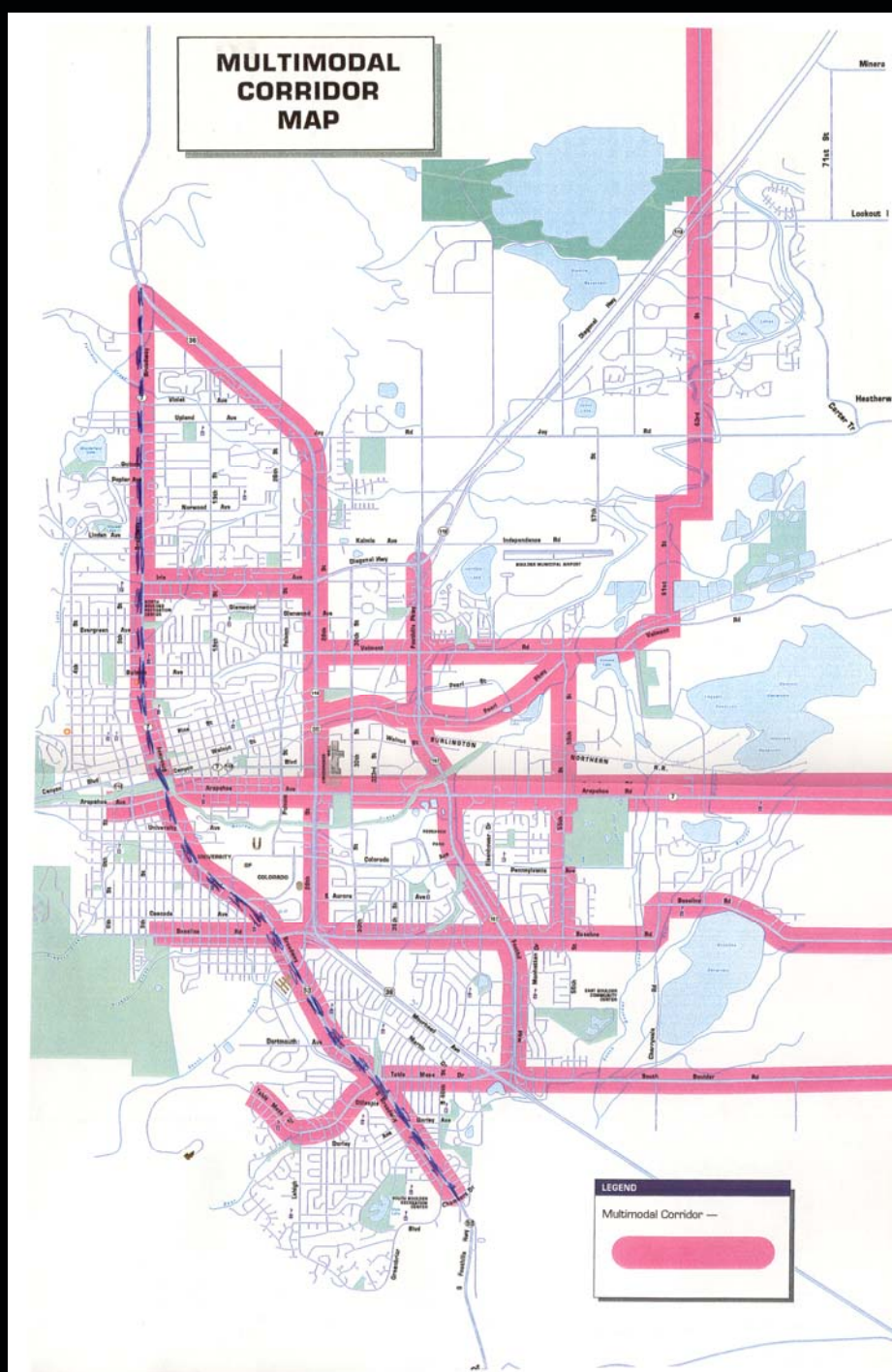
# Multimodal Corridors





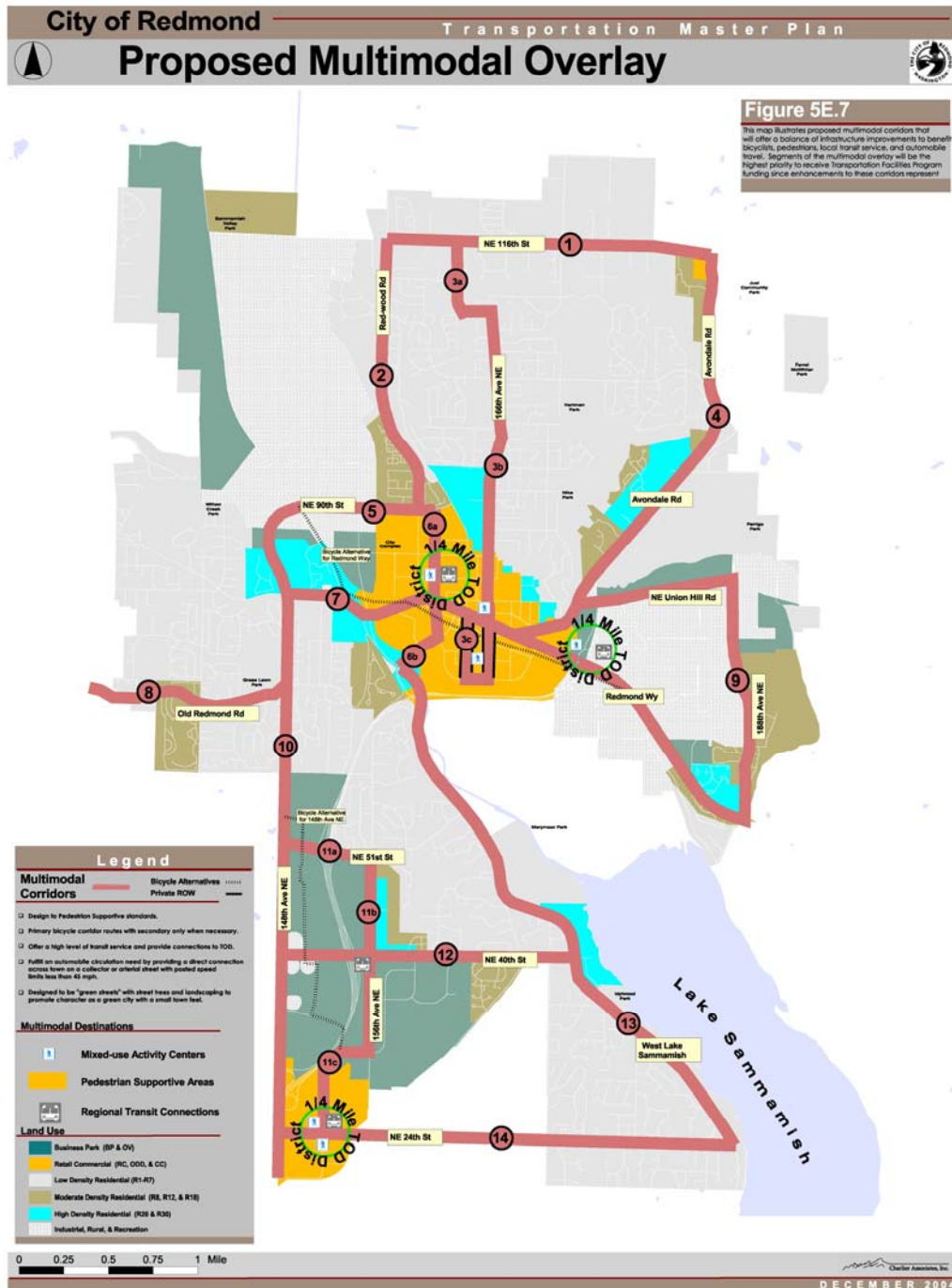
Streets are the primary  
infrastructure for all  
modes.

# Boulder 1996 TMP





# Redmond 2005 TMP



# Universal Access

Good Pedestrian Science

















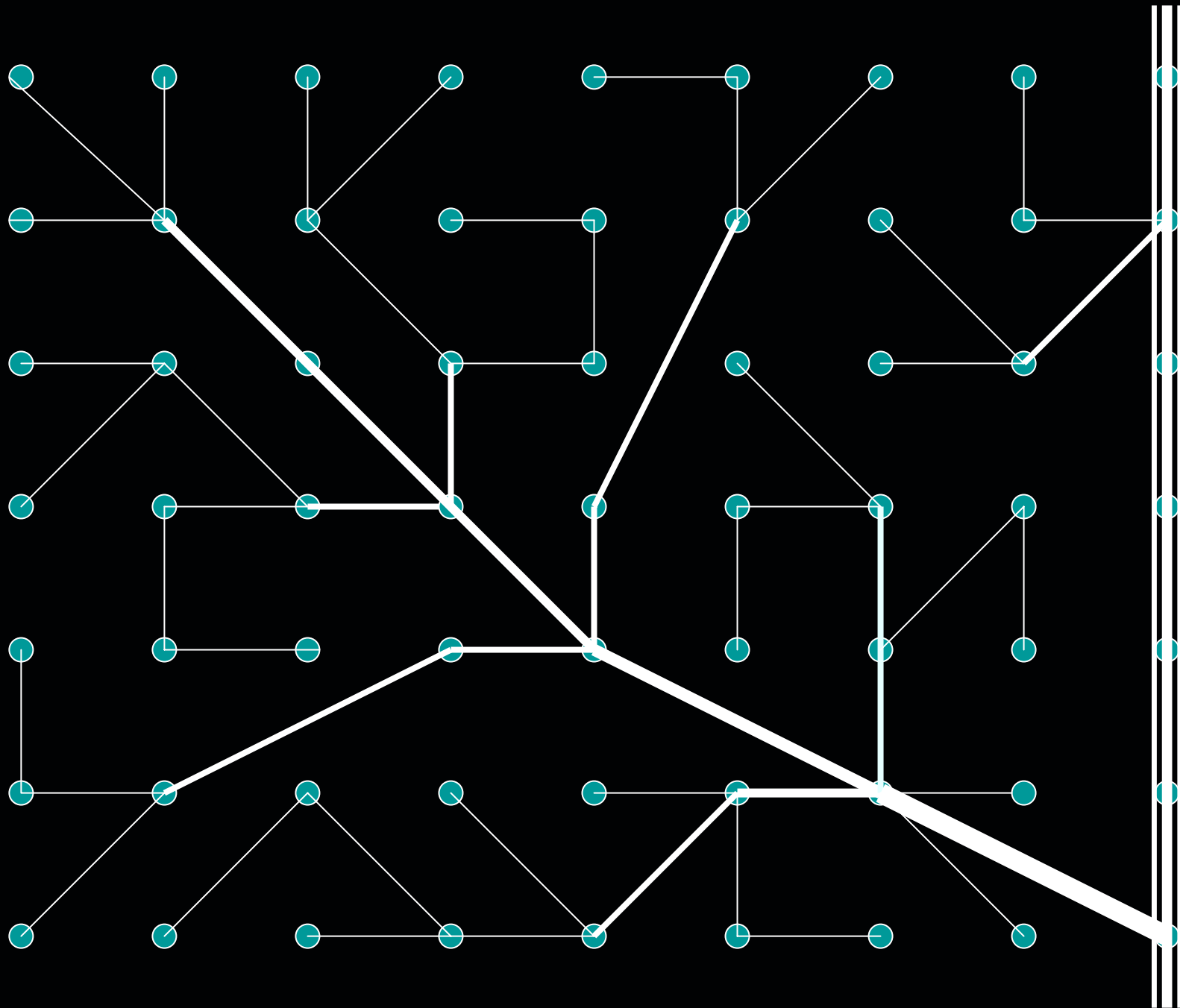


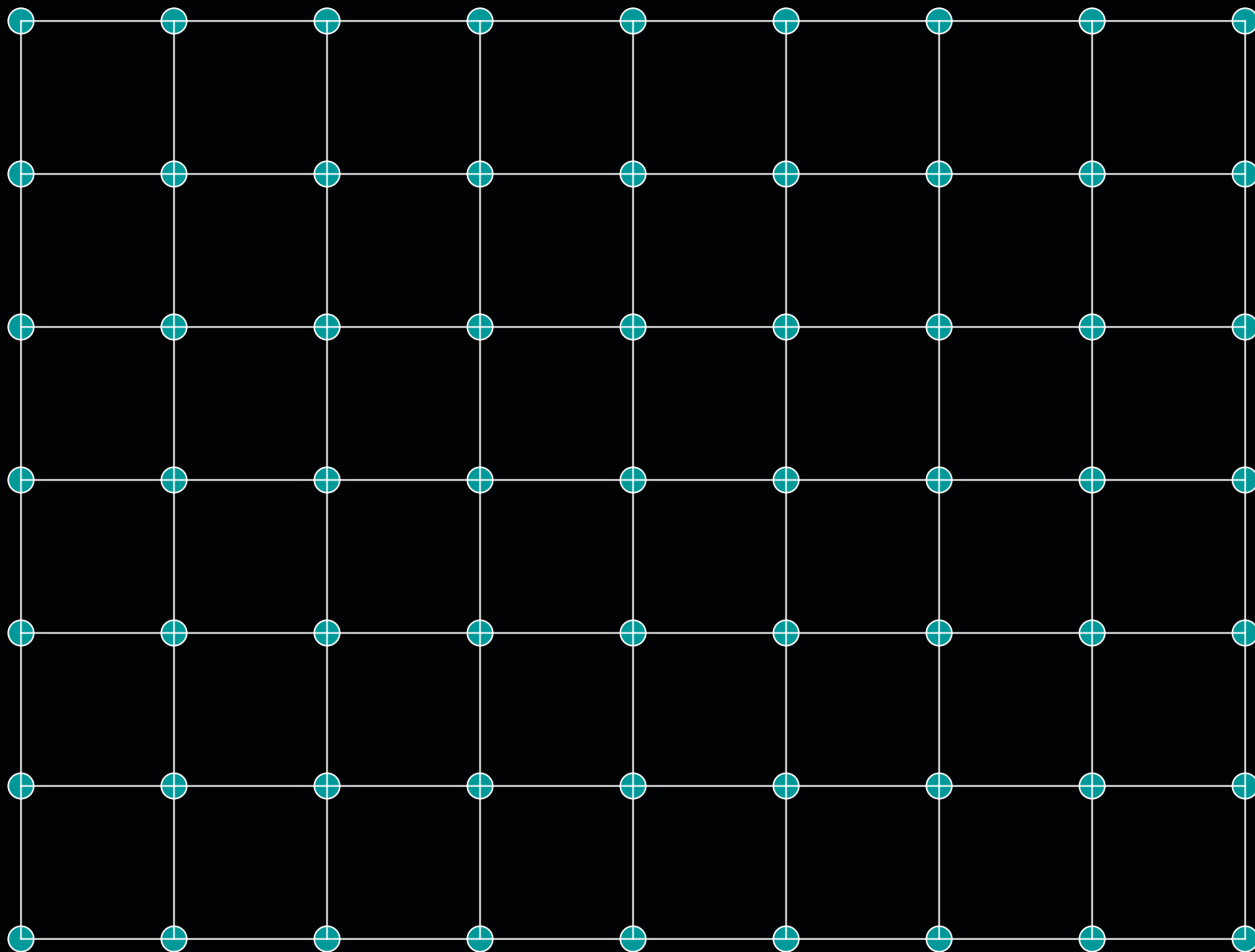


# Grid Size + Connectivity

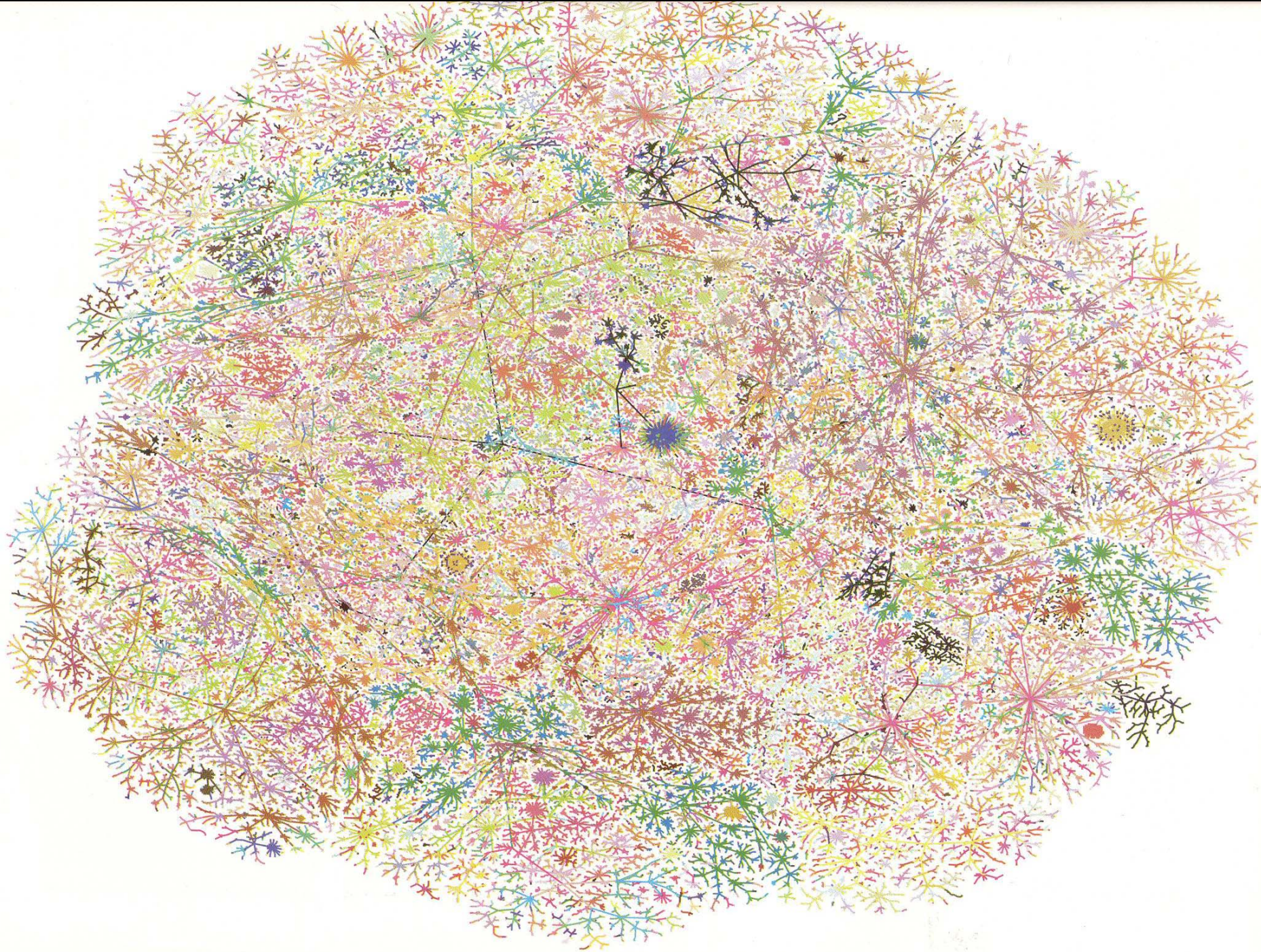
Good Pedestrian Science



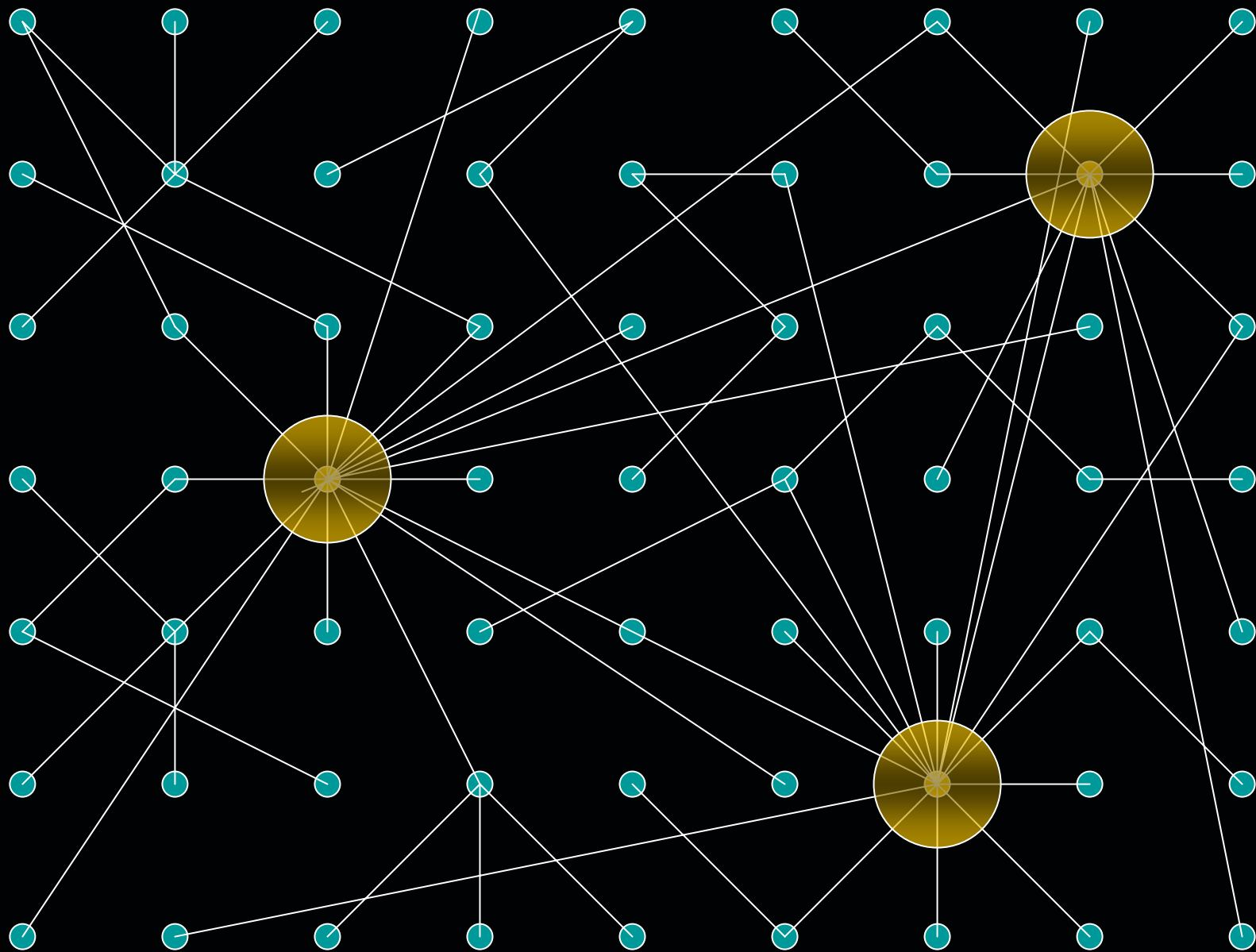






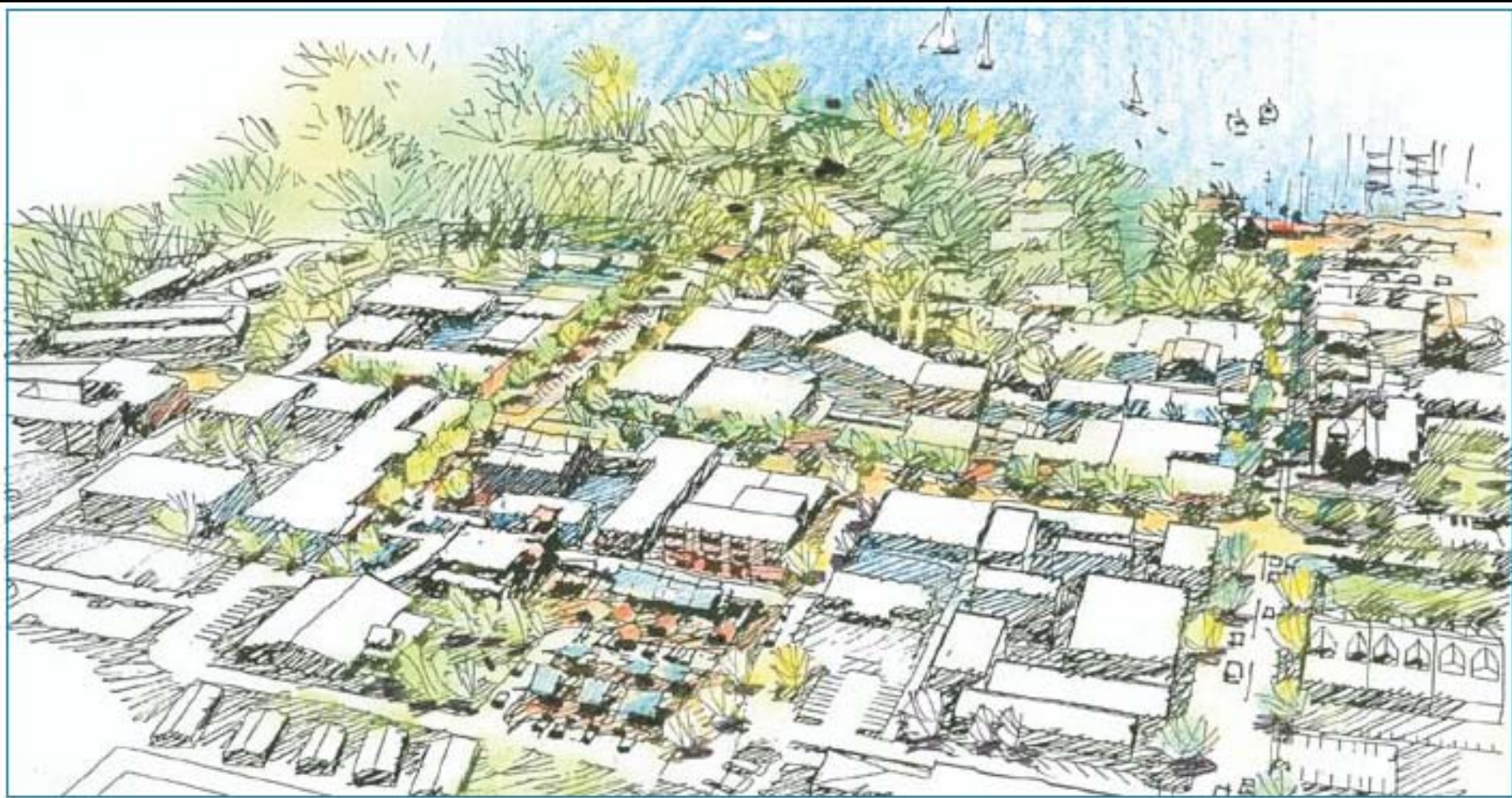








# Winslow (Bainbridge Island)



# **Integrating Policy, Planning and Design**

Good Pedestrian Science

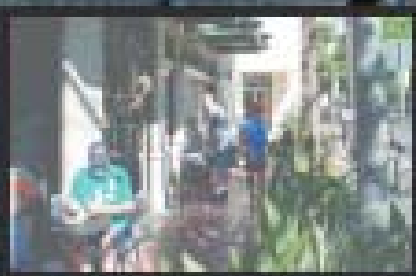
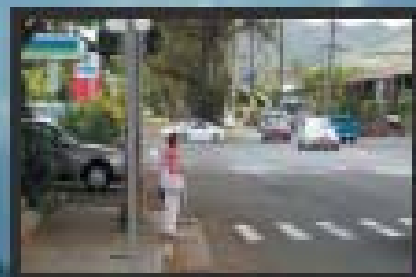


# Kailua



# DOWNTOWN KAILUA

## PEDESTRIAN ENVIRONMENT GUIDELINES



PREPARED FOR:  
KANECHIE RANCH COMPANY, LIMITED  
MARCH 2005



ROADWAY  
CORRIDOR

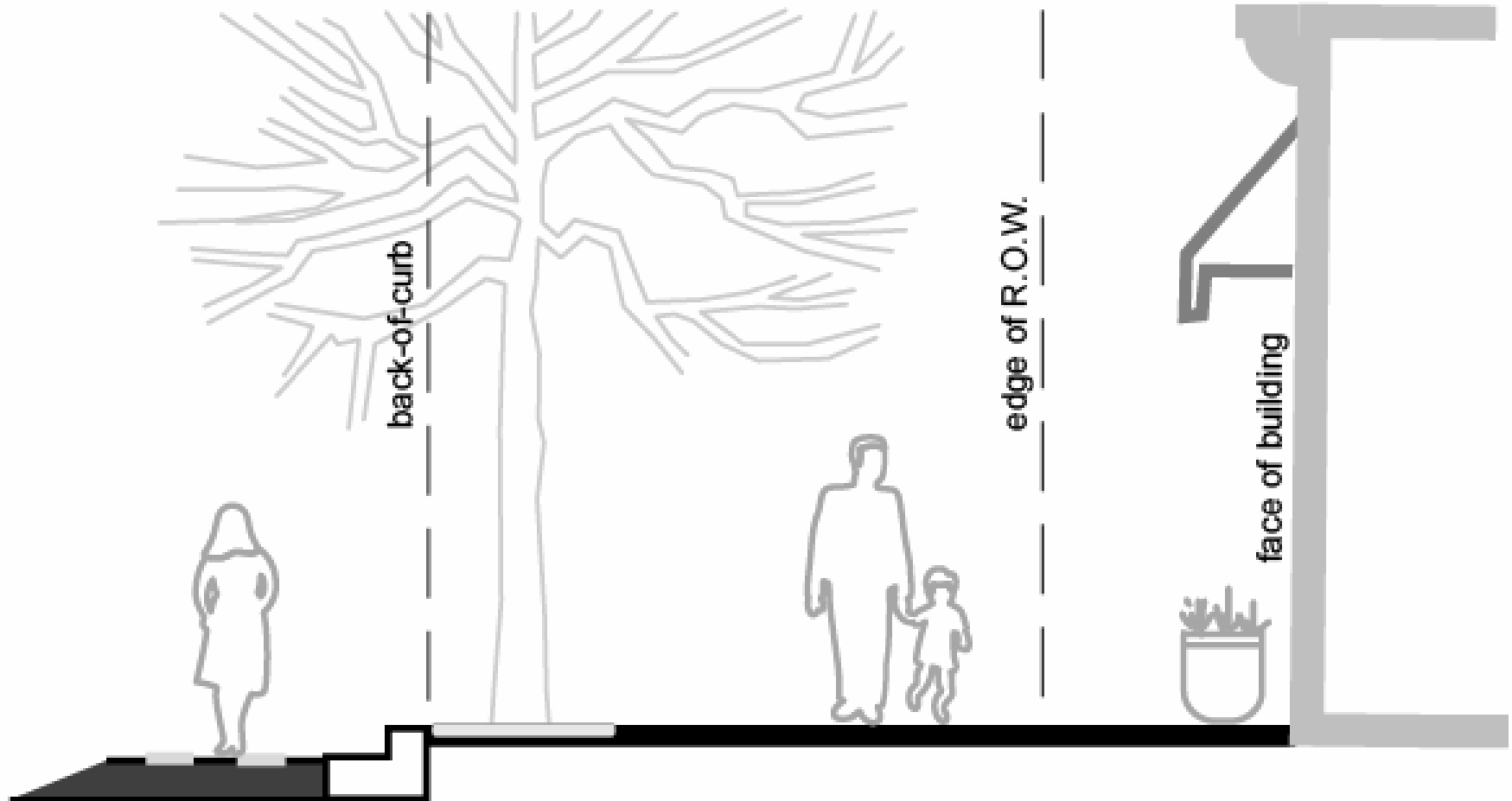
PEDESTRIAN  
REALM

ADJACENT  
LAND USE

1

2

3



LOCATION: _____ _____	Pedestrian Place	Pedestrian Supportive	Pedestrian Tolerant	Pedestrian Intolerant
Roadway	criteria	criteria	criteria	criteria
Pedestrian Realm	criteria	criteria	criteria	criteria
Adjacent Land Use	criteria	criteria	criteria	criteria







					
	<b>Pedestrian Intolerant</b>	<b>Pedestrian Tolerant</b>	<b>Pedestrian Supportive</b>	<b>Pedestrian Place</b>	
<b>1 Roadway Corridor</b>					
<b>Physical Characteristics</b>	<i>Vehicular Traffic</i>	Various combinations of the following characteristics create roadway corridors that discourage pedestrian use: <ul style="list-style-type: none"><li>• high traffic volumes (&gt; 25,000 ADT)</li><li>• high travel speeds (posted &gt;35 mph)</li></ul>	Roadway corridors become more tolerant when traffic characteristics are: <ul style="list-style-type: none"><li>• moderate traffic volumes (15,000 – 25,000 ADT)</li><li>• moderate travel speeds (30-35 mph)</li></ul>	The following roadway characteristics combine to support pedestrian activity: <ul style="list-style-type: none"><li>• moderate volumes (typically 5,000-15,000 ADT)</li><li>• slower travel speeds (25-30 mph)</li></ul>	The following combination is required to create public spaces that function as pedestrian destination areas: <ul style="list-style-type: none"><li>• low traffic volumes (&lt; 5,000 ADT)</li><li>• slow travel speeds (&lt; 25 mph)</li></ul>
	<i>Other Roadway Lanes</i>	<ul style="list-style-type: none"><li>• Typically no on-street parking.</li><li>• No bicycle lanes.</li></ul>	<ul style="list-style-type: none"><li>• Typically no on-street parking.</li><li>• The presence of bicycle lanes helps to buffer and separate pedestrians from vehicular traffic.</li></ul>	<ul style="list-style-type: none"><li>• Parking is provided on one or both sides of street.</li><li>• The presence of bicycle lanes helps to buffer and separate pedestrians from vehicular traffic.</li></ul>	<ul style="list-style-type: none"><li>• If a street goes through a destination area, parking may be provided on both sides of street.</li><li>• Slow vehicular traffic speeds mean bicycle lanes are usually not required.</li></ul>
	<i>Curb Type</i>	<ul style="list-style-type: none"><li>• No curb.</li></ul>	<ul style="list-style-type: none"><li>• Rolled or extruded curb.</li></ul>	<ul style="list-style-type: none"><li>• Vertical curb.</li></ul>	<ul style="list-style-type: none"><li>• Vertical curb.</li></ul>
<b>Pedestrian Crossings</b>	<i>Delineated Street Crossings</i>	<ul style="list-style-type: none"><li>• No marked crosswalks provided.</li><li>• Pedestrians must cross several lanes at once.</li><li>• Curb radii are &gt;30'</li></ul>	<ul style="list-style-type: none"><li>• Marked, signed crossings with high-visibility ladder style crosswalks.</li><li>• Number of lanes to cross at once is limited to 4.</li><li>• Right-turn slip lanes with porkchop islands shorten crossing distances.</li><li>• 30' max. curb radii</li></ul>	<ul style="list-style-type: none"><li>• High-visibility crosswalks, potentially with use of texture, pattern and/or color.</li><li>• Number of lanes to cross at once is limited to 3.</li><li>• Small curb radii of 15'-25' shorten crossing distances and slow traffic.</li></ul>	<ul style="list-style-type: none"><li>• Crossings include texture, pattern, color and/or traffic calming measures such as raised speed tables or curb extensions.</li><li>• Number of lanes to cross at once is limited to 2.</li><li>• Small curb radii of 5'-15' shorten crossing distances and slow traffic.</li></ul>
	<i>Traffic Signals</i>	<ul style="list-style-type: none"><li>• No signals.</li><li>• Or no walk phases within signalized intersections.</li></ul>	<ul style="list-style-type: none"><li>• Pedestrian signal indications for walk phases.</li><li>• Timing allows clearance intervals for a pedestrian to cross street at average walking speeds of 3.5 - 4 ft/sec.</li></ul>	<ul style="list-style-type: none"><li>• Pedestrian activated signals with short cycle lengths and longer walk intervals.</li><li>• Timing allows elderly and slower moving pedestrians to cross street at walking speeds of 2.5 - 3 ft/sec.</li><li>• Use of Leading Pedestrian Intervals (LPI) or Delayed Vehicle Green lights</li></ul>	<ul style="list-style-type: none"><li>• Pedestrian activated signals are oriented to give priority to pedestrian movements.</li><li>• Use of LPI signals, countdown signals, or exclusive pedestrian intervals.</li><li>• Alternatively, signals may not be necessary due to slow traffic speeds.</li></ul>
	<i>Grid/Block Length and/or Mid-Block Crossings</i>	<ul style="list-style-type: none"><li>• Crossing frequency is 528' - 1320'</li><li>• No mid-block crossings provided.</li></ul>	<ul style="list-style-type: none"><li>• Crossing frequency is 330' – 528'</li><li>• Mid-block crossings marked and signed.</li></ul>	<ul style="list-style-type: none"><li>• Crossing frequency is 250' – 330'</li><li>• Hot response pedestrian signals.</li><li>• Curb extensions or neckdowns where on-street parking is present.</li><li>• Median refuge islands if &gt;4 lanes or where center turn lanes present.</li></ul>	<ul style="list-style-type: none"><li>• Crossing frequency is &lt; 250'</li><li>• Mid-block street crossings are an integral part of pedestrian destination zones, with priority given to pedestrian movements through design.</li></ul>

Figure 4.a





					
		<b>Pedestrian Intolerant</b>	<b>Pedestrian Tolerant</b>	<b>Pedestrian Supportive</b>	<b>Pedestrian Place</b>
<b>② Pedestrian Realm</b>					
<b>Physical Characteristics</b>	<i>Sidewalk Presence</i>	<ul style="list-style-type: none"> <li>Local streets have no sidewalks.</li> <li>Arterial streets have sidewalks on only one side of street.</li> </ul>	<ul style="list-style-type: none"> <li>Local streets have sidewalks on only one side of street.</li> <li>Arterial streets have sidewalks on both sides.</li> </ul>	<ul style="list-style-type: none"> <li>All streets have sidewalks provided on both sides</li> </ul>	<ul style="list-style-type: none"> <li>All streets have sidewalks provided on both sides with supplemental traffic-calming measures</li> </ul>
	<i>Sidewalk Location and Width</i>	<ul style="list-style-type: none"> <li>Sidewalks lacking, or provided immediately back of curb.</li> <li>Walkway width &lt; 5'</li> </ul>	<ul style="list-style-type: none"> <li>Sidewalks provided immediately back of curb.</li> <li>Walkway width 5' min.</li> </ul>	<ul style="list-style-type: none"> <li>Walkway separated from vehicular traffic by a 5' sidewalk planting strip.</li> <li>Sidewalk 6'-8' wide to accommodate passing and pairs of pedestrians walking side by side.</li> <li>Next to transit stops, sidewalks are 10' wide and extend to street at boarding spot.</li> </ul>	<ul style="list-style-type: none"> <li>The pedestrian realm includes a sidewalk planting strip/pedestrian furnishings zone next to street, a walk/talk zone, and a shy zone next to buildings.</li> <li>Through walkway space 8'-10' wide; overall sidewalk width 10'-30' to provide space for pedestrian amenities.</li> </ul>
	<i>Sidewalk Planting Strip</i>	None.	None.	5' minimum, ideally with overstory street trees 20'-30' on center, with clear sight distance triangles at intersections and crossings.	5' – 10' with overstory street trees in parkway planting strips, or none if tree wells and supplemental planters are provided within wide sidewalks, with clear sight distance triangles.
<b>Pedestrian Amenities</b>	<i>Transit Stops</i>	No furniture groupings provided.	Benches provided at transit stops.	Shelters, benches and trash receptacles provided at transit stops.	Transit stops and amenities are integral in the design of pedestrian places.
	<i>Pedestrian Furnishings</i>	None.	No furnishings along streets not on transit routes.	Pedestrian furniture groupings located intermittently along non-transit streets. Pedestrian wayfinding provided.	Pedestrian furniture groupings, sculpture, drinking fountains, decorative fountains, wayfinding, etc. are located throughout.
	<i>Lighting</i>	None.	High angle highway lamps, such as cobra heads.	Commercial districts have both: <ul style="list-style-type: none"> <li>High angle lamps.</li> <li>Additional low angle street lamps for improved lighting at ground level.</li> </ul>	Pedestrian places have: <ul style="list-style-type: none"> <li>Overall street lighting.</li> <li>Low placement of tungsten lamps.</li> <li>Additional light emitted from stores that line the street.</li> </ul>

Figure 4.b









					
		<b>Pedestrian Intolerant</b>	<b>Pedestrian Tolerant</b>	<b>Pedestrian Supportive</b>	<b>Pedestrian Place</b>
<b>③ Adjacent Land Use</b>					
<b>Physical Characteristics</b>	<i>Mix of uses</i>	Single Use	Often single-use	Limited mixed-use	At least three distinct, complimentary uses within immediate walking distance
	<i>Building Relationship to Street</i>	<ul style="list-style-type: none"> <li>• 35' min. setbacks, with buildings often set back much farther than minimums</li> <li>• Public space height to width ratio &lt; 1:4</li> </ul>	<ul style="list-style-type: none"> <li>• 0' min. setbacks, with buildings often set back much farther than minimums</li> <li>• Height to width ratio 1:4 – 1:2</li> </ul>	<ul style="list-style-type: none"> <li>• Buildings placed at maximum setbacks or build-to lines ≤ 20'</li> <li>• Height to width ratio of 1:2</li> </ul>	<ul style="list-style-type: none"> <li>• Buildings placed at maximum setbacks or build-to lines 0' to 2'</li> <li>• Height ratio of 1:2 min. and 1:1 max.</li> </ul>
	<i>Building Design</i>	<ul style="list-style-type: none"> <li>• Buildings typically one-story, &lt; 35' ht.</li> <li>• Solid street walls with no doors and windows facing street</li> <li>• No pedestrian protection from elements.</li> </ul>	<ul style="list-style-type: none"> <li>• One- or two-story, &lt; 35' ht.</li> <li>• Solid street walls with infrequent doors and windows.</li> <li>• No pedestrian protection from elements.</li> </ul>	<ul style="list-style-type: none"> <li>• Three- or four-stories, 40' – 52' ht.</li> <li>• Transparent window area along much of ground floor façade</li> <li>• Awnings provided over entrances.</li> </ul>	<ul style="list-style-type: none"> <li>• Three- to five-stories, 40' – 60' ht.</li> <li>• Porous street frontages with frequent doors and windows inviting pedestrians inside.</li> <li>• Awnings or arcades provided along building length for pedestrian shelter from sun/rain.</li> </ul>
<b>Pedestrian Access</b>	<i>Off-Street Parking Requirements</i>	Large surface lots >50,000 sq. ft. located in front of buildings.	Smaller surface lots located in front or on sides of buildings, not to exceed 20,000 sq. ft. in size.	Surface parking required to be at rear of building, or provided above, below, or centrally contained within parking structures.	Parking provided within parking structures.
	<i>Landscape Buffers and Screening</i>	<ul style="list-style-type: none"> <li>• Heavy landscape screening with hedges separating private property from street frontages.</li> <li>• Solid walls or high privacy fences separating land uses from streets.</li> </ul>	<ul style="list-style-type: none"> <li>• Moderate landscape screening with breaks in landscaping for pedestrian access.</li> <li>• Intermittent use of privacy fences to screen views but not limit pedestrian access from street.</li> </ul>	<ul style="list-style-type: none"> <li>• Canopy shade streets with supplemental plantings provide pedestrian scale and interest level.</li> <li>• Low and/or open fencing to define public-private space, with frequent and well-placed access points.</li> </ul>	<ul style="list-style-type: none"> <li>• Urban form of Pedestrian Places requires no landscape buffering.</li> <li>• Canopy shade streets with supplemental plantings provide pedestrian scale and interest level.</li> </ul>
	<i>Pedestrian Access To Front Door of Buildings</i>	<ul style="list-style-type: none"> <li>• No pedestrian access provided across parking lots or through landscape buffers and/or fencing.</li> </ul>	<ul style="list-style-type: none"> <li>• Parking lots include internal sidewalks or walkway areas striped across pavement at spacings &gt;250'. Likewise, infrequent access points through buffers spaced &gt;250'</li> </ul>	<ul style="list-style-type: none"> <li>• Priority given to frequent and direct pedestrian access every 150'-250' through buffers and across parking lots through design treatments such as colored and textured walks, speed table driveway crossings, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• No large parking lots, no landscape buffers, no fencing.</li> <li>• Direct, convenient, inviting and interesting pedestrian access provided from sidewalks to adjacent buildings.</li> </ul>

Figure 4.c







**Kailua**



# Maui





# Pedestrian Tolerant

## Transect

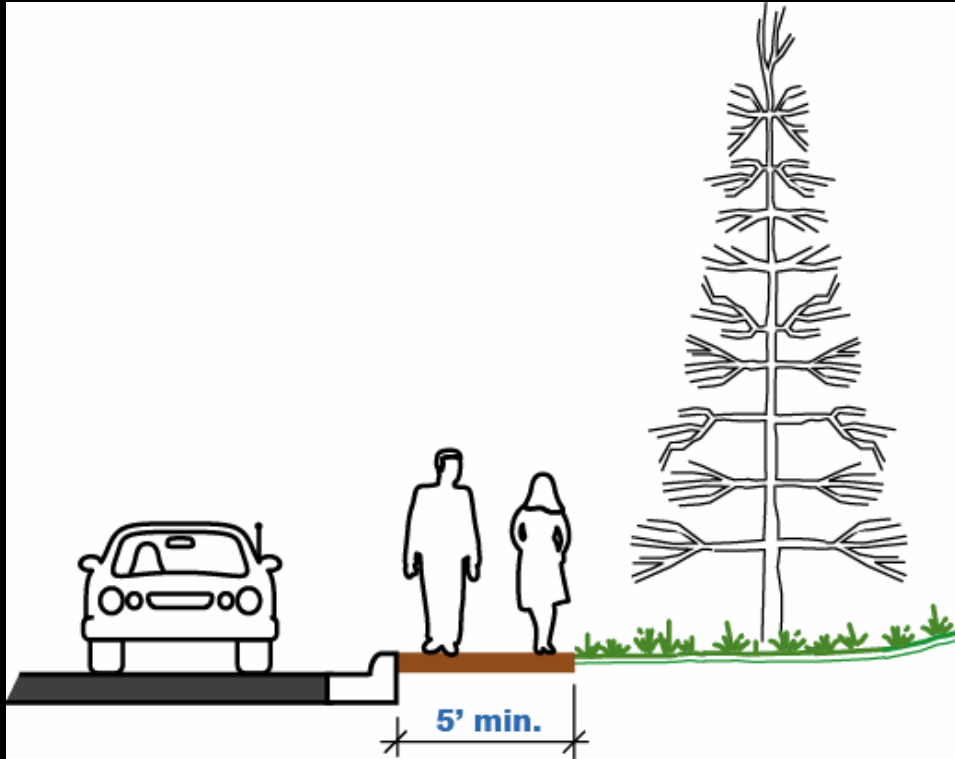
T1

T2

T3

T4

T5



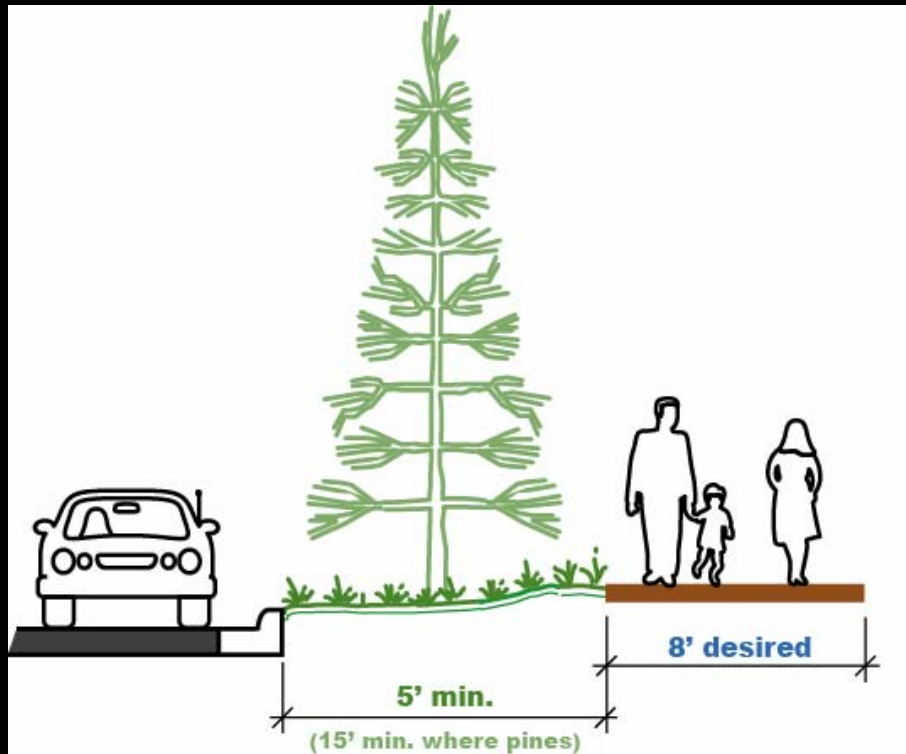
## Key Design Criteria

- 5' min. walkway width.
- Sidewalks often attached to curb.
- Moderate volume and moderate speed roadways.
- Often single land use.
- 1:10 – 1:4 building height to width ratio.
- Pedestrian grid spacing  $< 1/10$  mile.
- Vehicles have priority over pedestrians.

**Pedestrian Tolerant  
Sidewalks**

# Pedestrian Supportive Environments

## Transect



## Key Design Criteria

- 6'-8' sidewalks.
- Walkways buffered from traffic by planting strip.
- Moderate volumes and slower traffic speeds.
- Limited mixed-use.
- 1:4 – 1:2 building height to width ratio.
- Pedestrian grid spacing at 250'-330'.

**Pedestrian Supportive  
Sidewalks**



# Pedestrian Places

## Transect

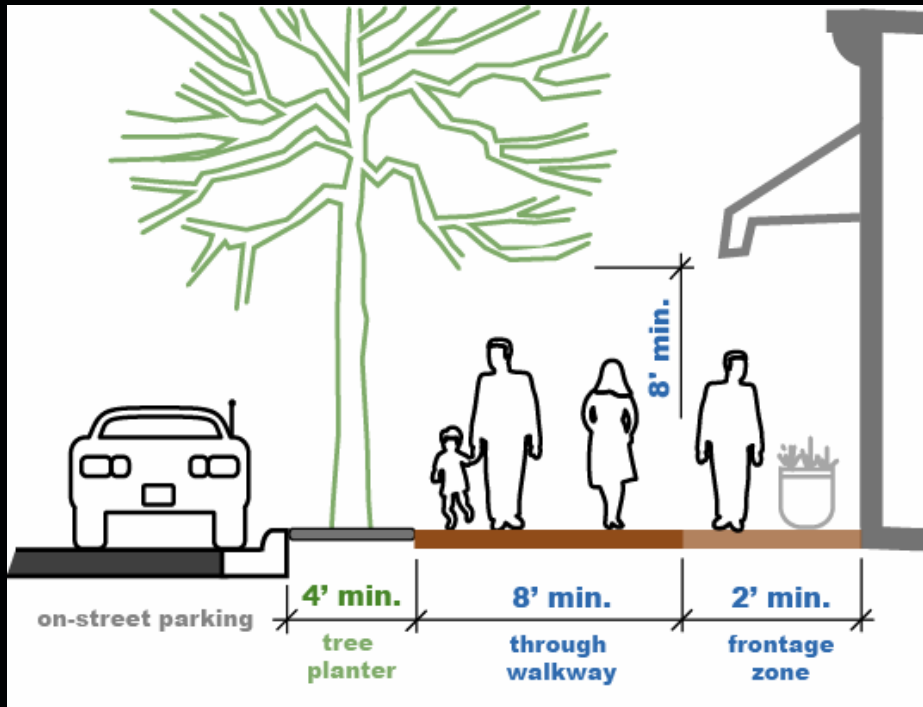
T1

T2

T3

T4

T5



## Pedestrian Place Sidewalks

## Key Design Criteria

- 10'-30' sidewalks/plazas provide space for pedestrian amenities.
- Shade trees in tree wells.
- Low volume and slow speed streets.
- Mixed-use, with at least 3 complimentary activities.
- 1:4 – 1:1 max. building height to width ratio.
- Pedestrian grid spacing <250'.
- Pedestrians have priority over vehicles.

# Follow-Up Information

[www.charlier.org](http://www.charlier.org)