Smart Growth & Mobility

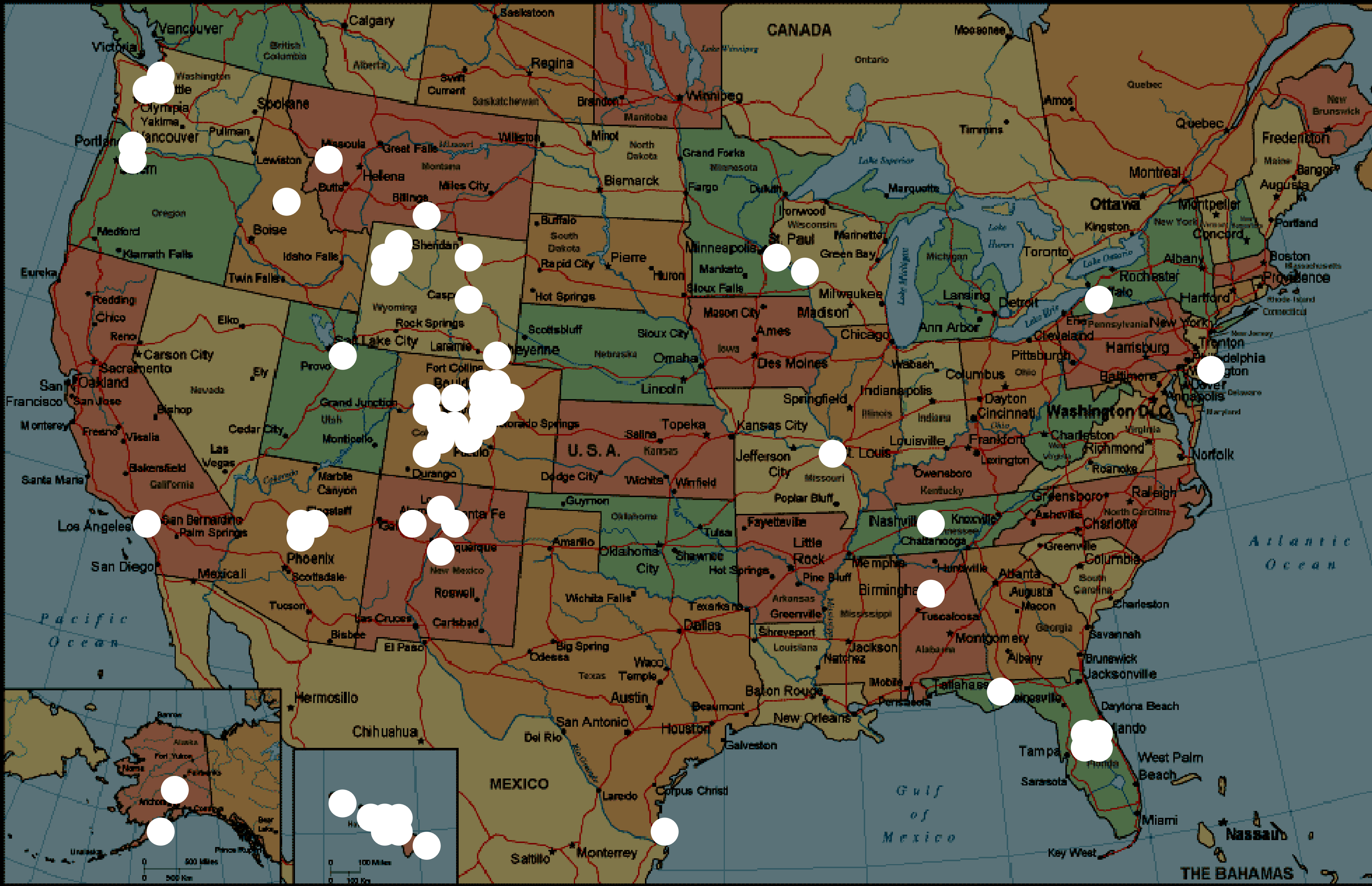
Casper

Charlier Associates, Inc.

Outline

- Smart Growth Mobility
- Suggestions for Casper

Our Work

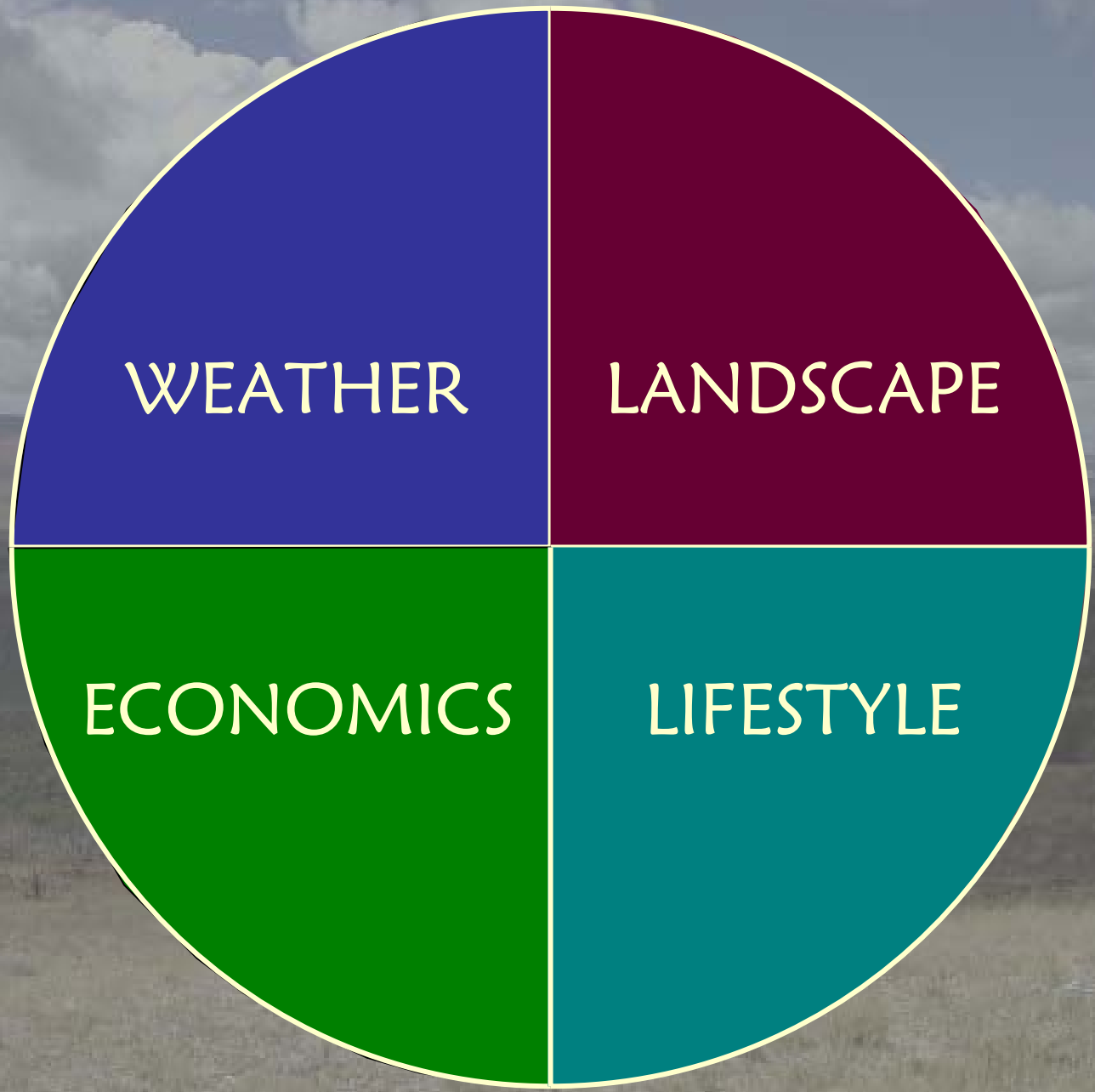


Smart Growth & Mobility

1. Balance & Diversification
2. Dense, Connected Networks
3. Street Design & Neighborhood Character
4. Role of Traffic Demand Forecasts
5. Role of Public Transit
6. Active Living
7. Placemaking
8. Sustainability & Flexibility
9. Public Empowerment
10. Accountability, Monitoring & Reporting


The
West

The West



Smart Growth & Mobility – Casper

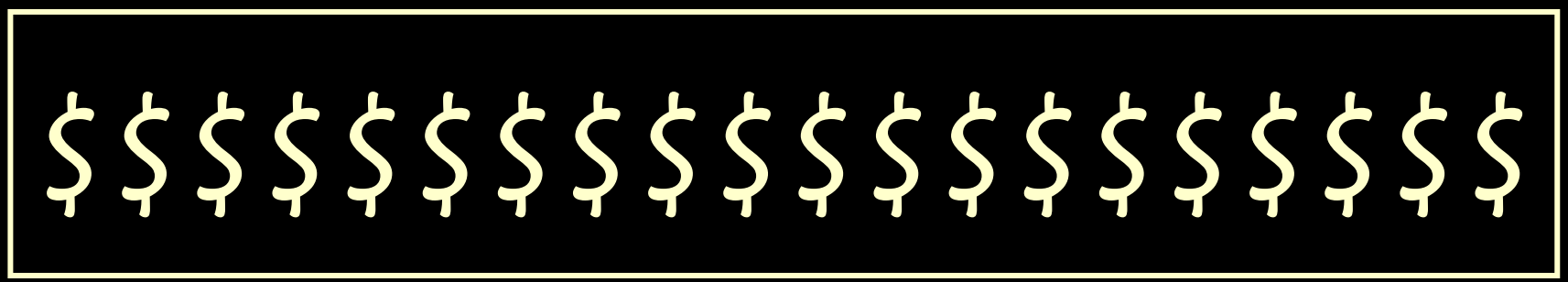
Suggested Priorities

1. Balance, Diversification, Flexibility
2. Dense, Connected Networks
3. Efficient Street Design

1

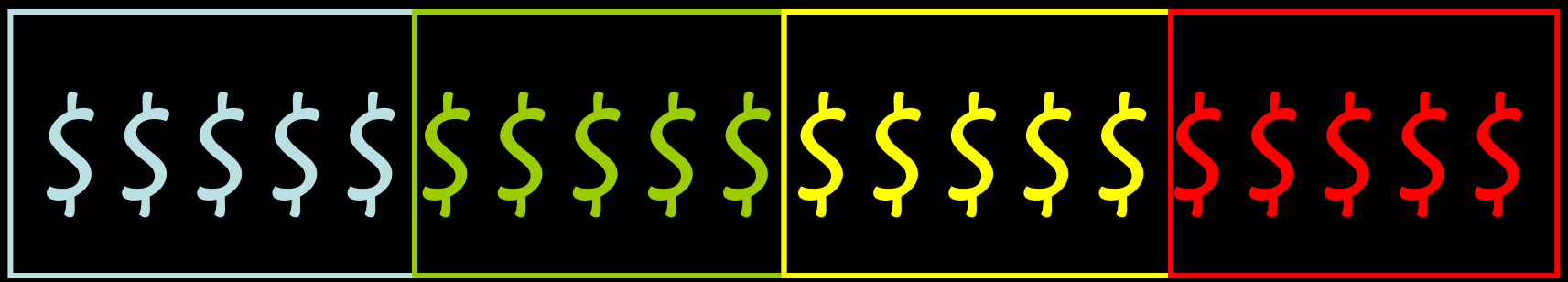
1. Balance, Diversification & Flexibility

Wise Investing



1. Balance, Diversification & Flexibility

Wise Investing



1. Balance, Diversification & Flexibility

a. Mobility Elements
b. Modal Diversification

A. Mobility Elements

Travel – Moving over distances

Circulation – Moving within areas

Access – Getting in the door

Built for...

Redmond

Seattle

...travel

Built for...

Flagstaff

Redmond

...circulation

Built for...

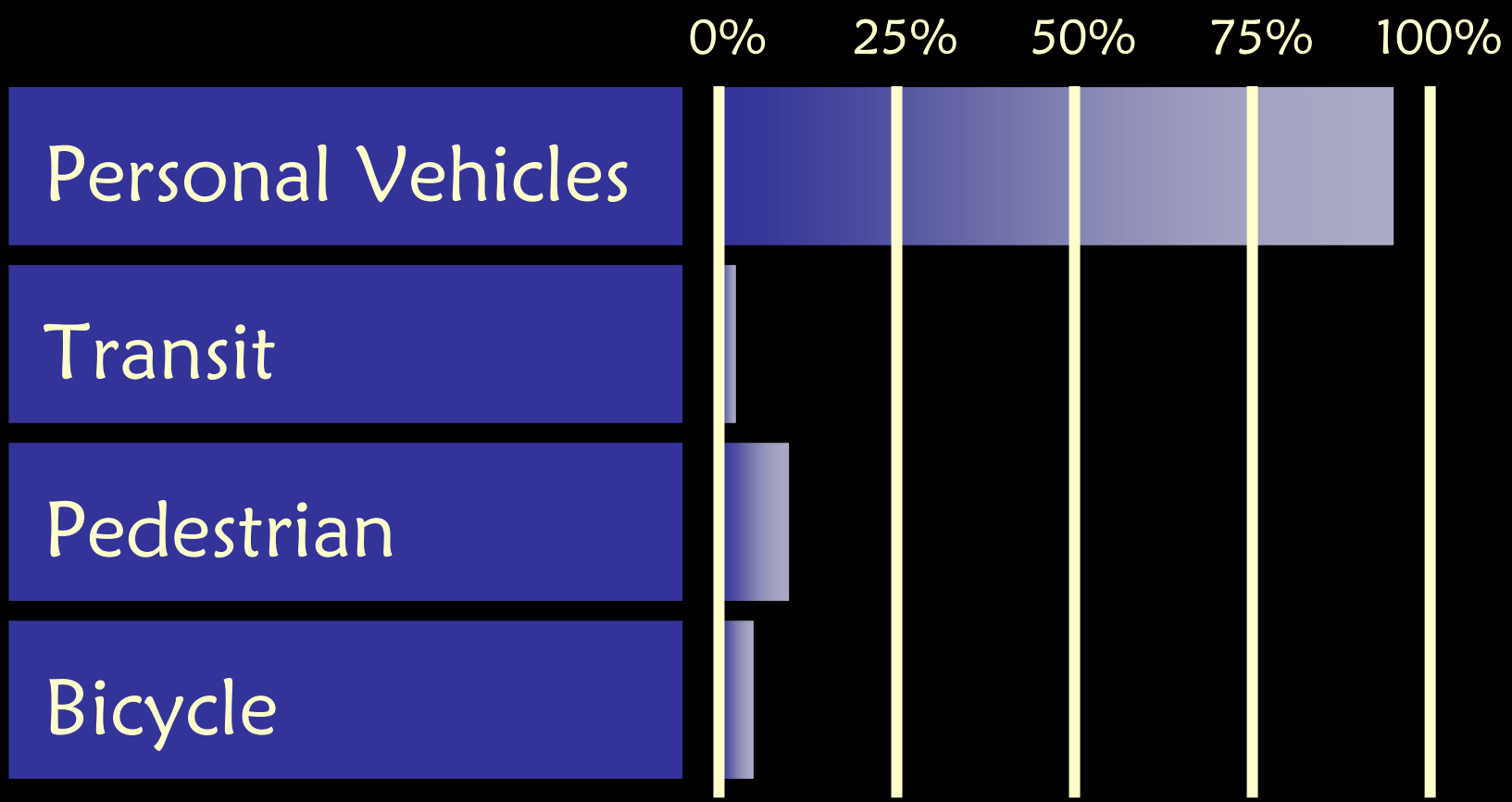
...access

We build
too much for travel
and
too little for circulation and
access

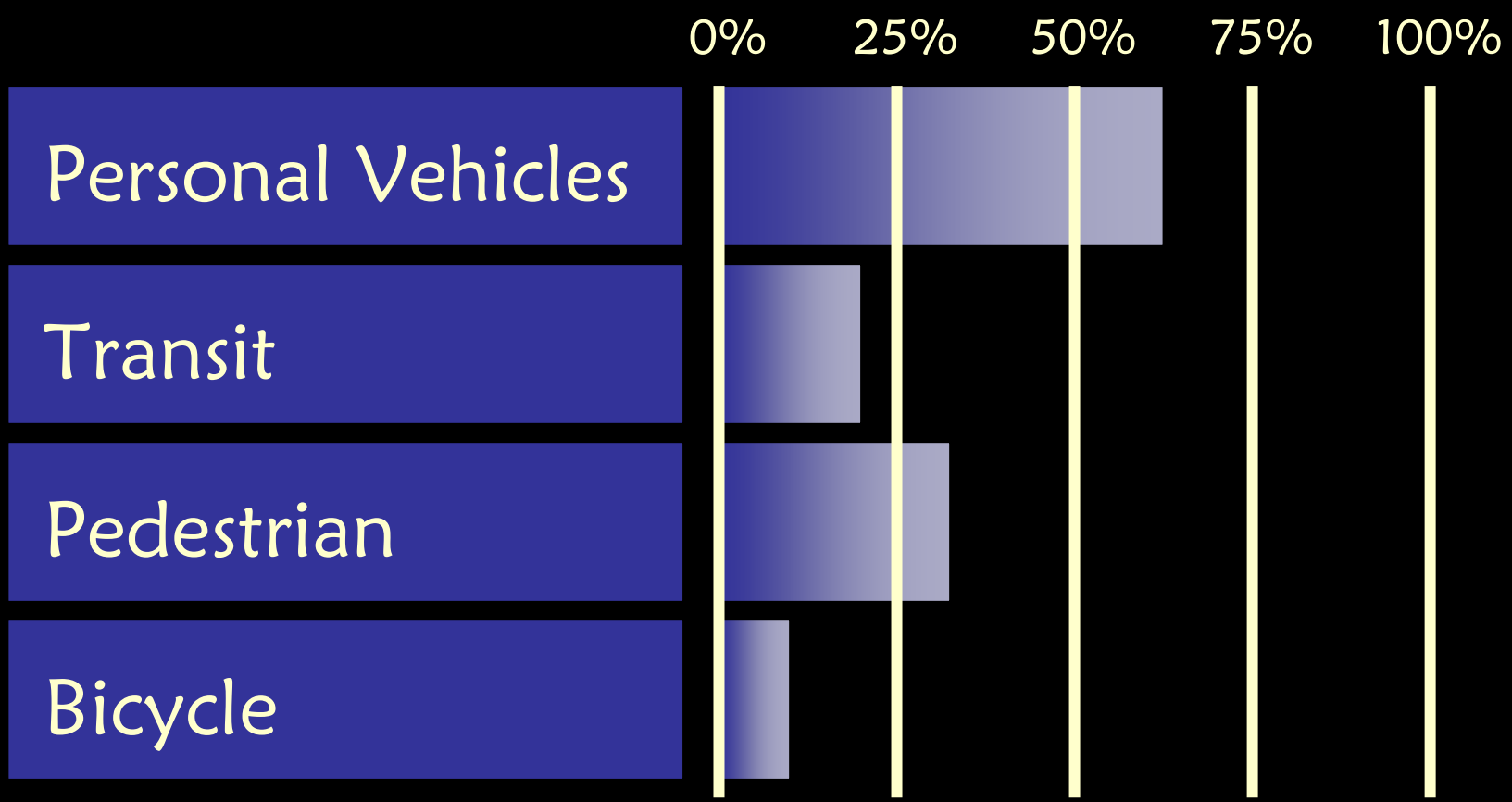

Redmond

Good circulation and access are more important to communities than travel capacity

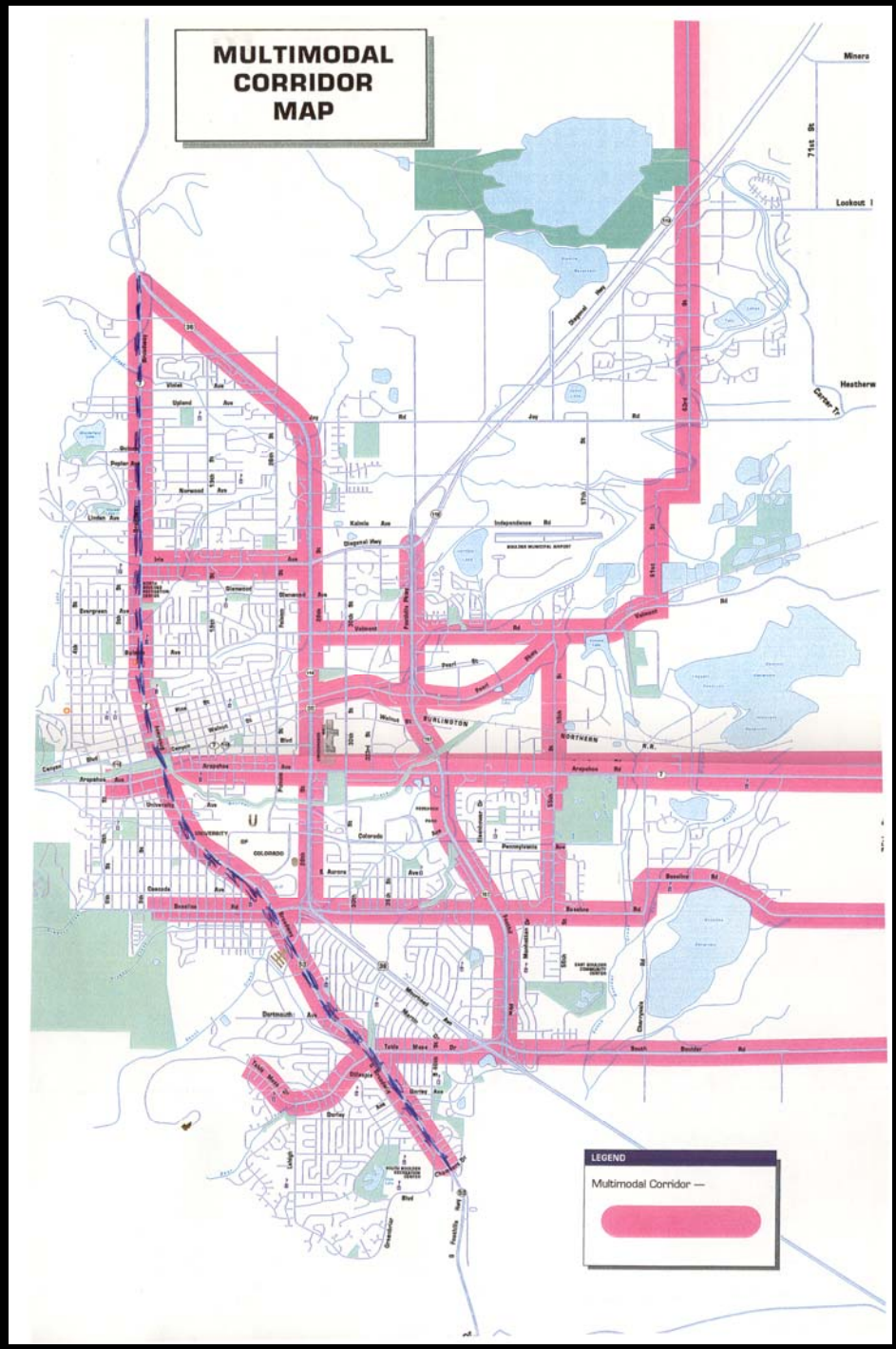
B. Modal Balance



Modal Balance



Boulder



Boulder

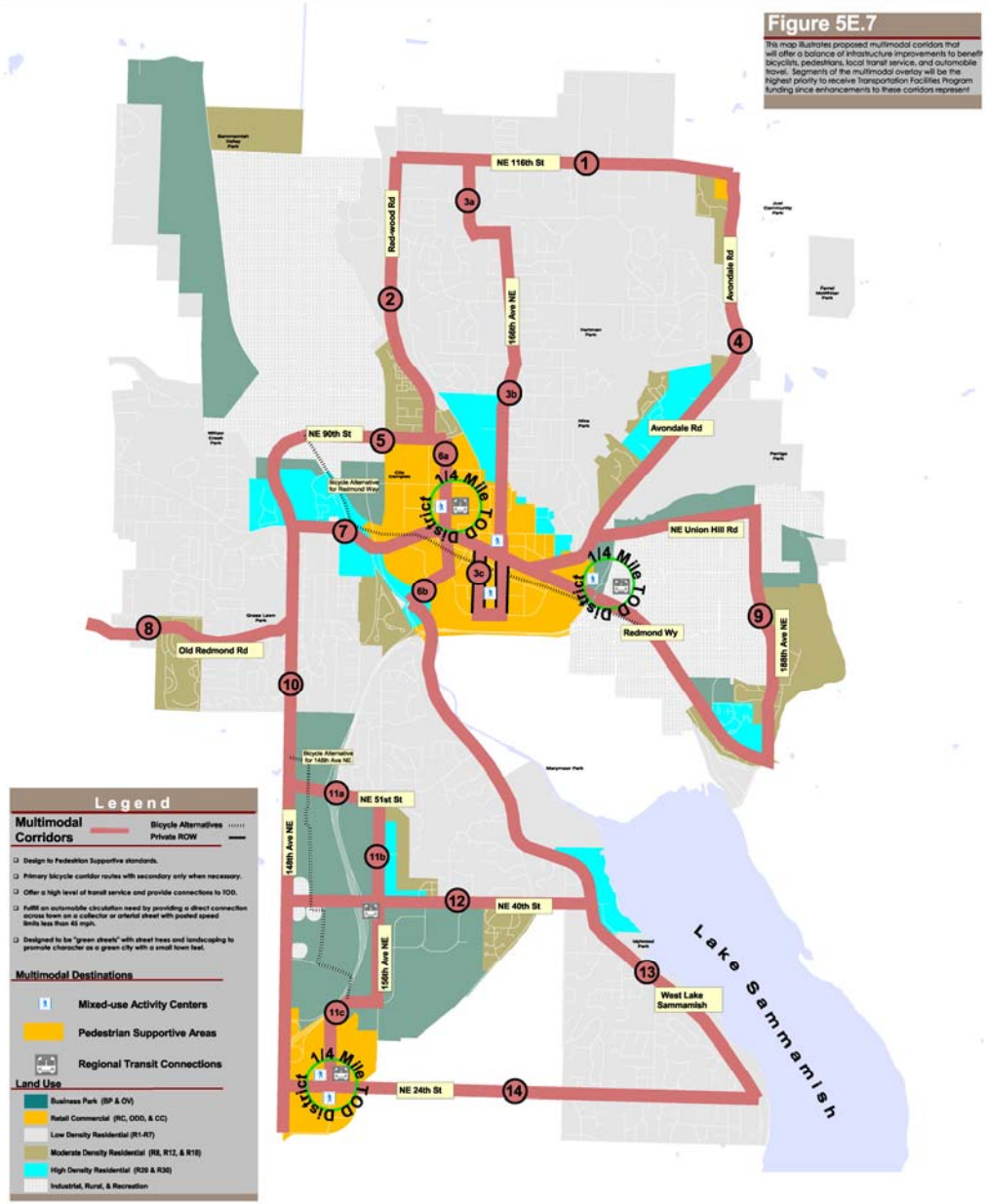
City of Redmond

Transportation Master Plan

Proposed Multimodal Overlay

Figure 5E.7

This map illustrates proposed multimodal corridors that will offer a balance of infrastructure improvements to benefit bicyclists, pedestrians, local transit service, and automobile travel. Segments of the multimodal overlay will be the highest priority to receive Transportation Facilities Program funding since enhancements to these corridors represent



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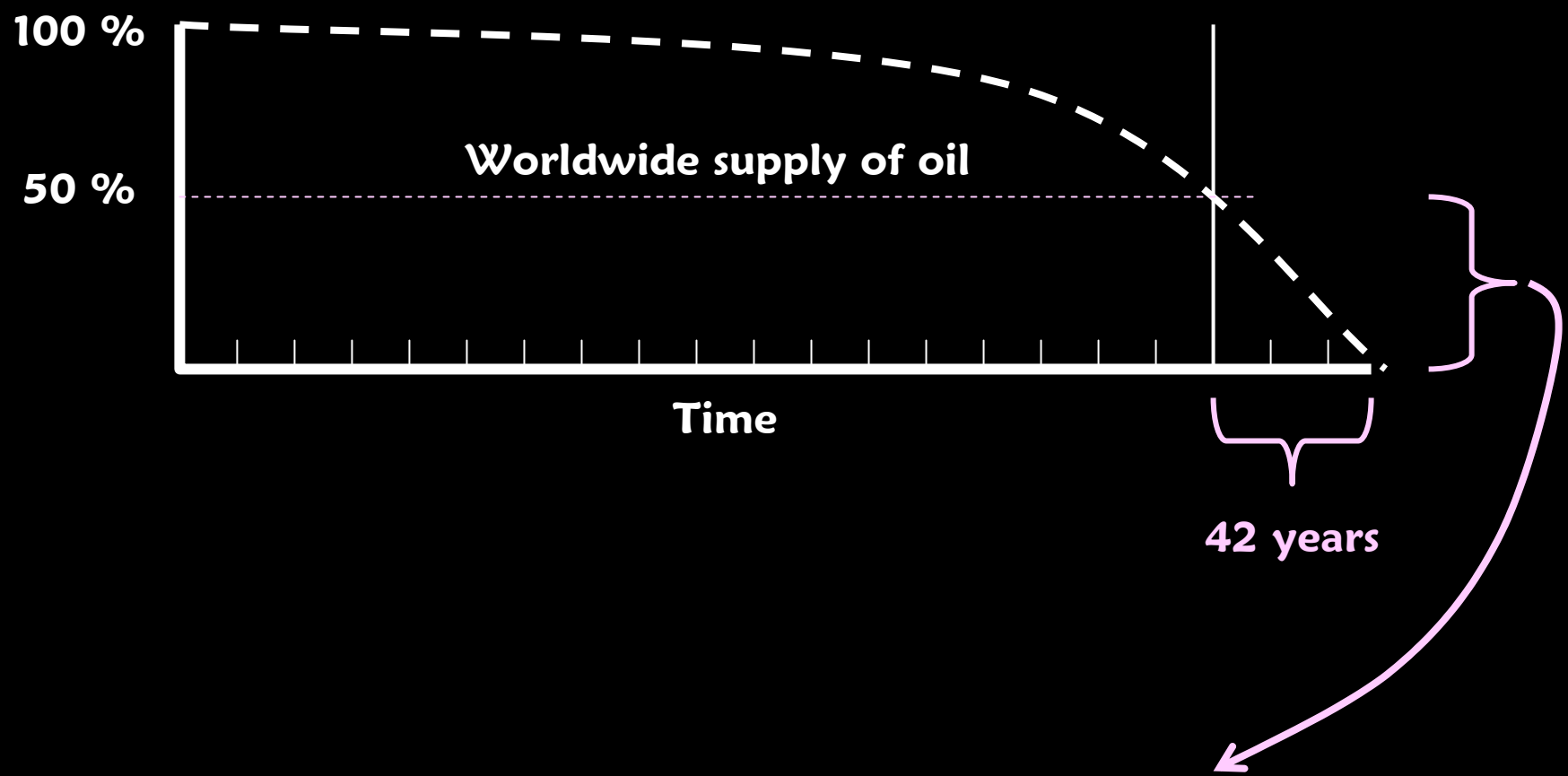
DECEMBER 2004

Redmond

Sustainability & Flexibility

Resiliency

Are we running out of gas?

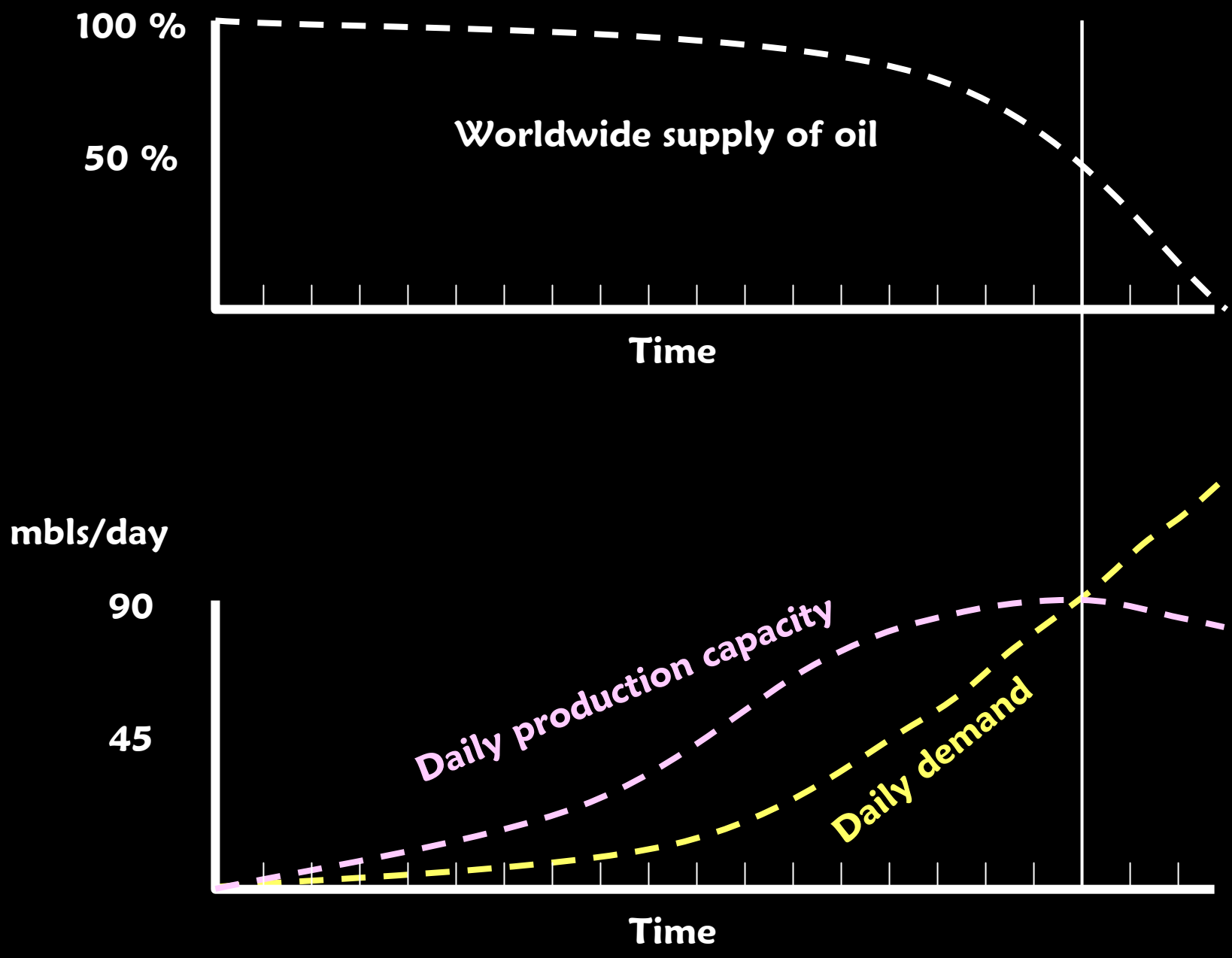

100 %
50 %
Worldwide supply of oil
Time
42 years
1.3 trillion barrels

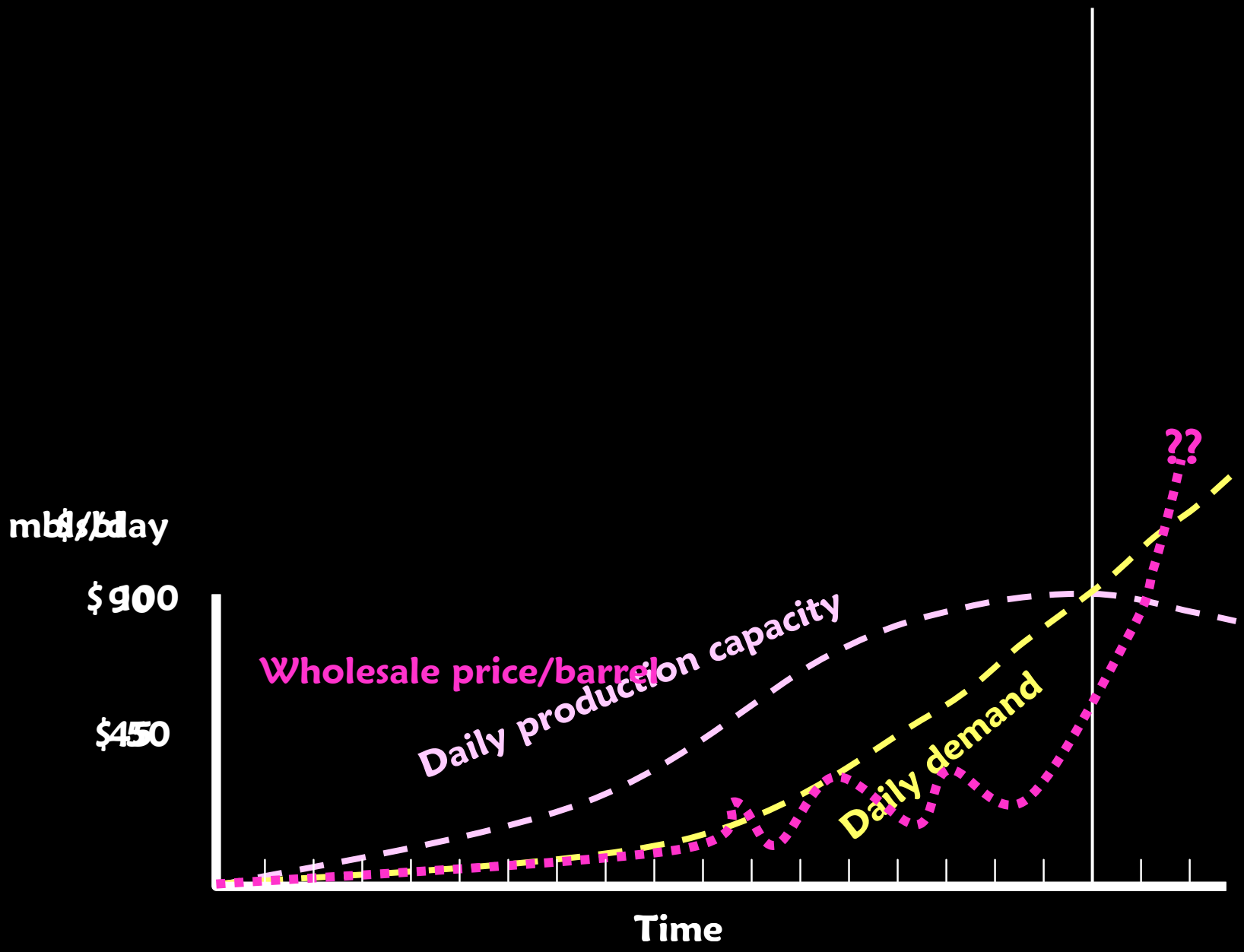
The stone age did not end…

…because we ran out of stones

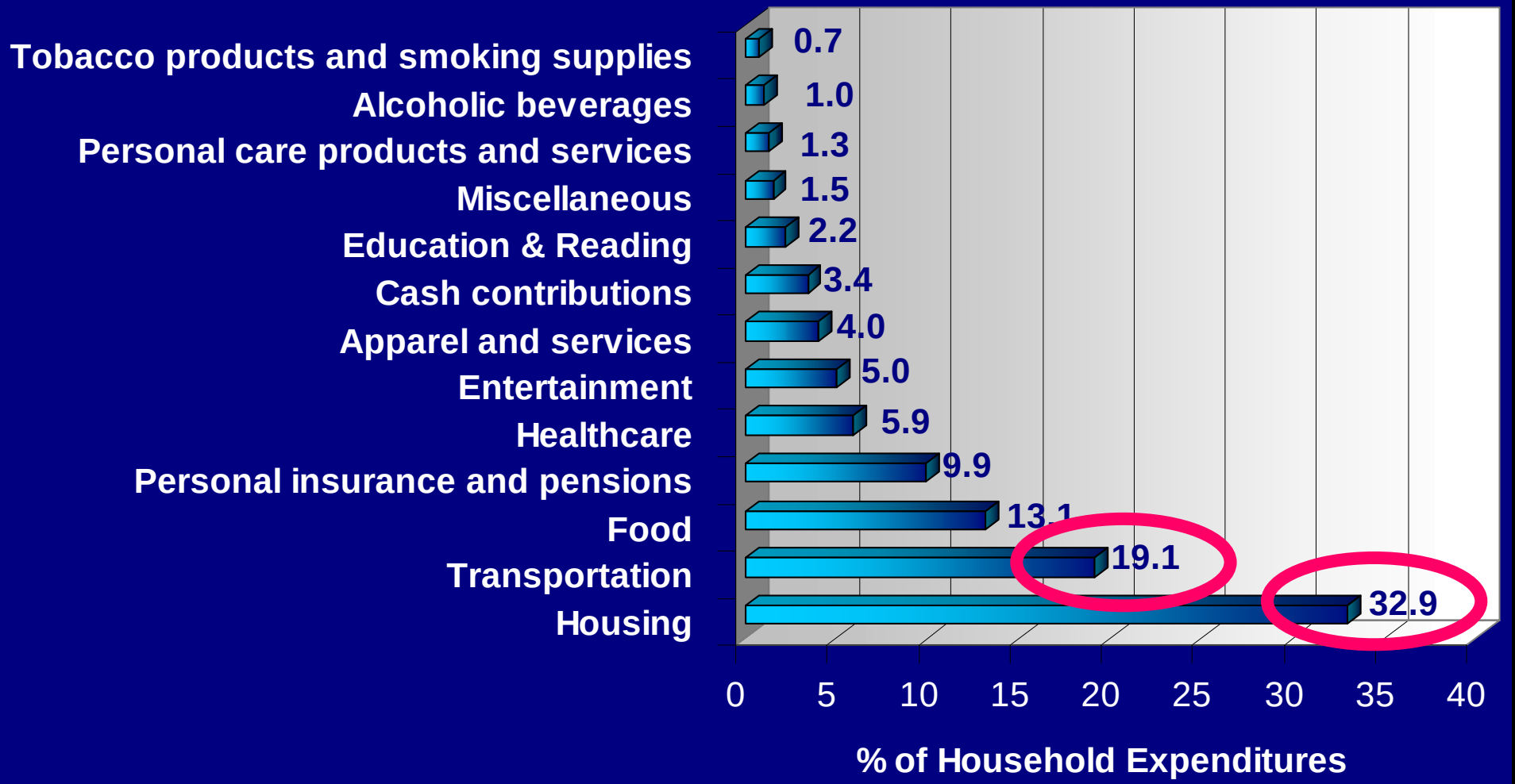
The end of the age of…

…cheap oil


100 %
50 %
Worldwide supply of oil
Time
mbls/day
90
45
Daily production capacity
Daily demand
Time


??
mb$/bd ay
$900
$450
Wholesale price/barrel
Daily production capacity
Daily demand
Time

U.S Household Expenditures



Real Families – 3 cars

	Mom	Dad	Daughter
Monday	SOV	SOV	SOV
Tuesday	SOV	SOV	SOV
Wednesday	SOV	SOV	SOV
Thursday	SOV	SOV	SOV
Friday	SOV	SOV	SOV
Saturday	--	SOV	--
Sunday	varies	varies	varies

Real Families – 2 cars

	Mom	Dad	Daughter
Monday	SOV	Transit	SOV
Tuesday	SOV	SOV	Bike
Wednesday	SOV	Transit	SOV
Thursday	SOV	SOV	Bike
Friday	Bike	Transit	SOV
Saturday	--	SOV	--
Sunday	varies	varies	varies

One less car: - $4,000/yr.
(net about $3,500)*

At least $50,000 in additional
mortgage capacity

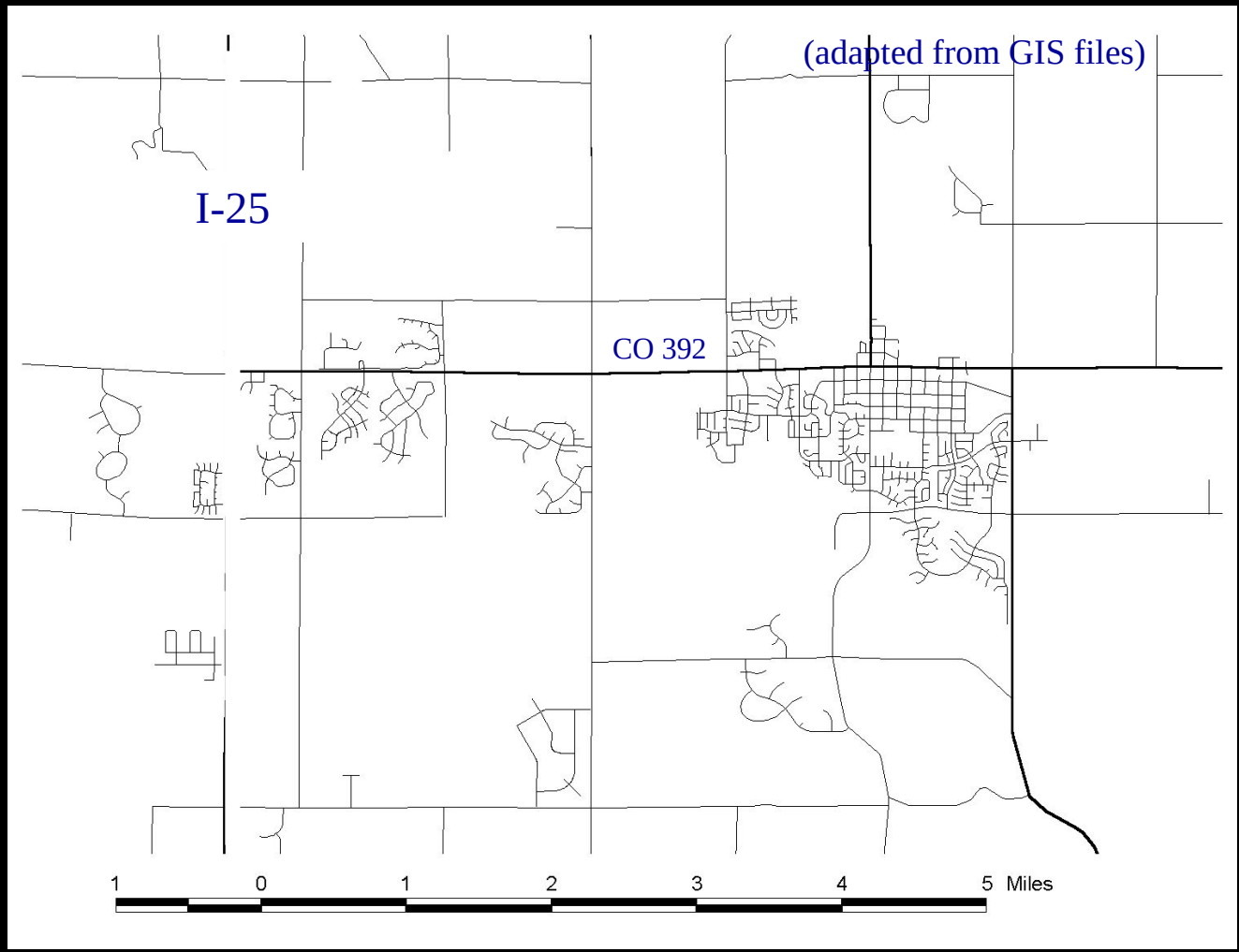
* assumes 2nd or 3rd car for household

2

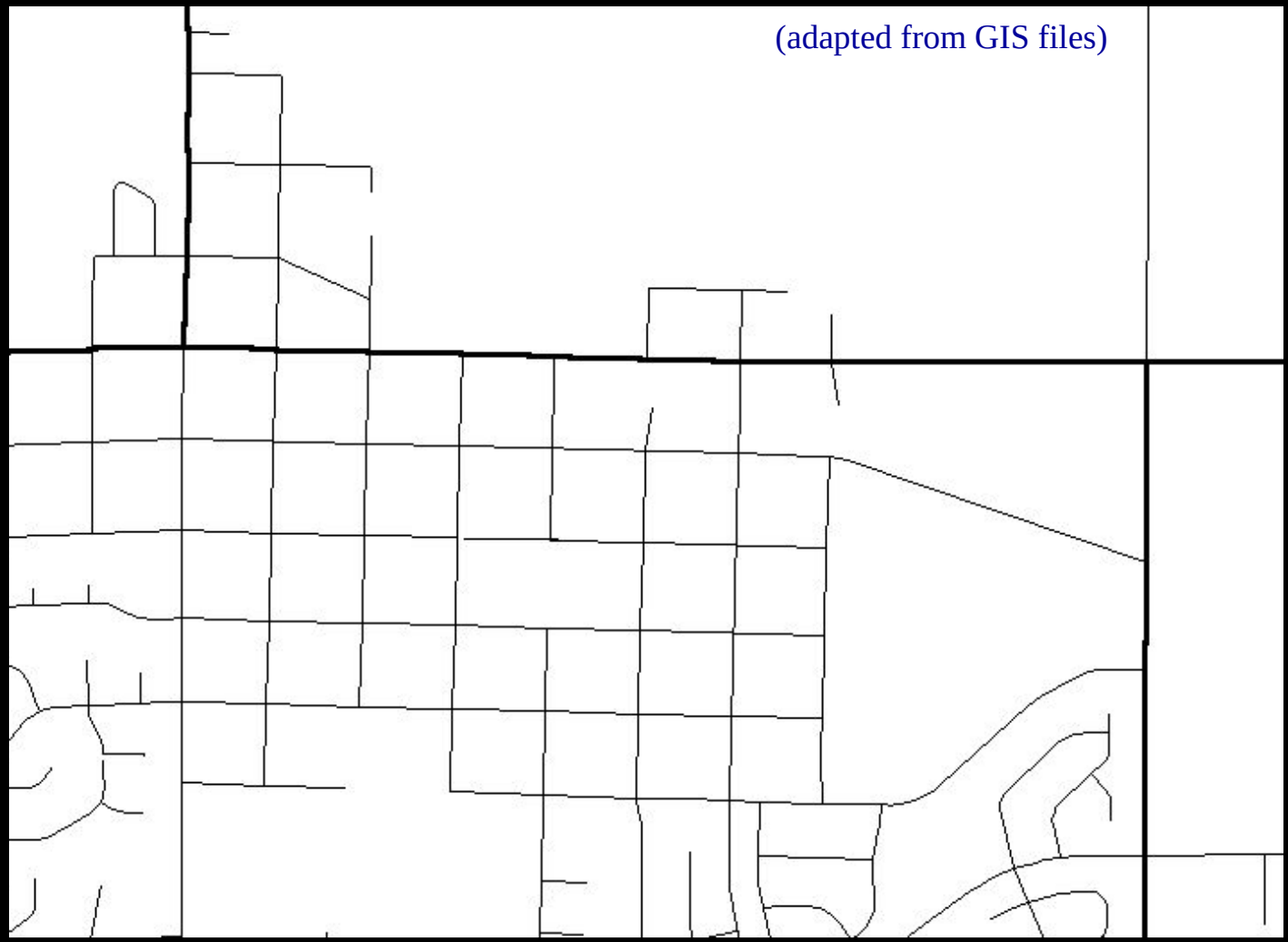
2. Connected Networks

Traffic Diffusion

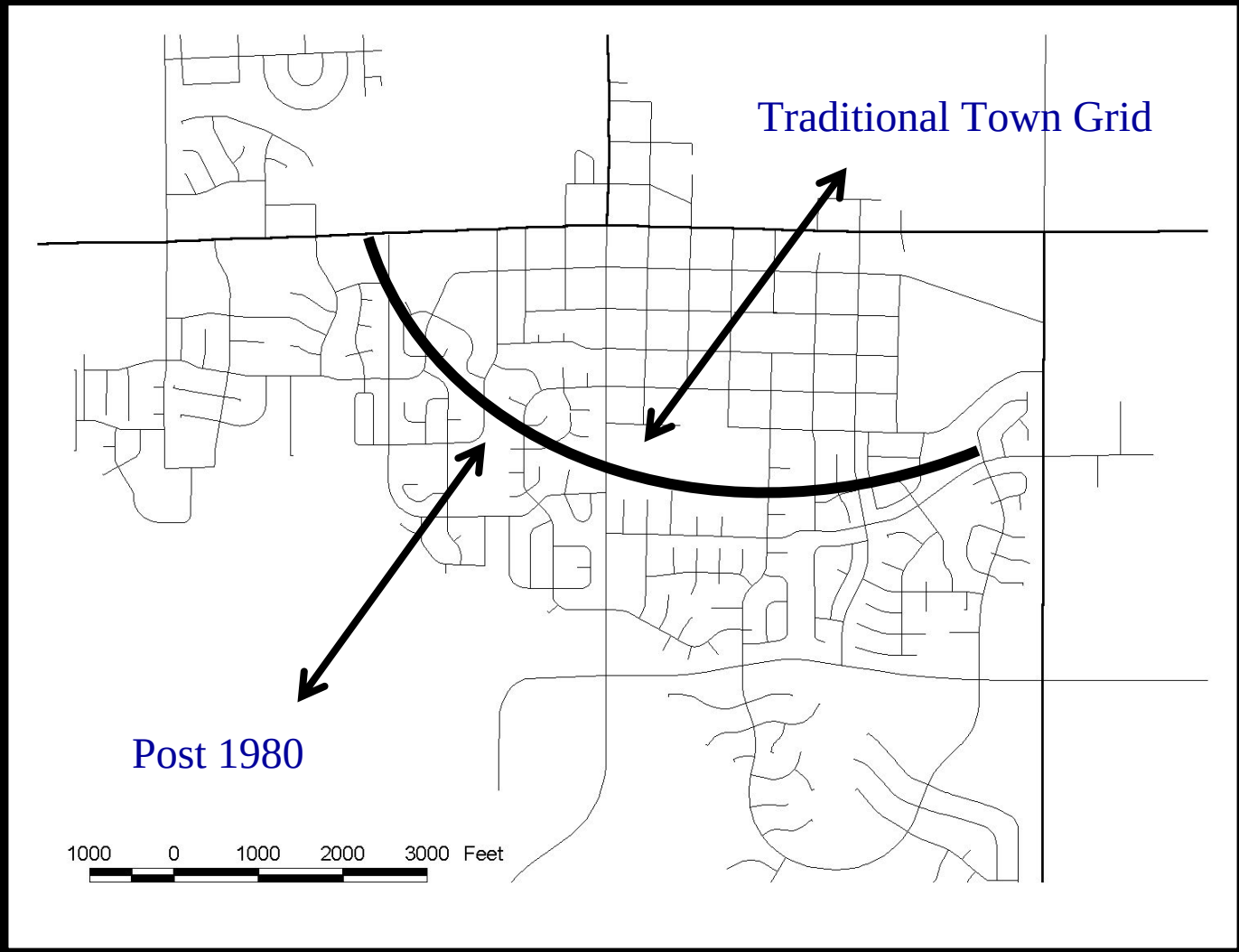
A Colorado Community



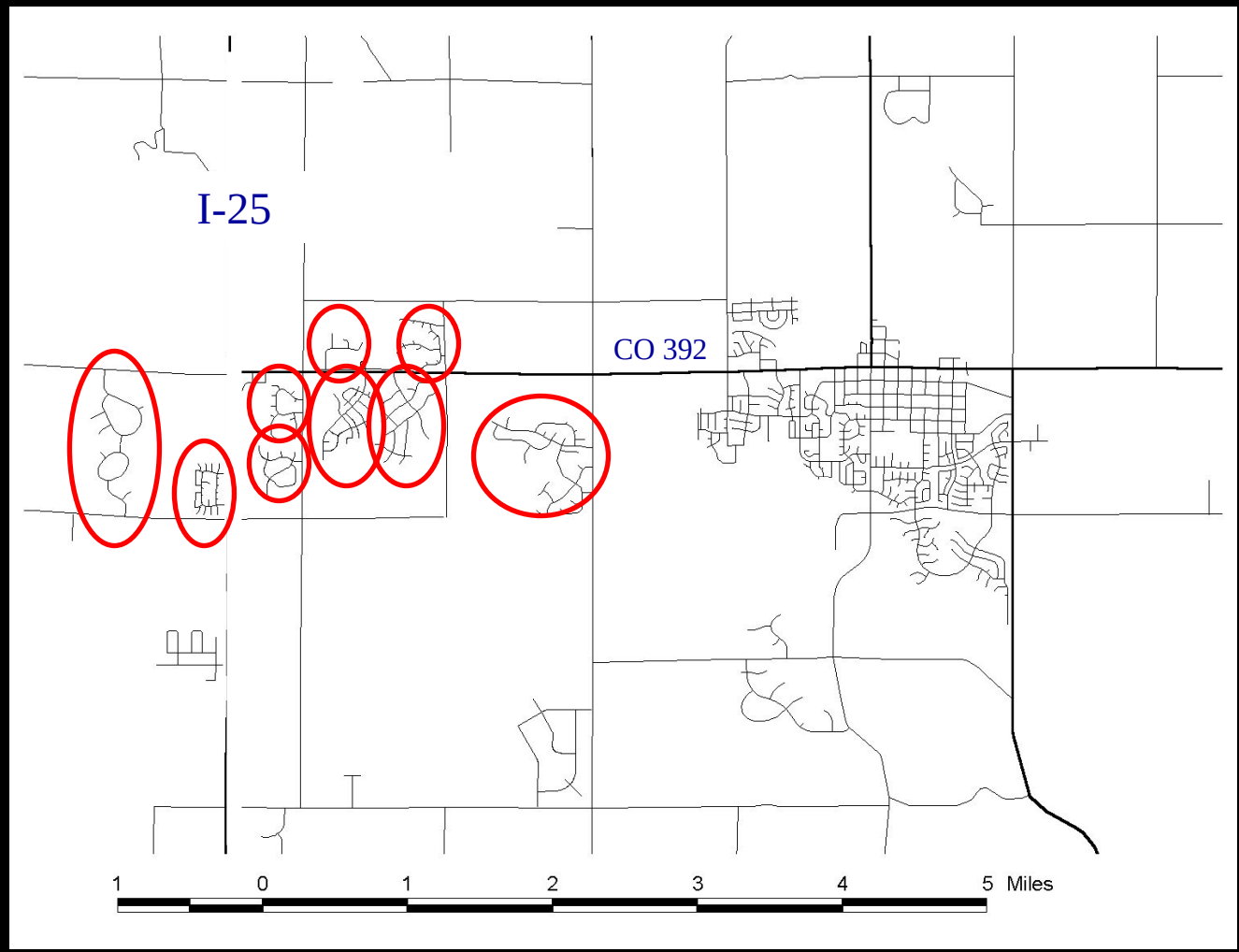
The Original Town



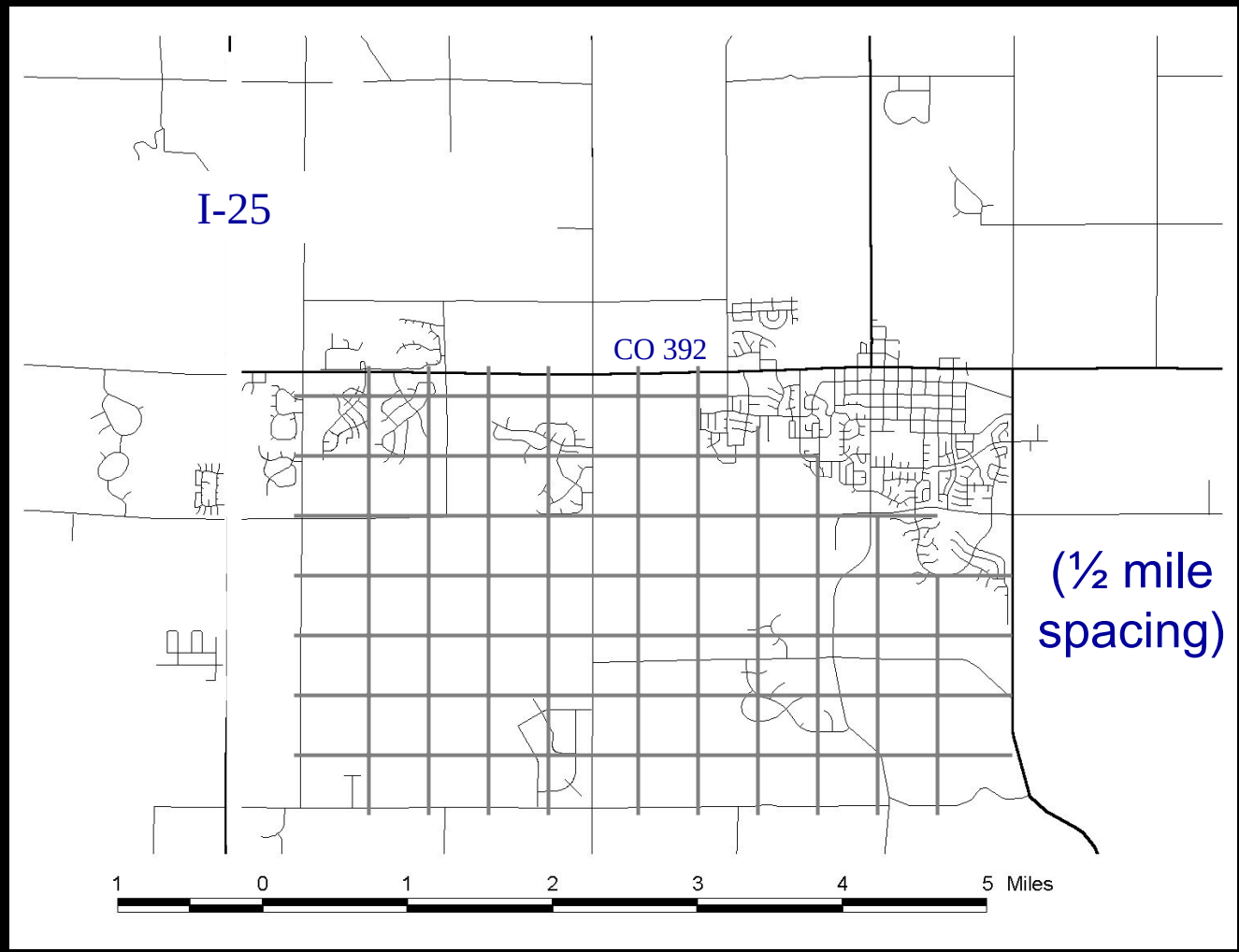
First Tier - New Development



1990s Invasion of the "Pods"

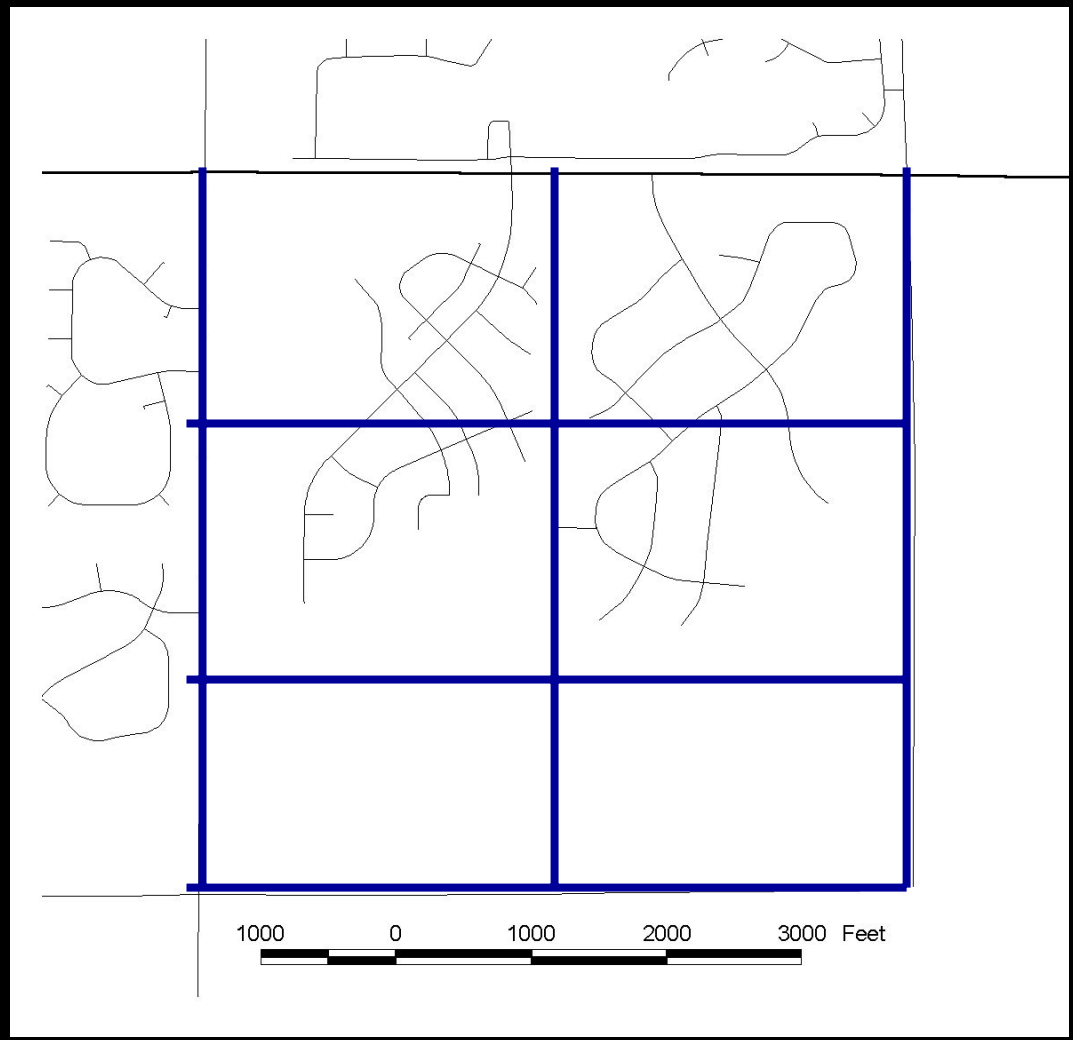


A 40-Year Look: Collectors



Lost Opportunity

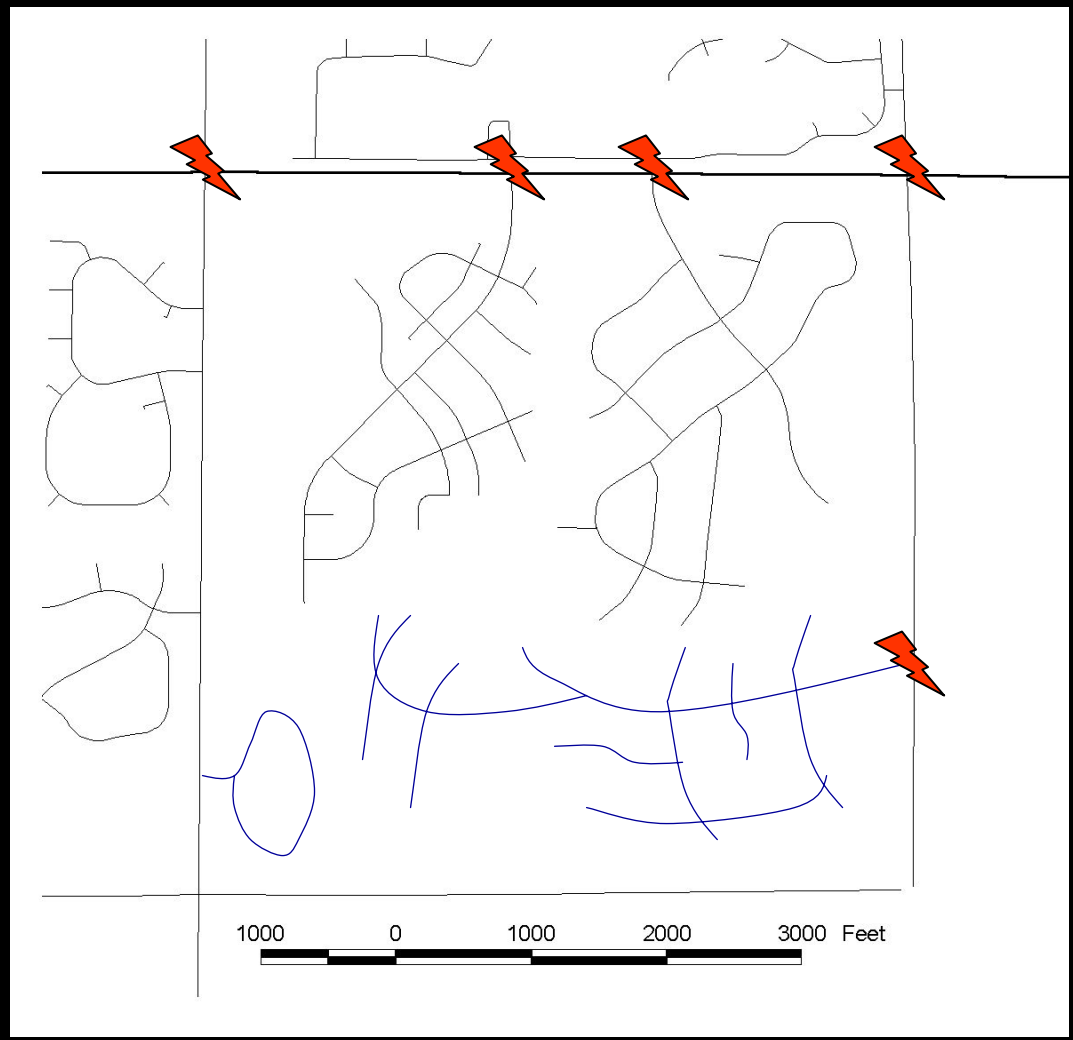
Pods take access from the arterial highway and collectors are no longer feasible.



Build Out

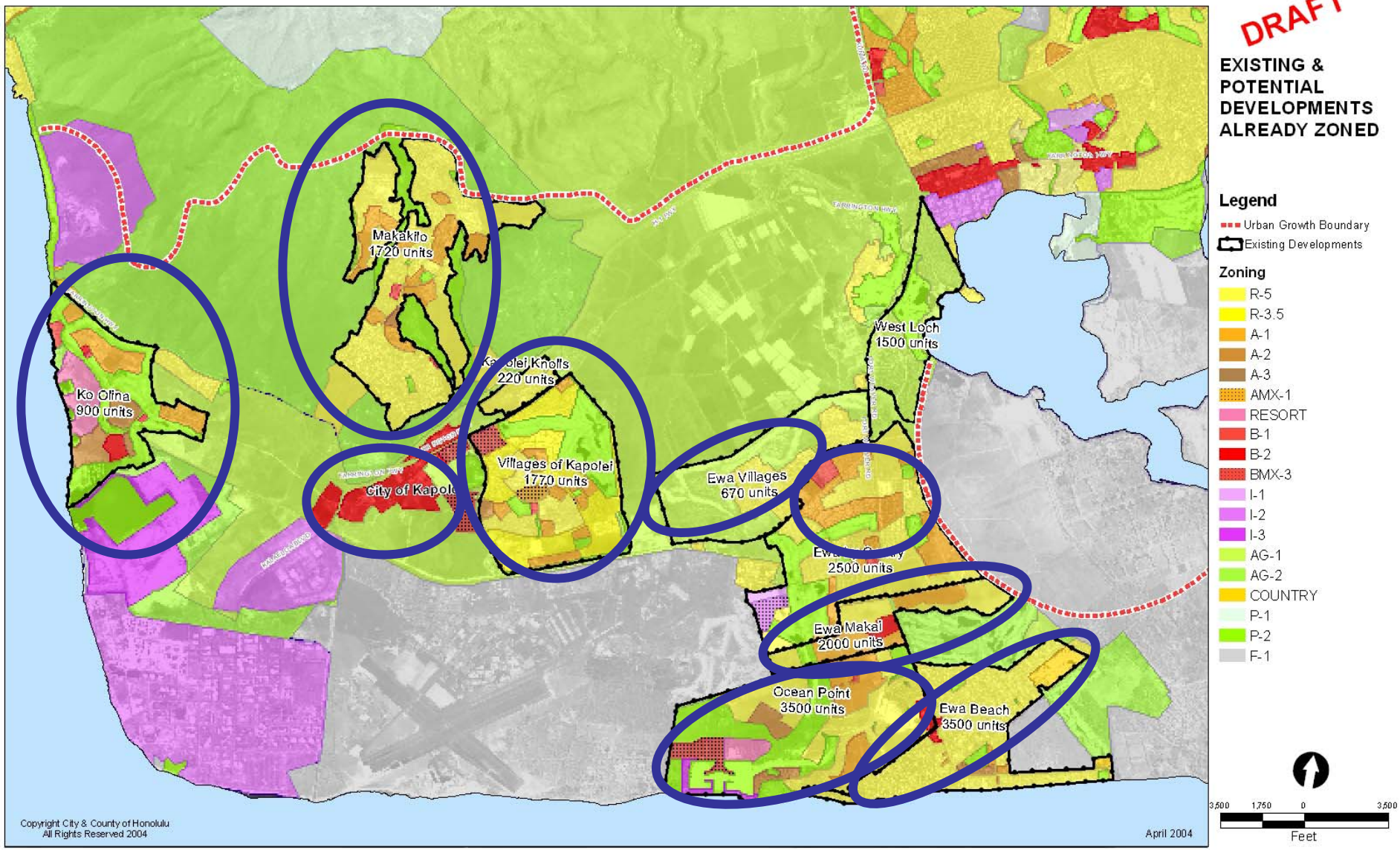
What will actually happen . . .

Trouble intersections

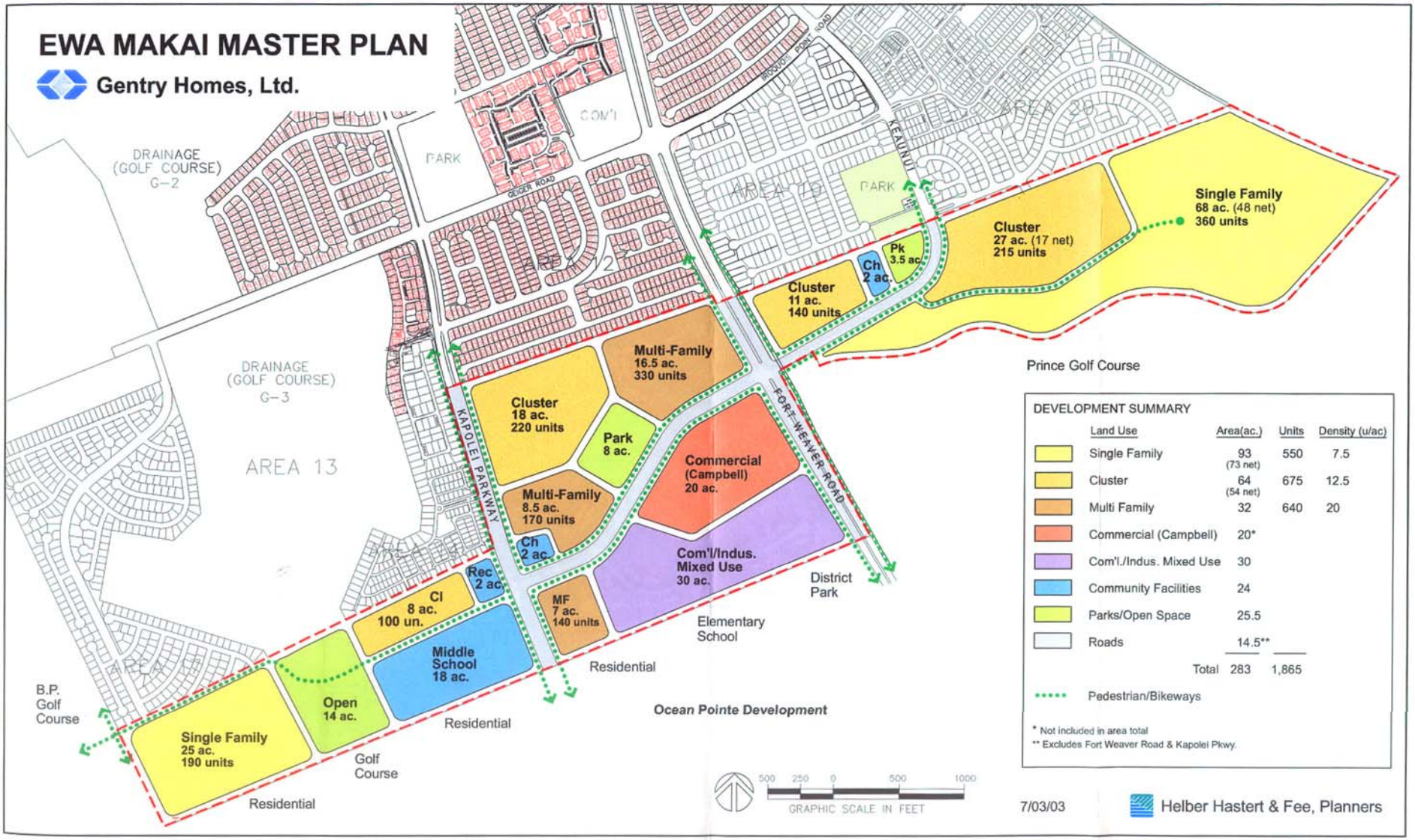


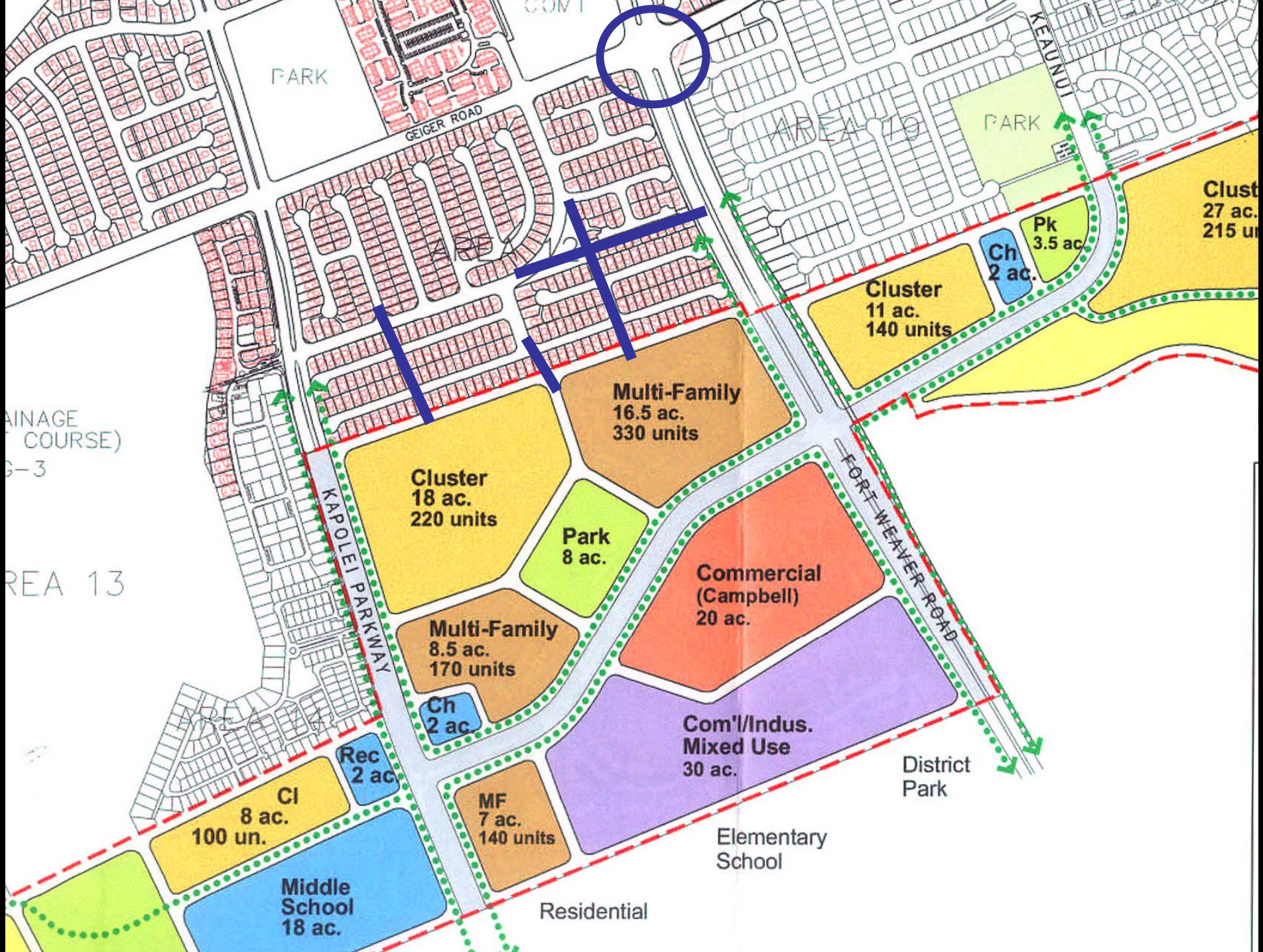

CHERRYVALE F.P.D.
CHERRYVALE
CHERRYVALE F.P.D.
LADDER 1

EWA - HONOLULU



Missed Opportunities (permanent)

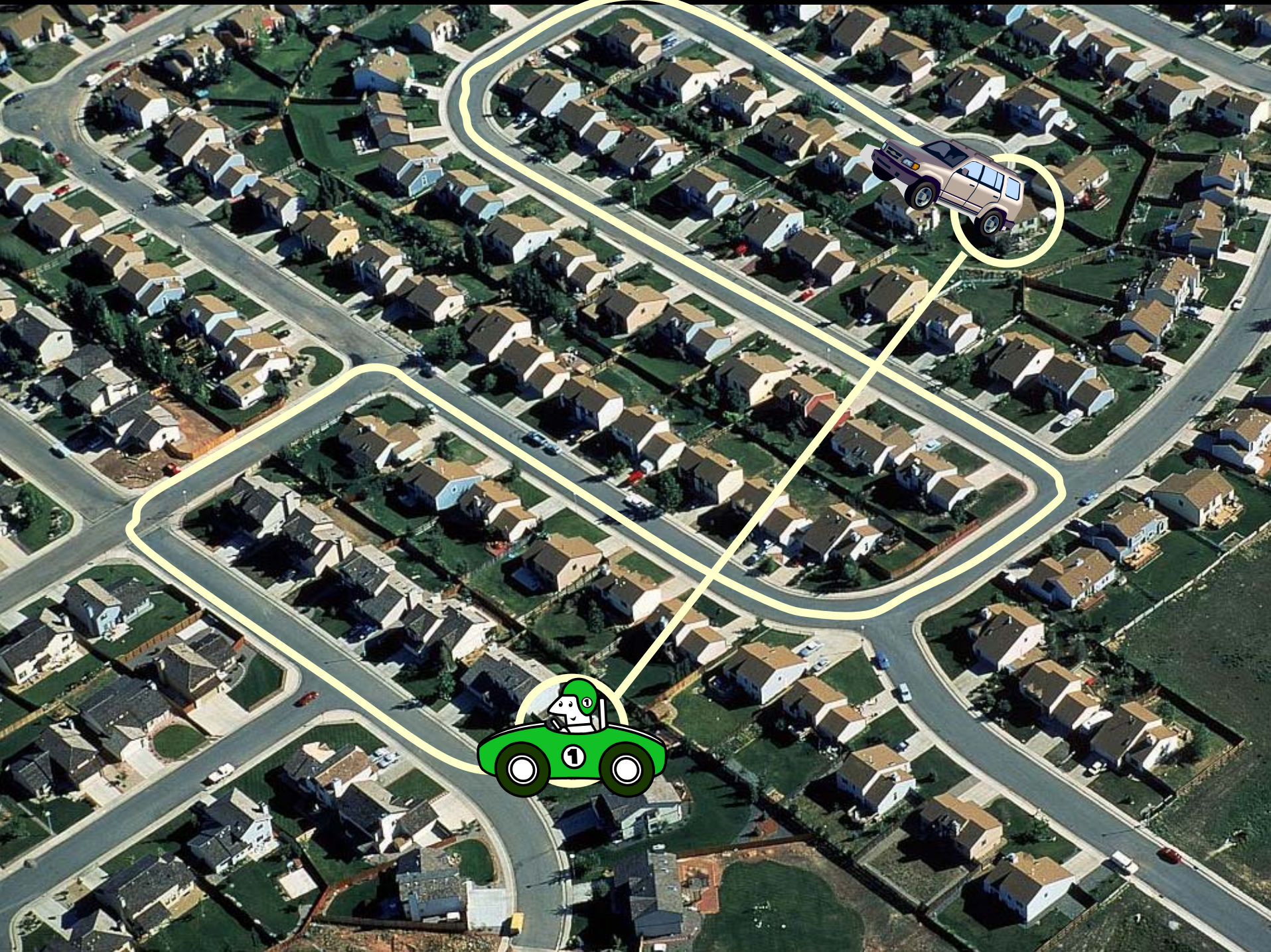


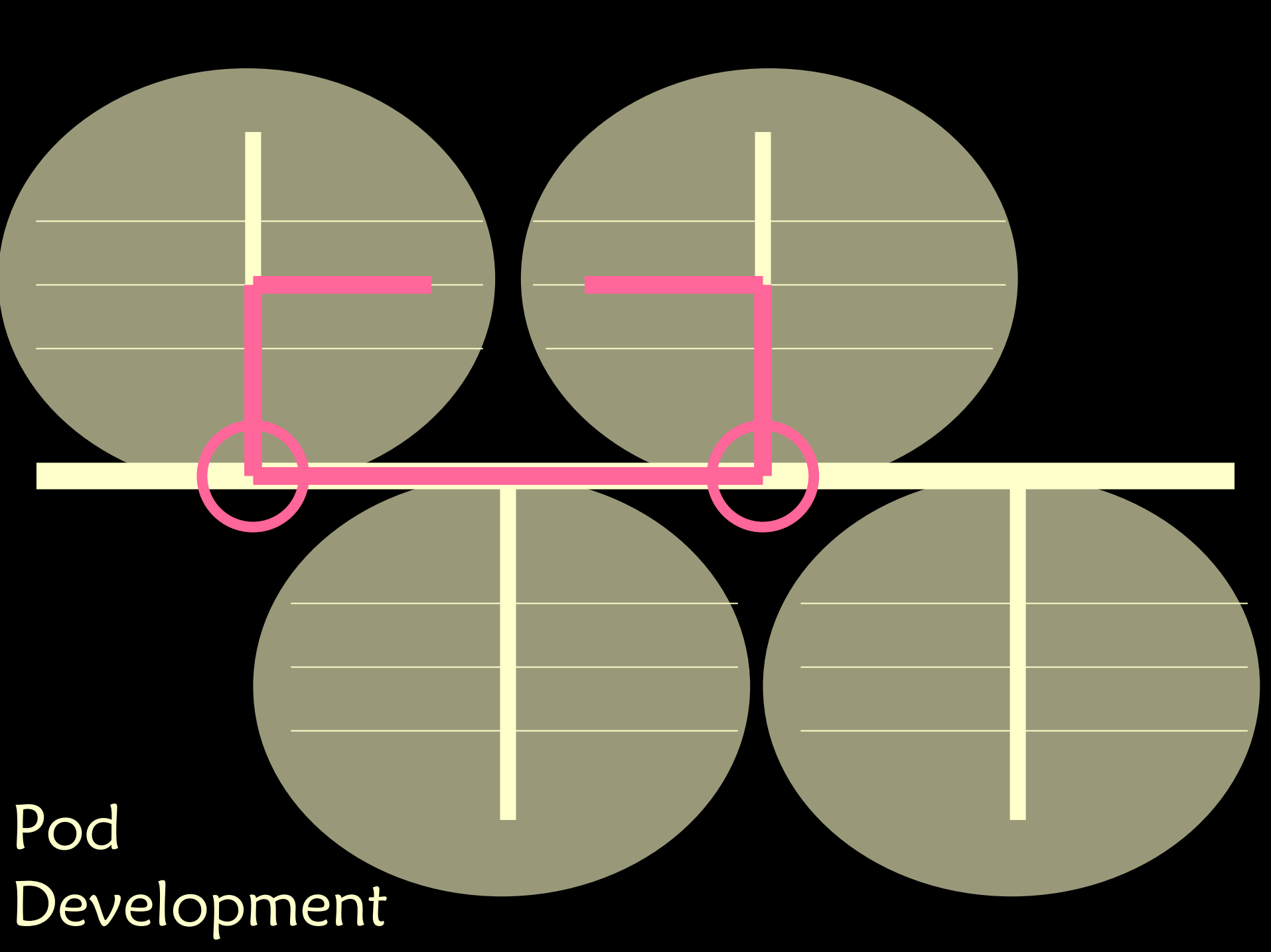

PARK
GEIGER ROAD
AREA 12
AREA 19
PARK
KEAUNUI
Cluster
11 ac.
140 units
Ch
2 ac.
Pk
3.5 ac.
Clust
27 ac.
215 u
Multi-Family
16.5 ac.
330 units
Cluster
18 ac.
220 units
Park
8 ac.
KAPOLEI PARKWAY
FORT WEAVER ROAD
Commercial
(Campbell)
20 ac.
Multi-Family
8.5 ac.
170 units
Ch
2 ac.
Com'l/Indus.
Mixed Use
30 ac.
Rec
2 ac.
CI
8 ac.
100 un.
MF
7 ac.
140 units
District
Park
Elementary
School
Middle
School
18 ac.
Residential
AINAGE
COURSE)
G-3
REA 13

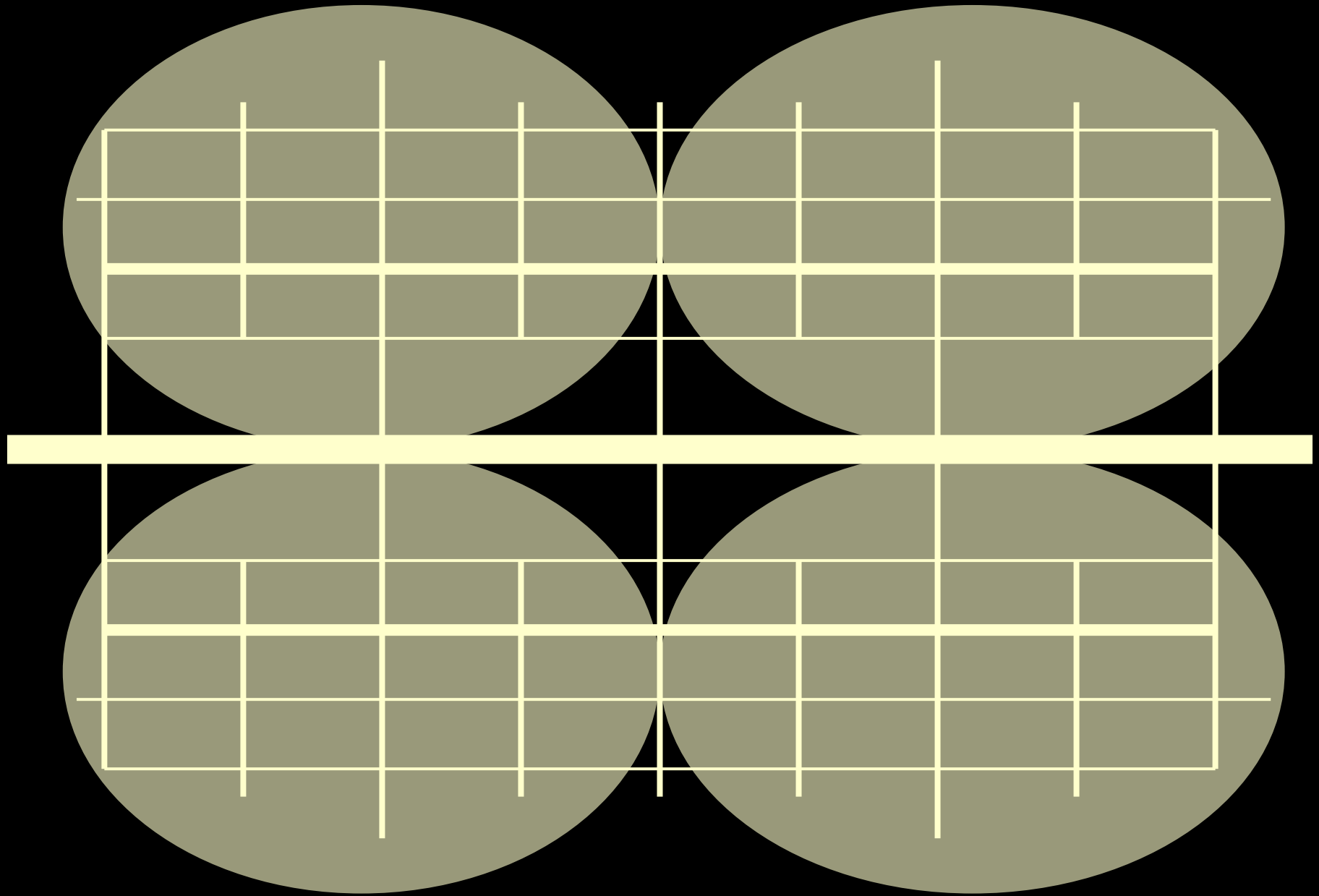

LEXINGTON
ENGINE
2

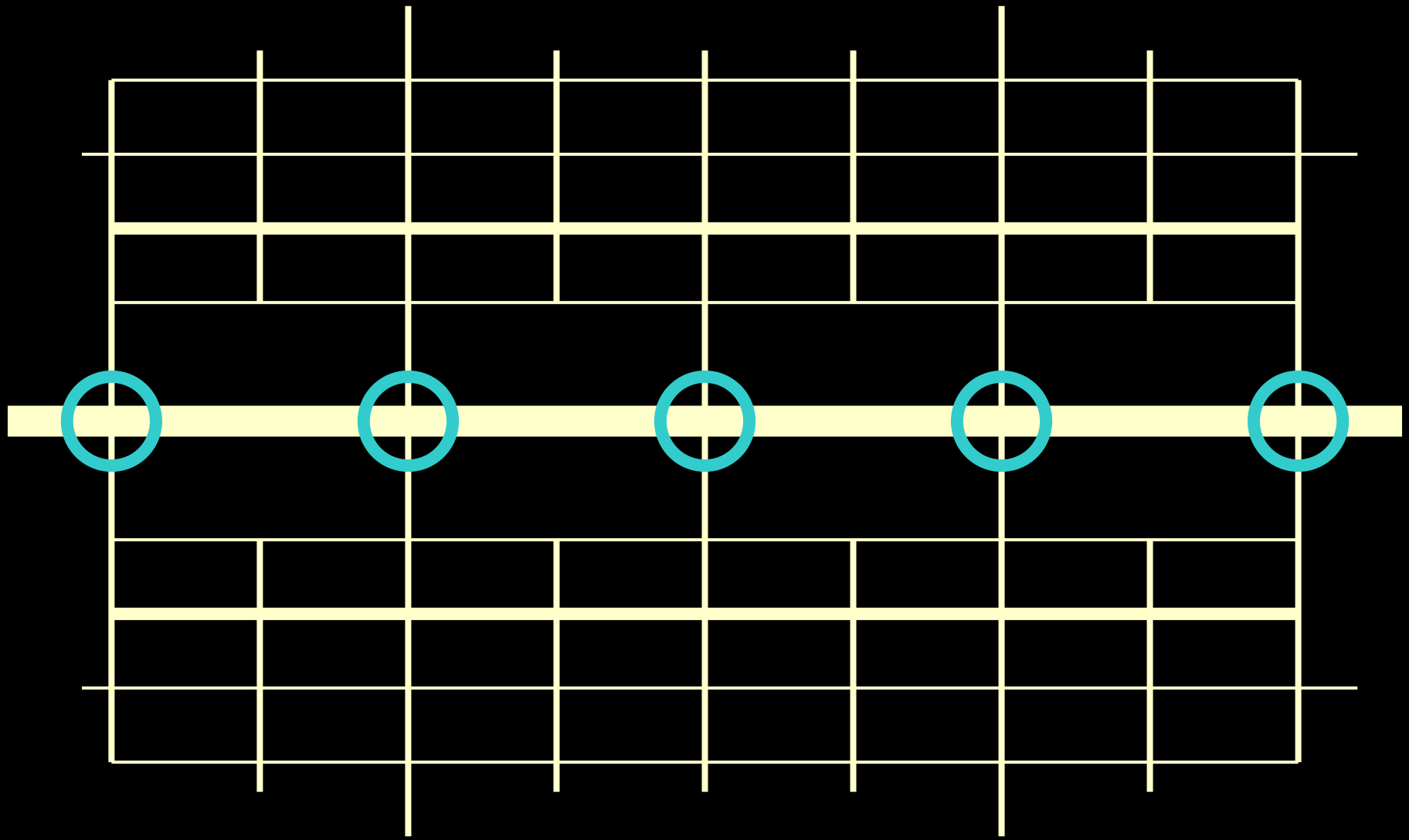
Impacts of Poor Connectivity

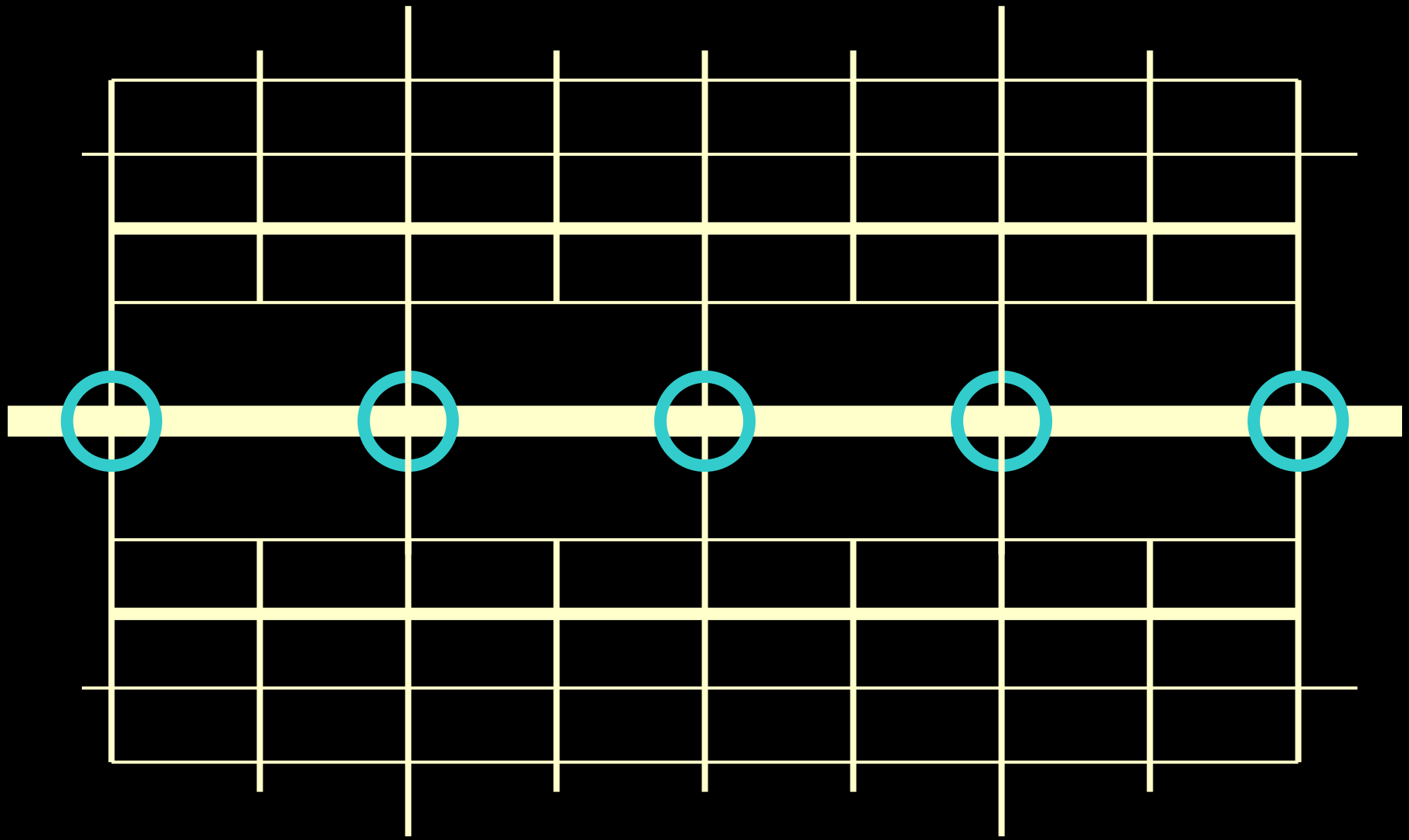
- Massive, congested arterials
- Increased driving/household
- Transit voids
- Inactive living
- Poor emergency service access
- Reduced travel safety

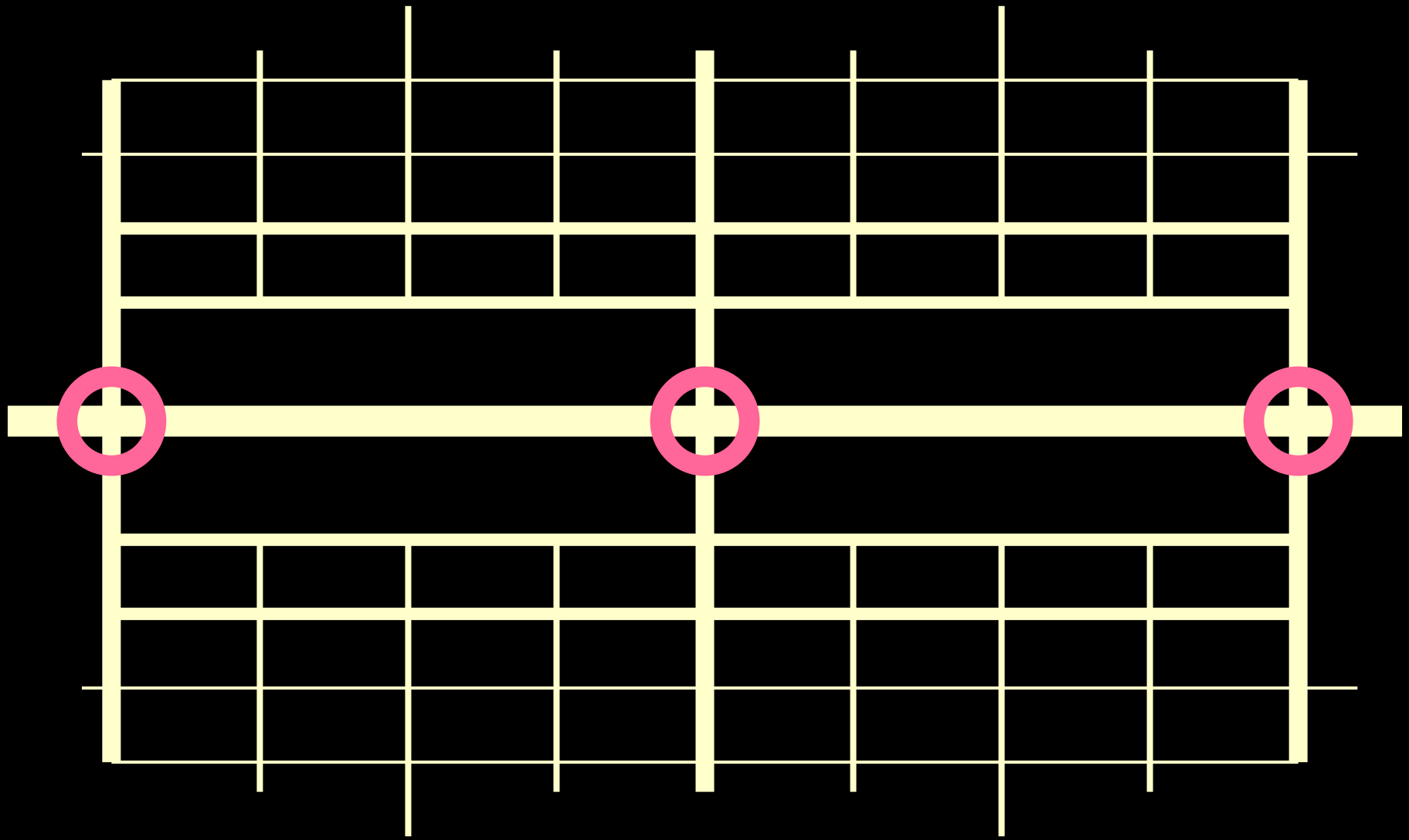


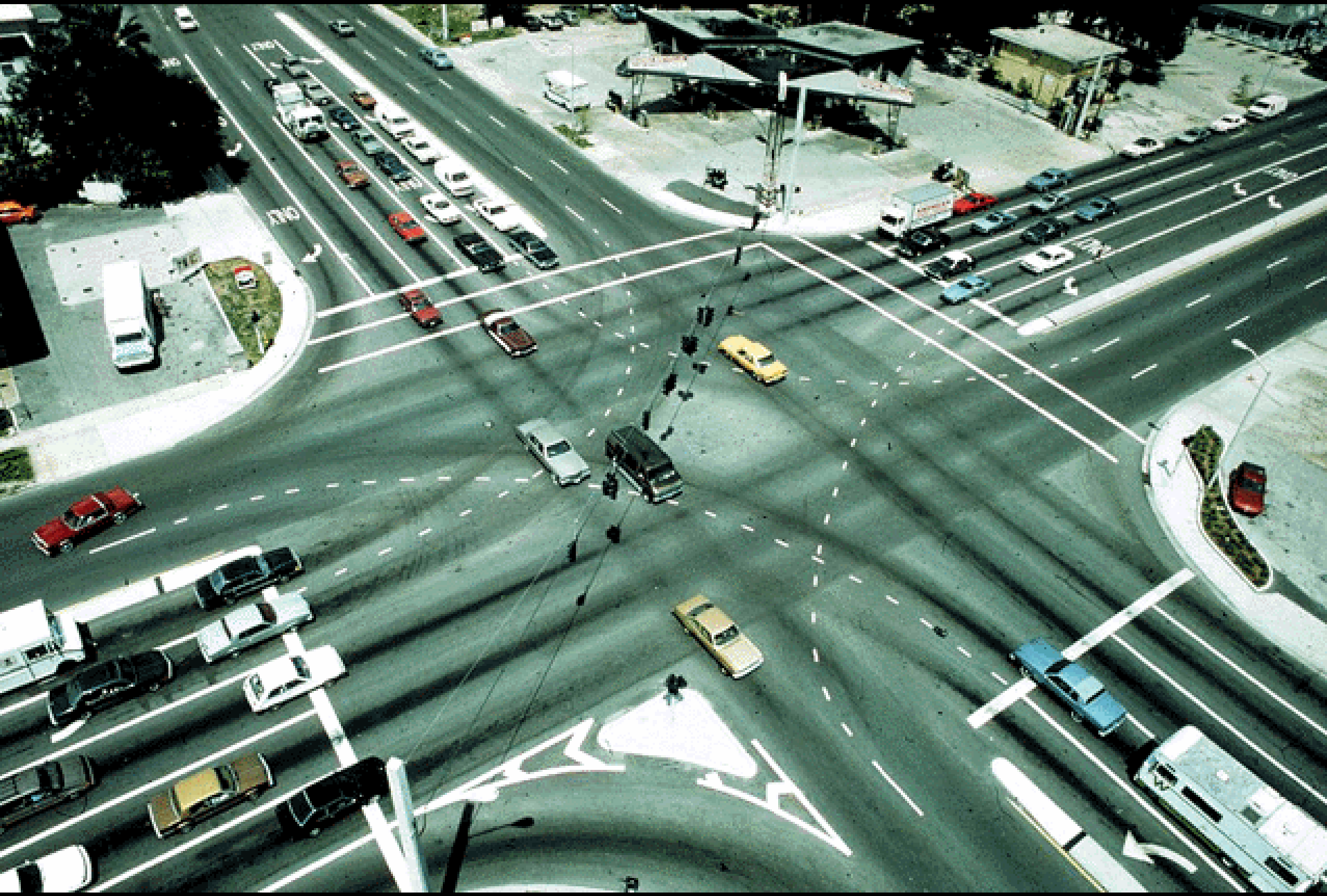

Pod
Development





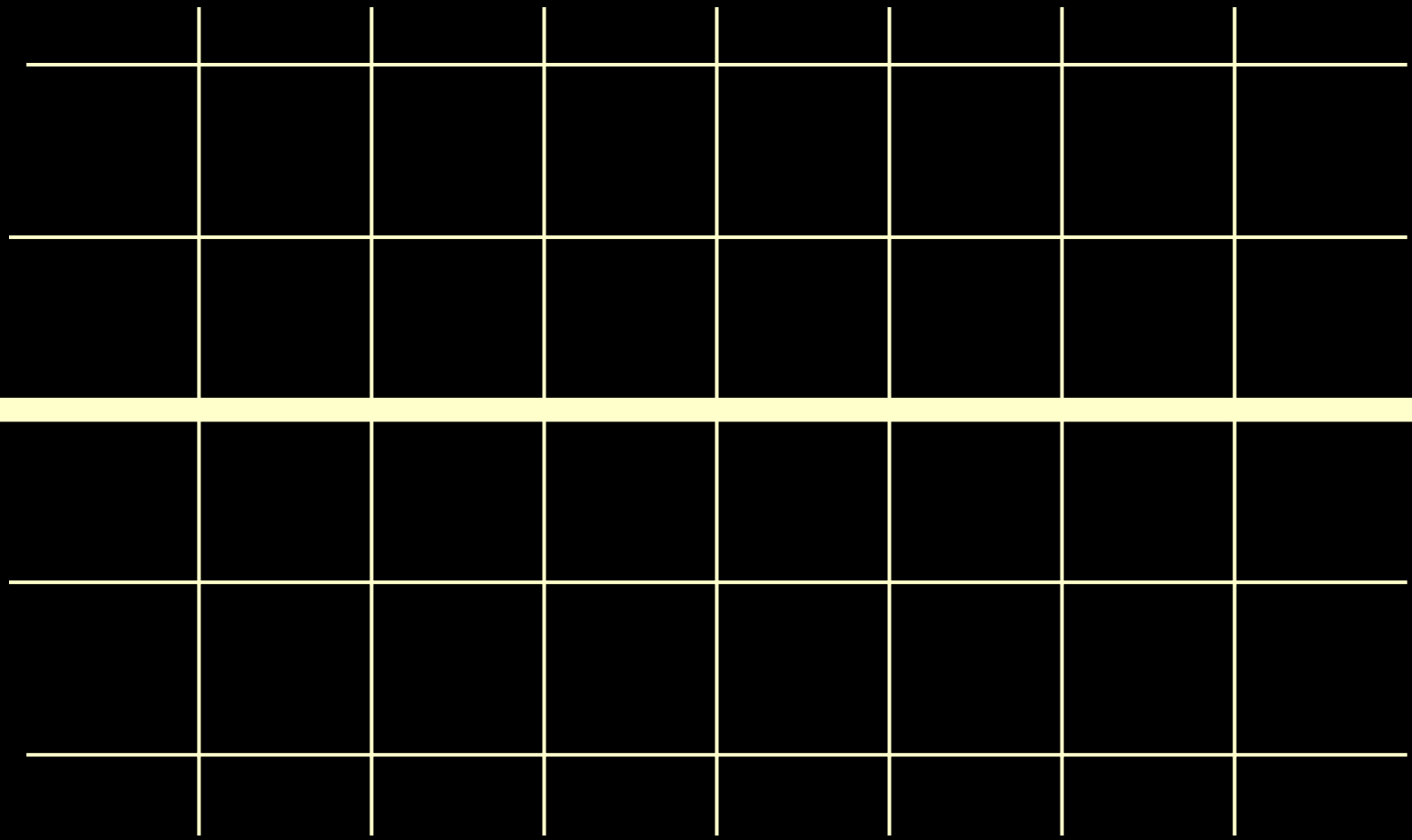






A complete network of small streets
is much safer and provides more capacity than a limited network of
large streets

Ideal Block Size for Efficient Flow



330’ to 528’

Suggested Connectivity Standards

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

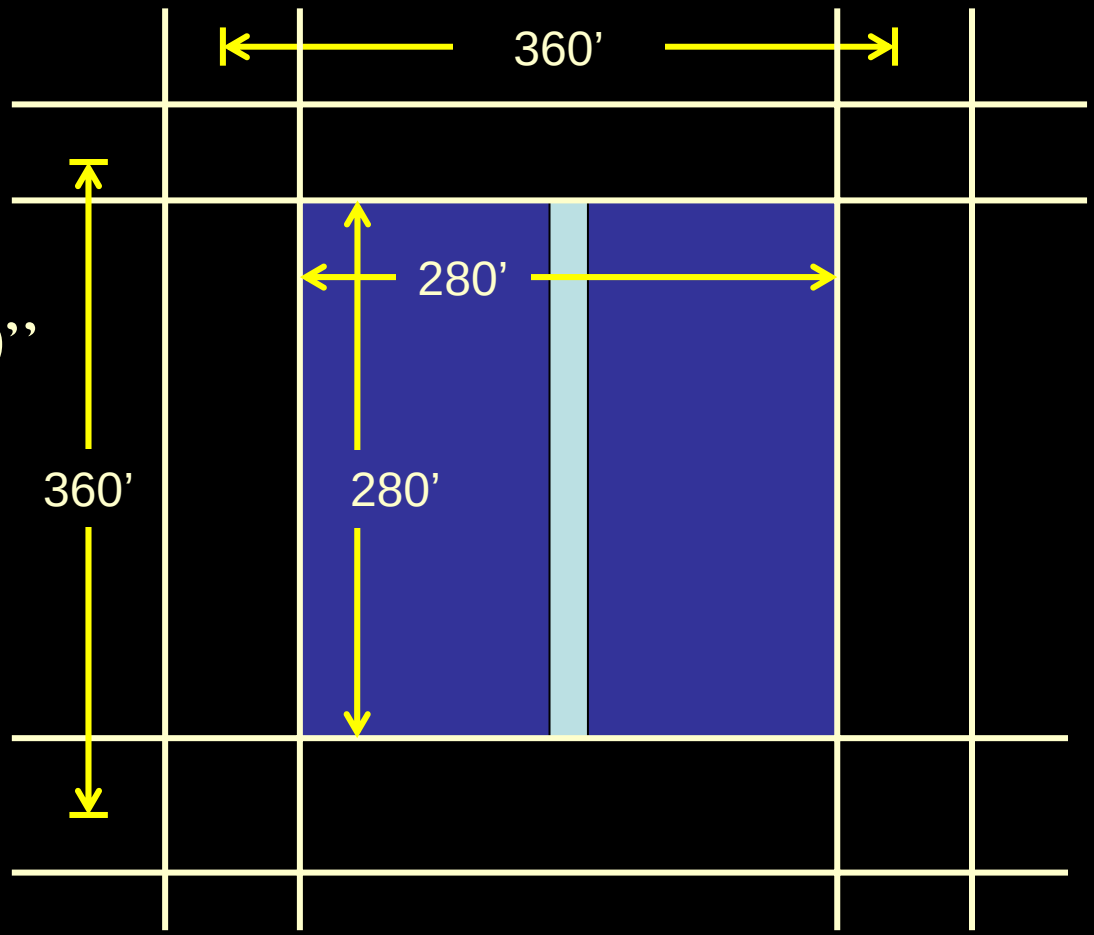
Intersection Spacing

Func. Class.	Min.	Max.
Principal Arterial	660’	1,320’
Minor Arterial	330’	660’
Collector	200’	528’

Blocks

Block length: 360’ & 360’’

Perimeter: 1,120’

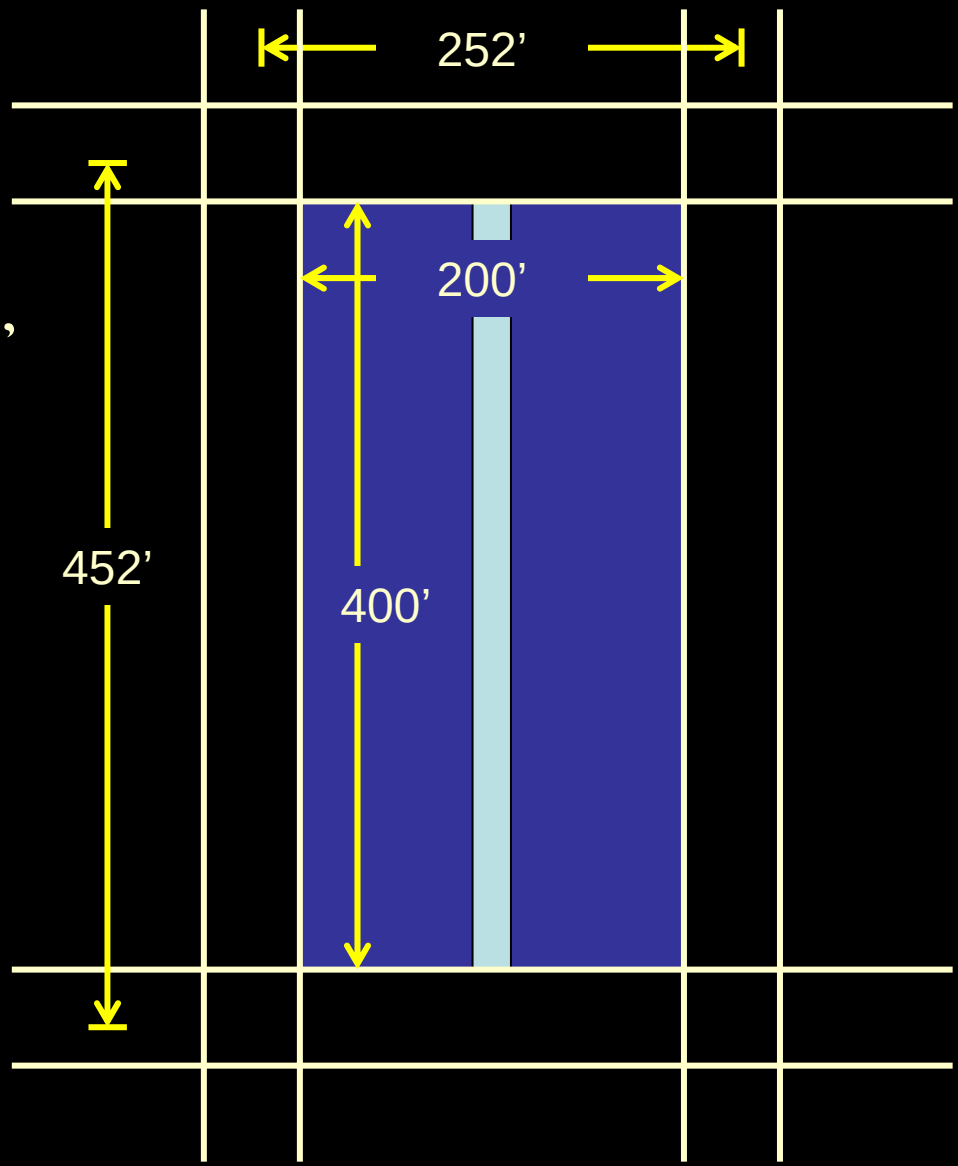


(Traditional downtown Cheyenne block)

Blocks

Block length: 252’ & 452’

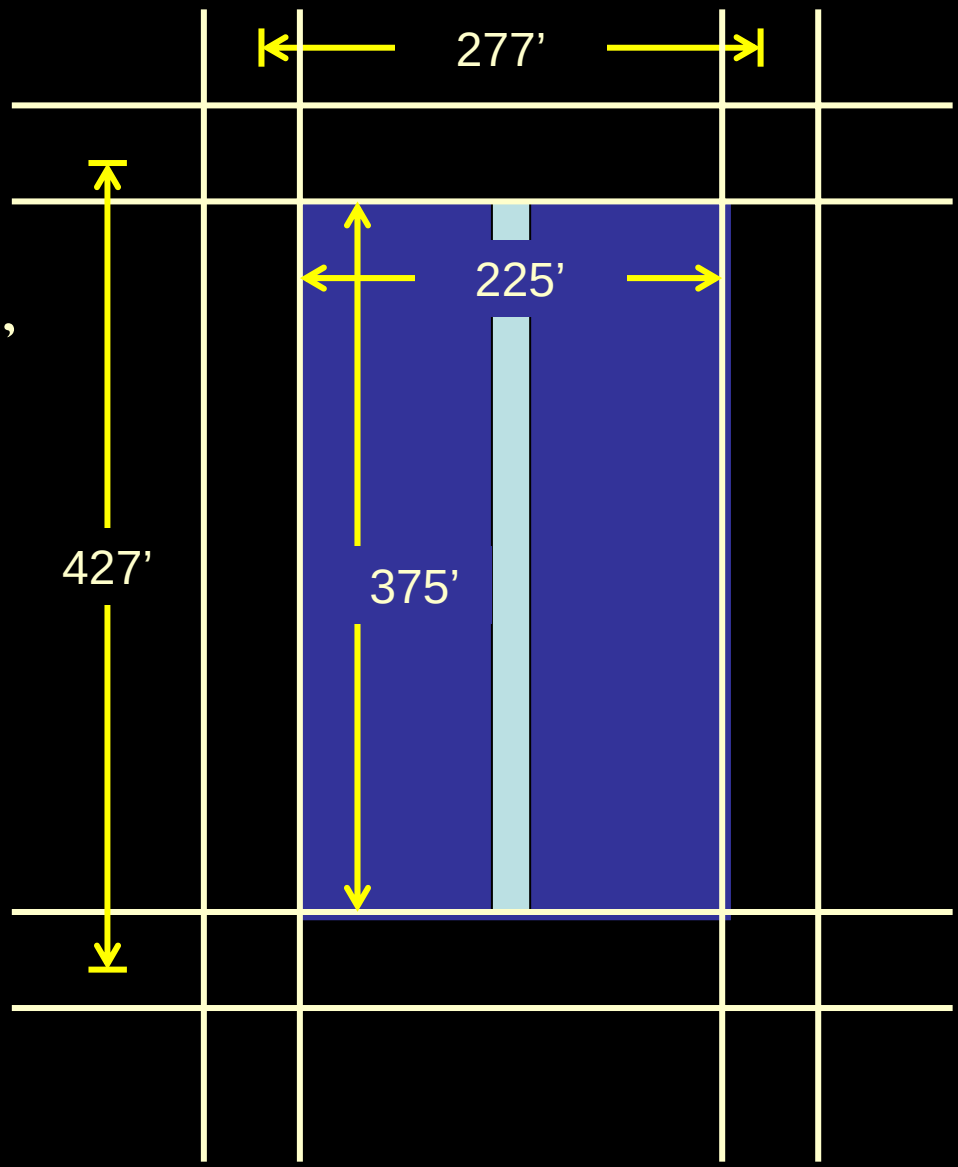
Perimeter: 1,200’



Blocks

Block length: 277’ & 427’

Perimeter: 1,575’



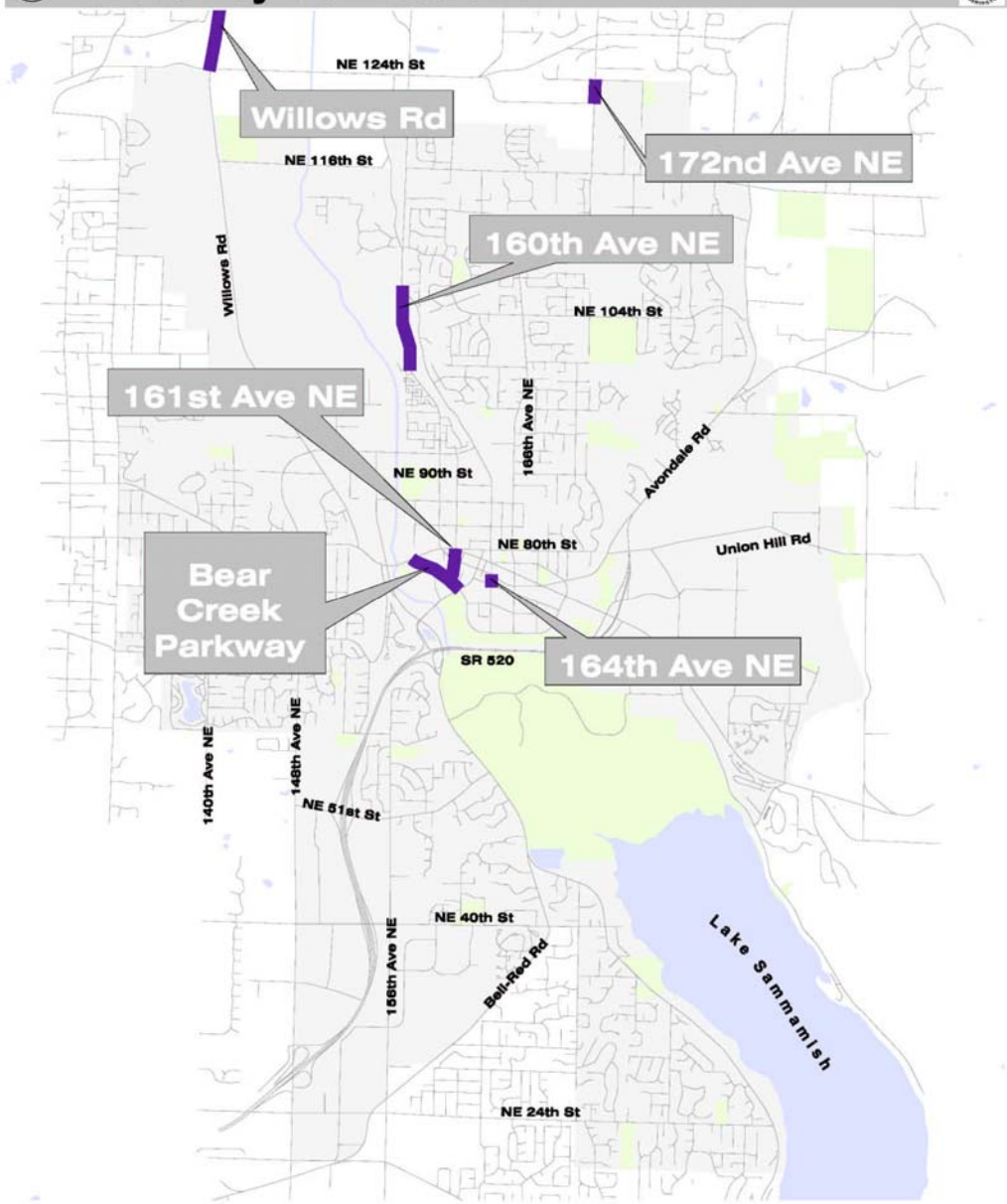
Missing Links

Connectivity in the Existing City

City of Redmond

Transportation Master Plan

Roadway Connections



0 0.25 0.5 0.75 1 Mile

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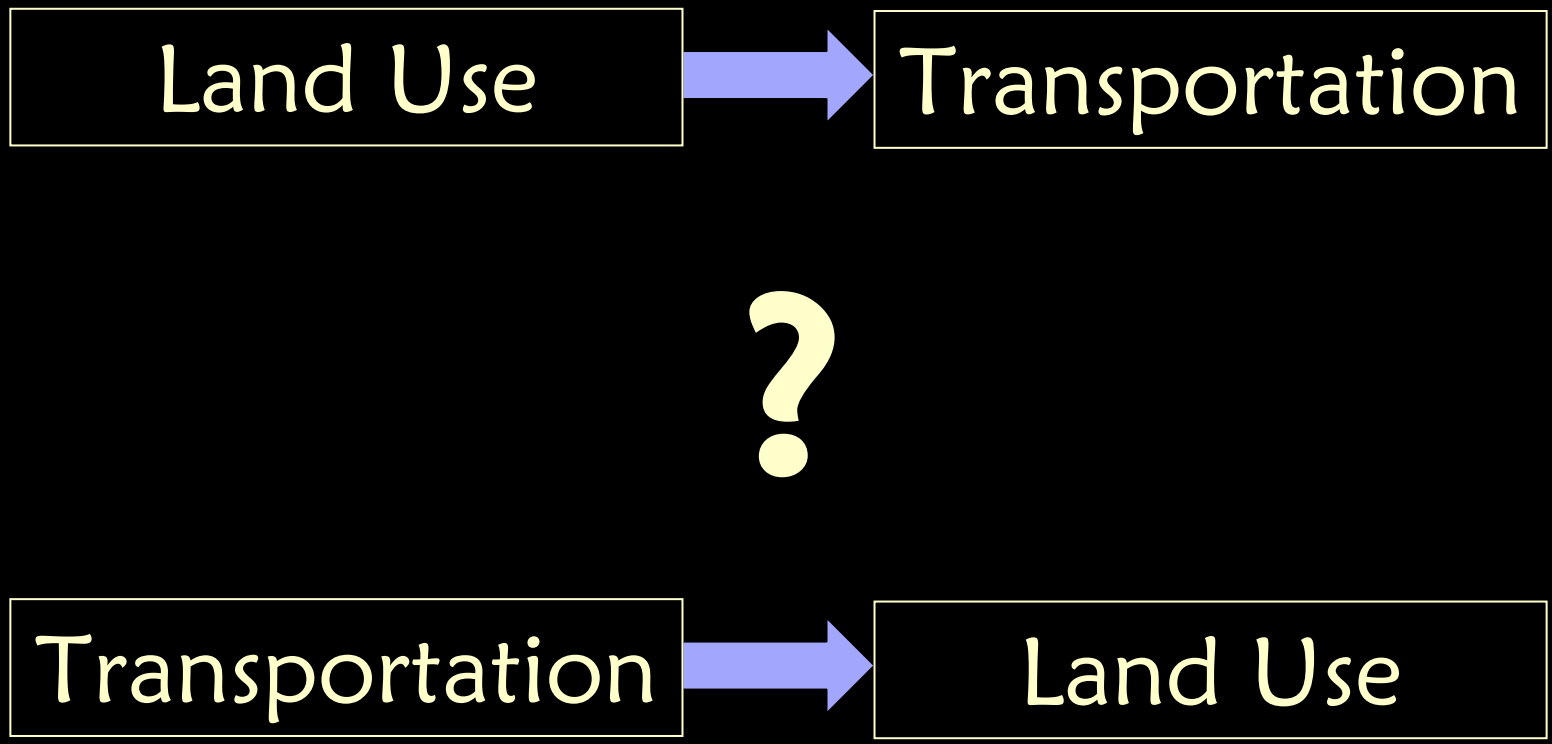
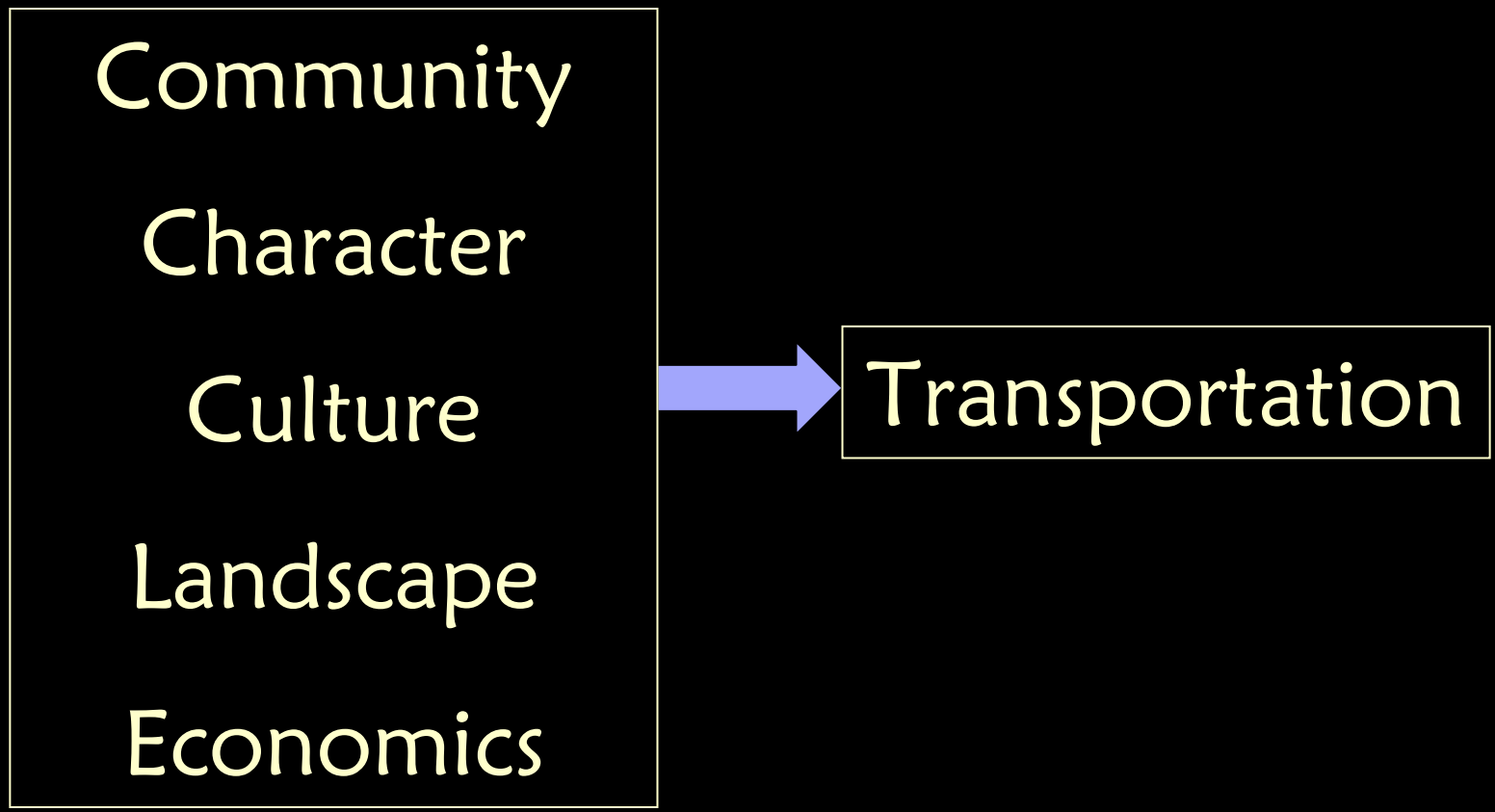
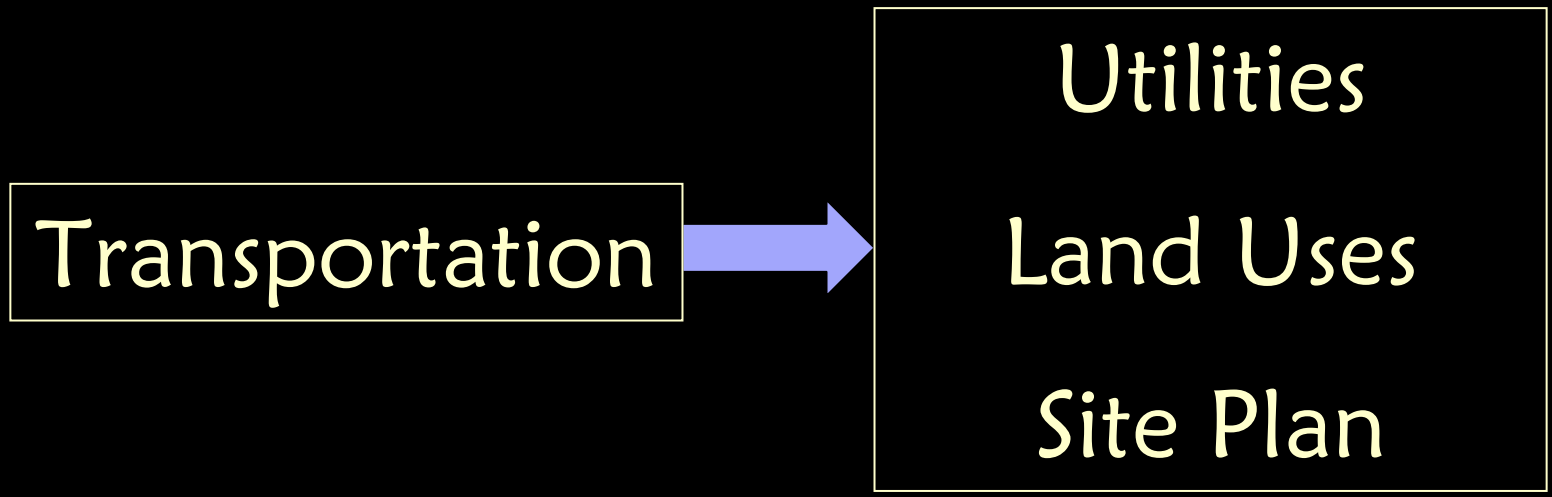
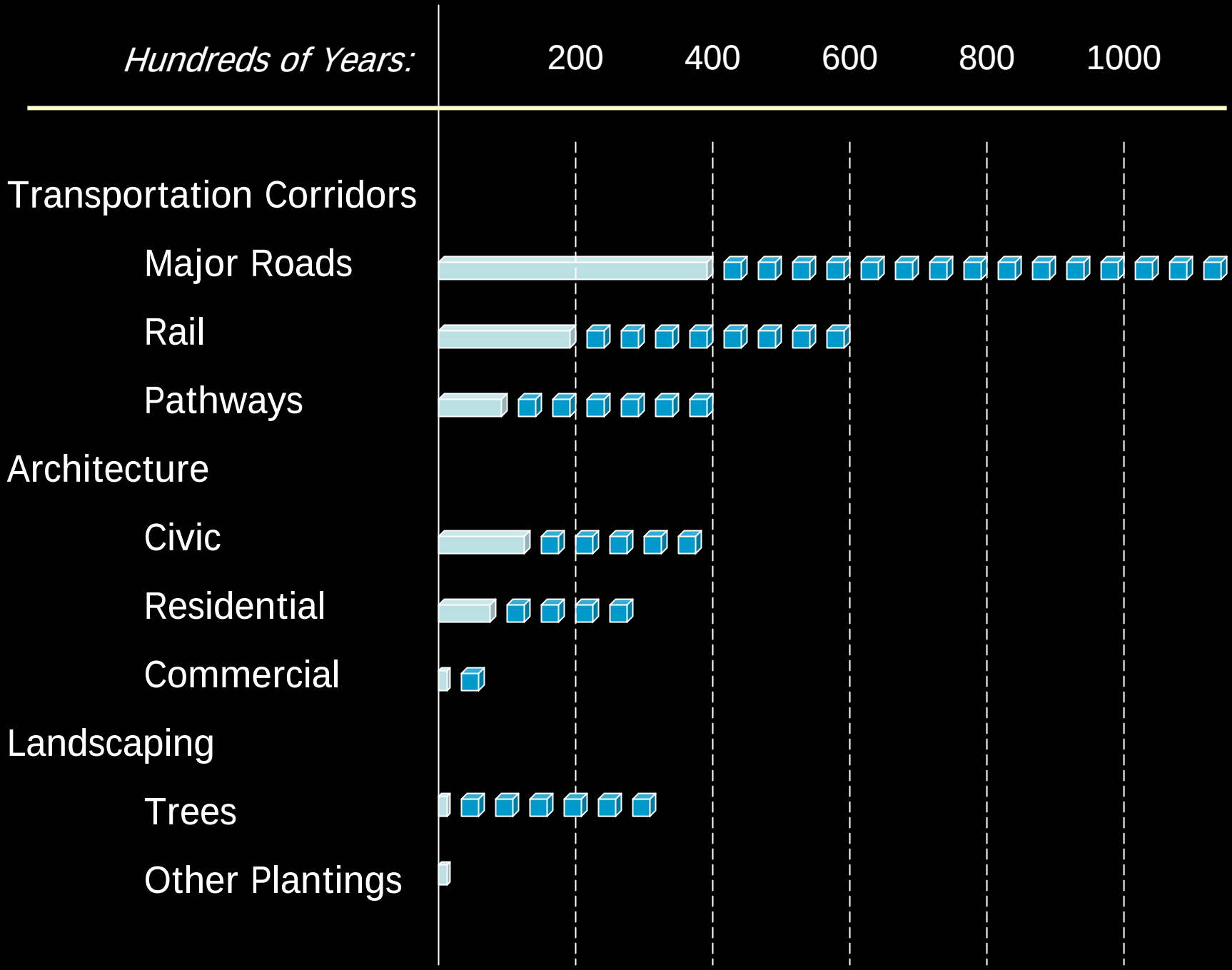
DECEMBER 2004


Land Use
Transportation
?
Transportation
Land Use


Community
Character
Culture
Landscape
Economics
Transportation

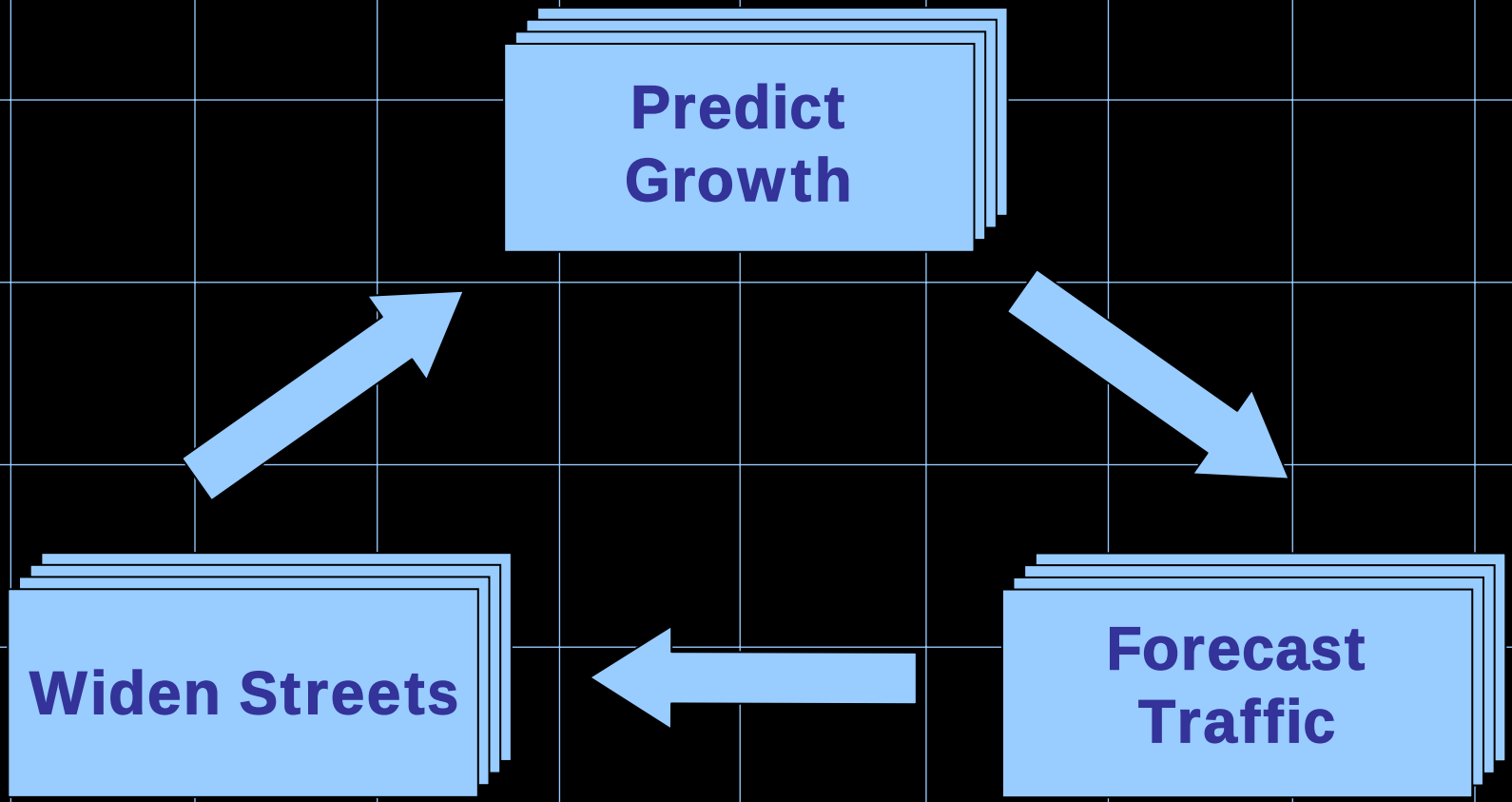

Transportation
Utilities
Land Uses
Site Plan


Hundreds of Years:
200
400
600
800
1000
Transportation Corridors
Major Roads
Rail
Pathways
Architecture
Civic
Residential
Commercial
Landscaping
Trees
Other Plantings

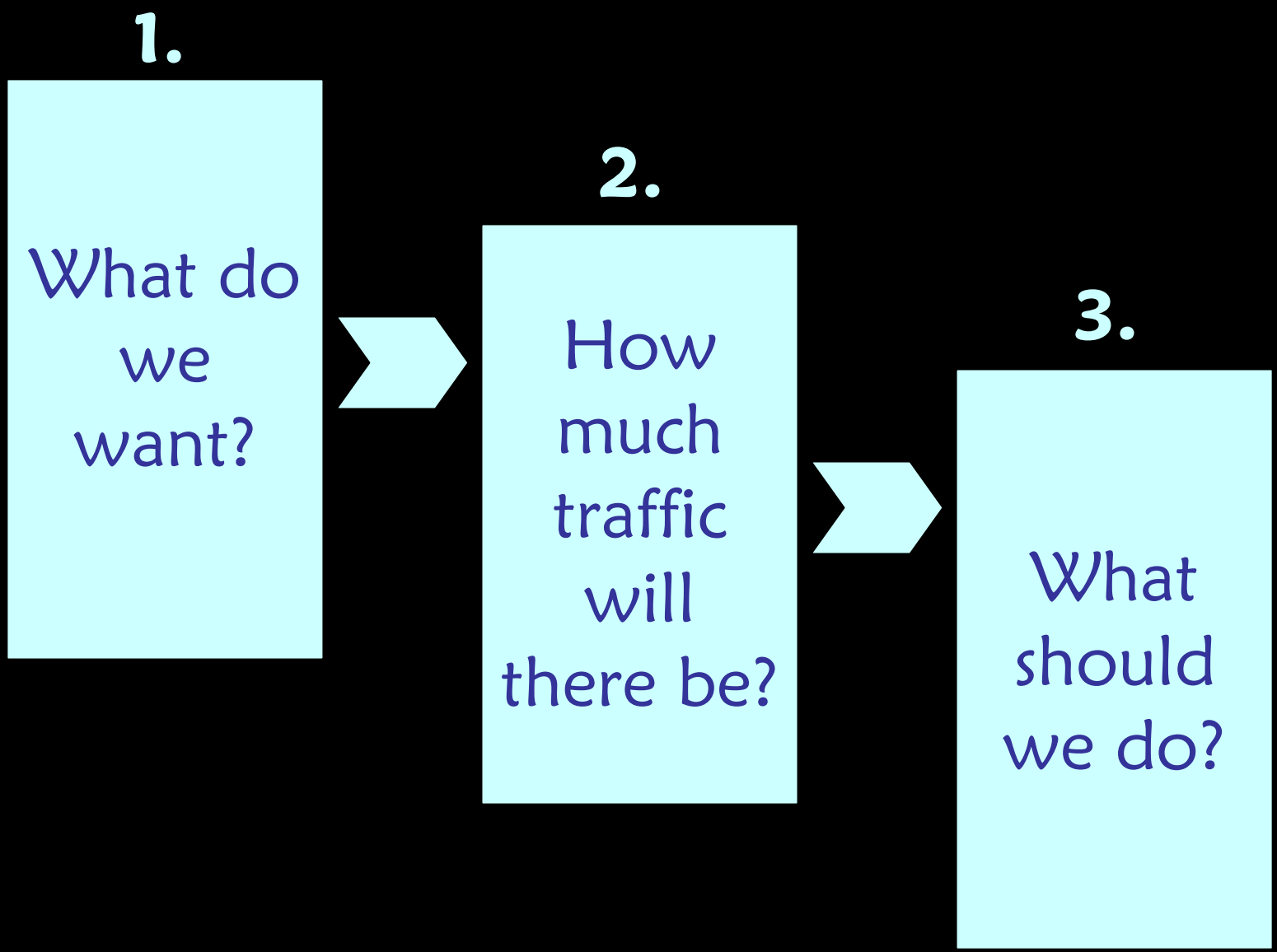
3

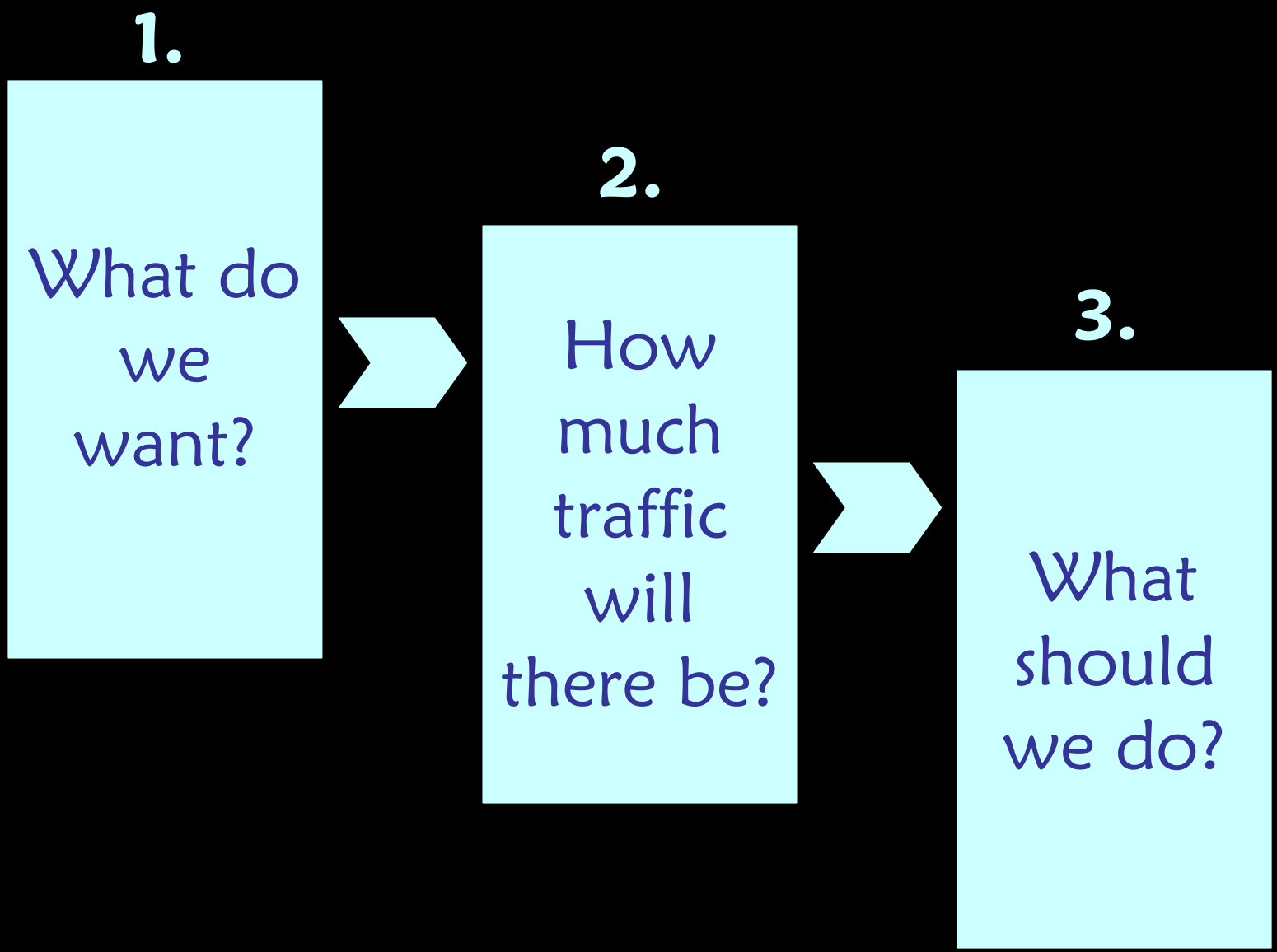
3. Efficient Street Design

Community Character


Predict Growth
Forecast Traffic
Widen Streets


Aurora


1.
What do we want?
2.
How much traffic will there be?
3.
What should we do?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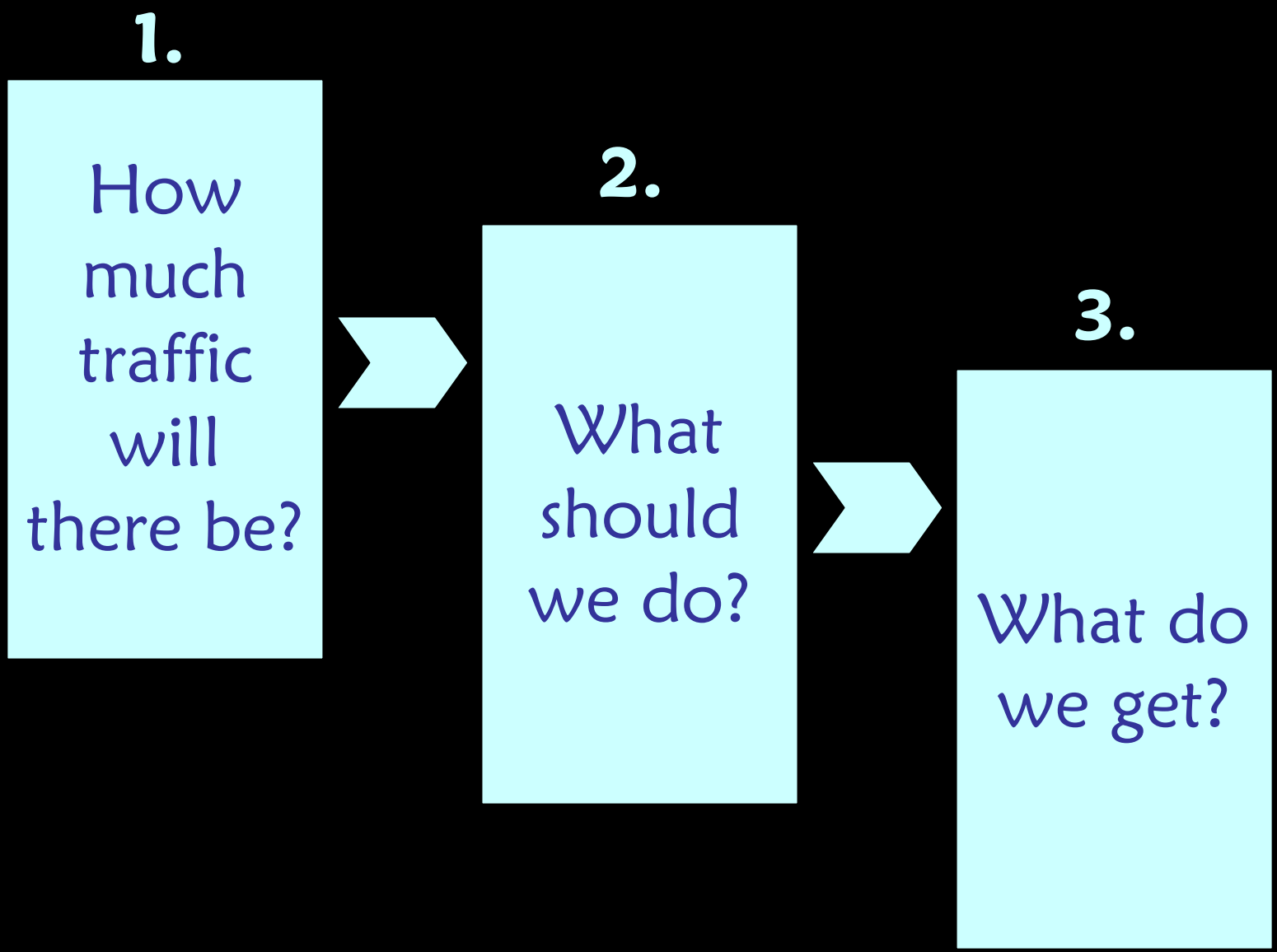

1.
How much traffic will there be?
2.
What should we do?
3.
What do we get?


FREE
CABLE TV
100 CHANNELS
DIR. DIAL
PHONES
CHINA
Garden
RESTAURANT
TACO
BELL
Village
Inn
SHELL
MEAD
KAVA

Flagstaff

Induced Traffic

"Induced Traffic"

Def.

The additional traffic that results directly and indirectly from transportation capacity or travel time improvements – traffic that would not otherwise have occurred at that location.

Types of Induced Traffic

Changes in travel route ..... Immediate

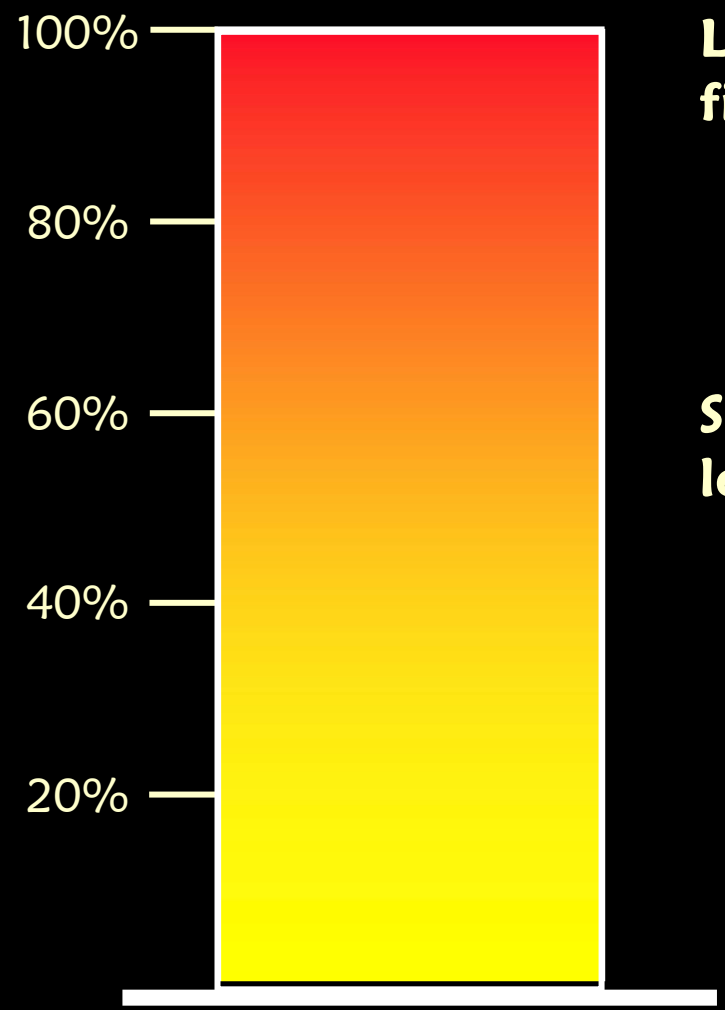
Changes in mode of travel ..... < 6 months

Changes in time of travel ..... < 6 months

Changes in amount of travel ..... < 6 months

Changes in origins & destinations ..... < 10 years

% of new capacity consumed by induced traffic...



Long Term:
five to 10 years

Short Term:
less than five years

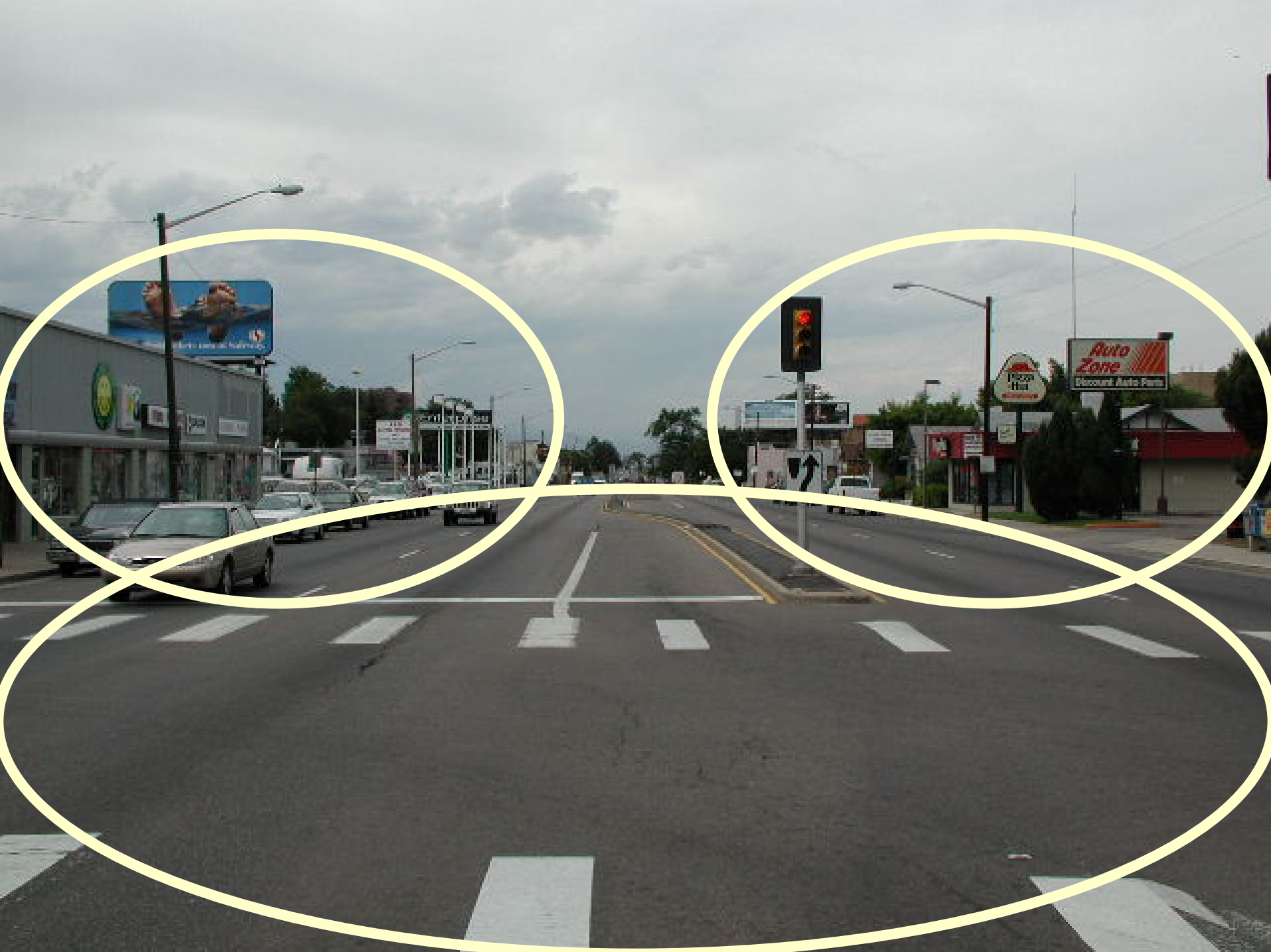
If you build it . . .

. . . they will come

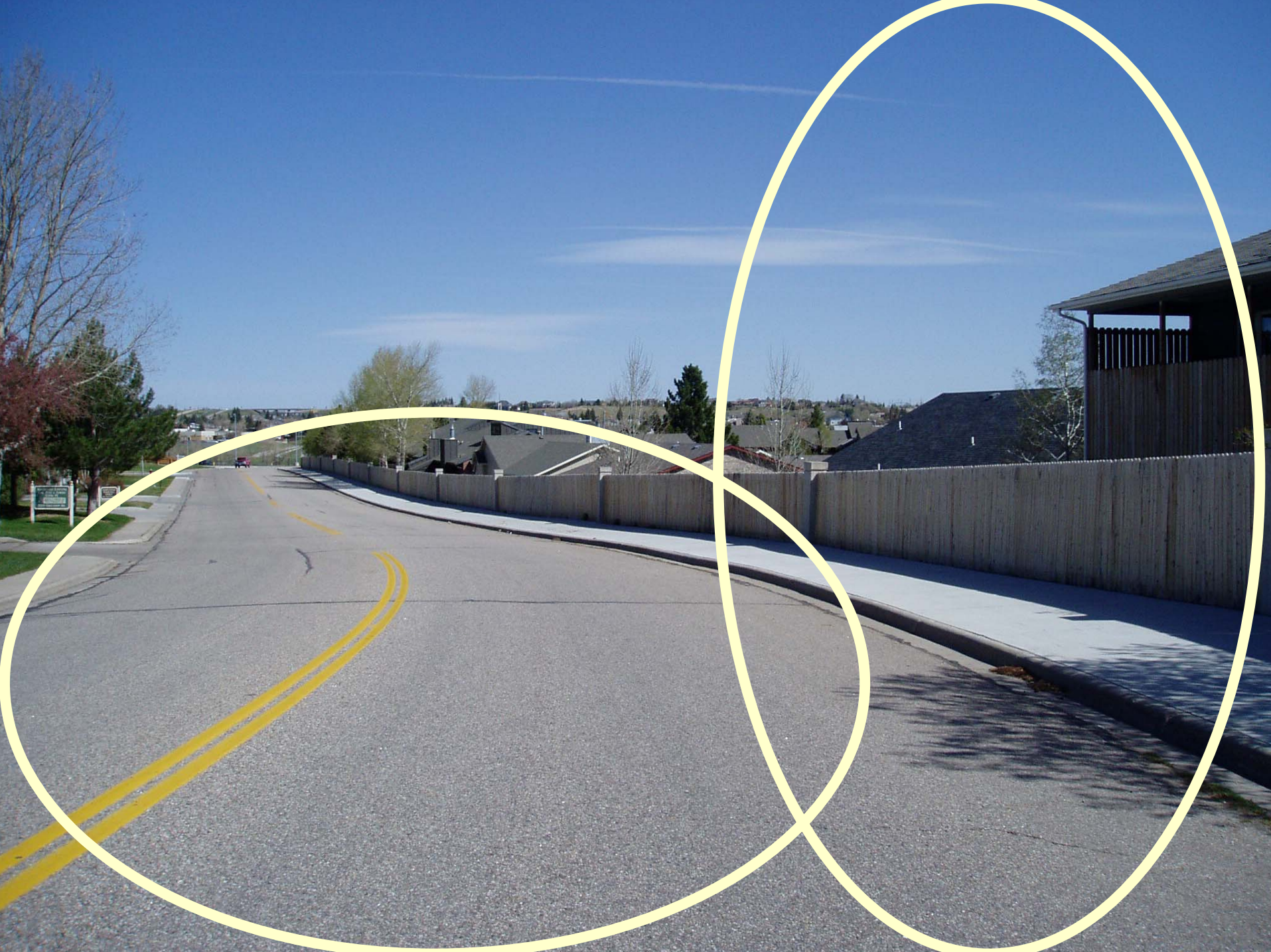
If you build it . . .

. . . they will come

Expanding streets to accommodate traffic growth is self-fulfilling and self-defeating at the same time


Auto Zone
Discount Auto Parts


2:00 AM
TO 5:00 AM
2 HR
PARKING
8:00 AM
TO 6:00 PM
WEEKDAYS
MAK8551




Prospect

We can't design a street like this...

...and expect this to result.

The design of transportation corridors has a profound effect on the character of abutting land uses

Street Design Opportunities

- Objectives
  - Reduce initial construction cost
  - Add value to private property
  - Reduce future public costs
  - Build GREAT neighborhoods

Street Design Opportunities

- Techniques
  - Managing street widths
  - On-street parking
  - Sidewalks
  - Parkway strips
  - Street trees
  - Drainage

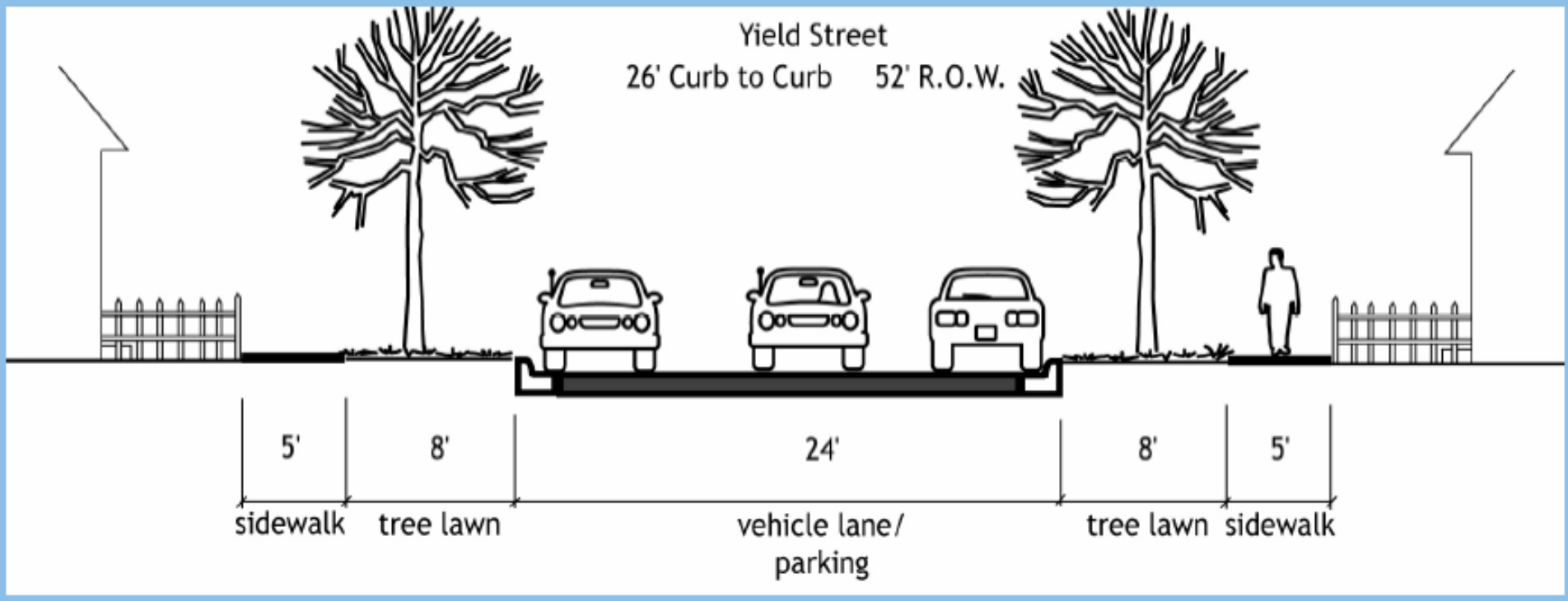
Cheyenne

Cheyenne

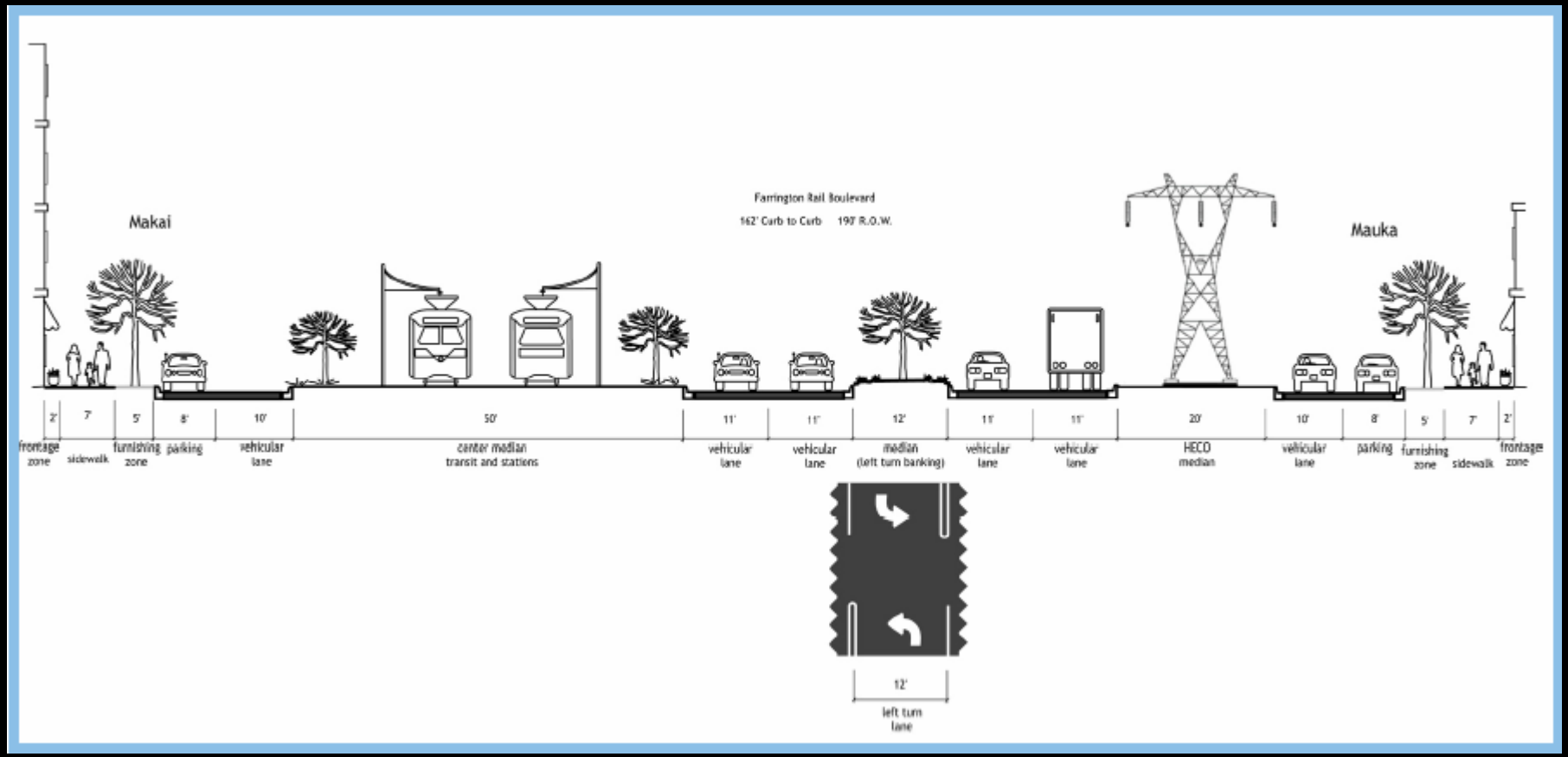

Cheyenne

Cheyenne

Yield Street



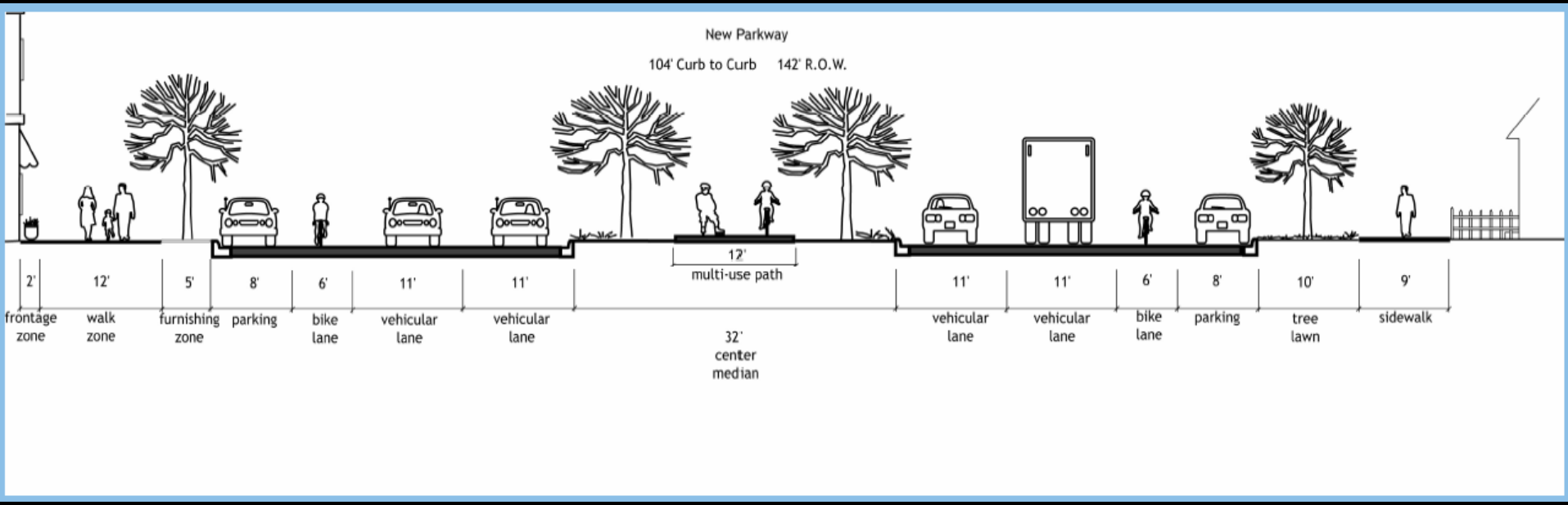
Multi-way Boulevard



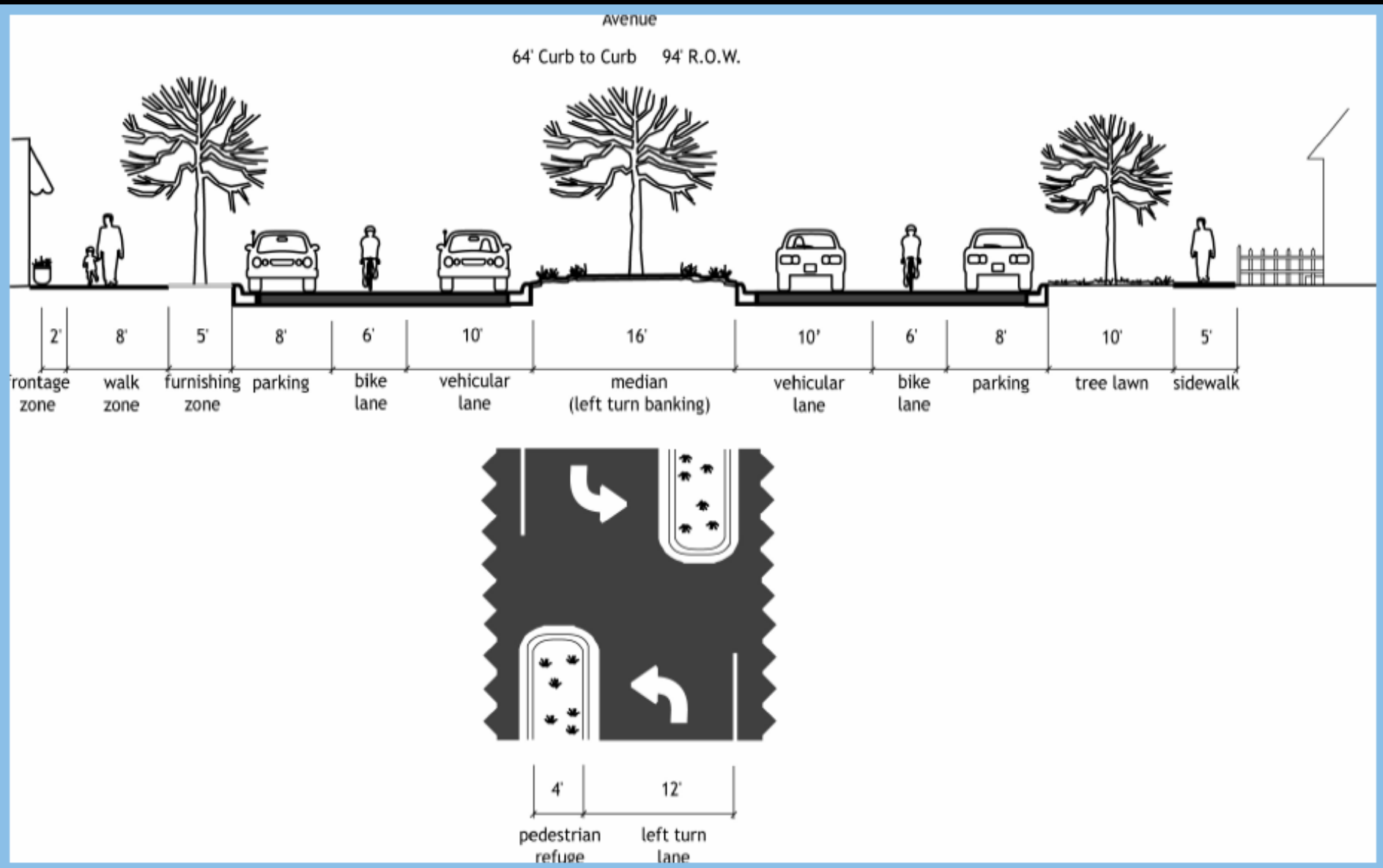

Oak
5Y90436
5PCC911


SPEED
LIMIT
30

Example: 4-Lane Parkway

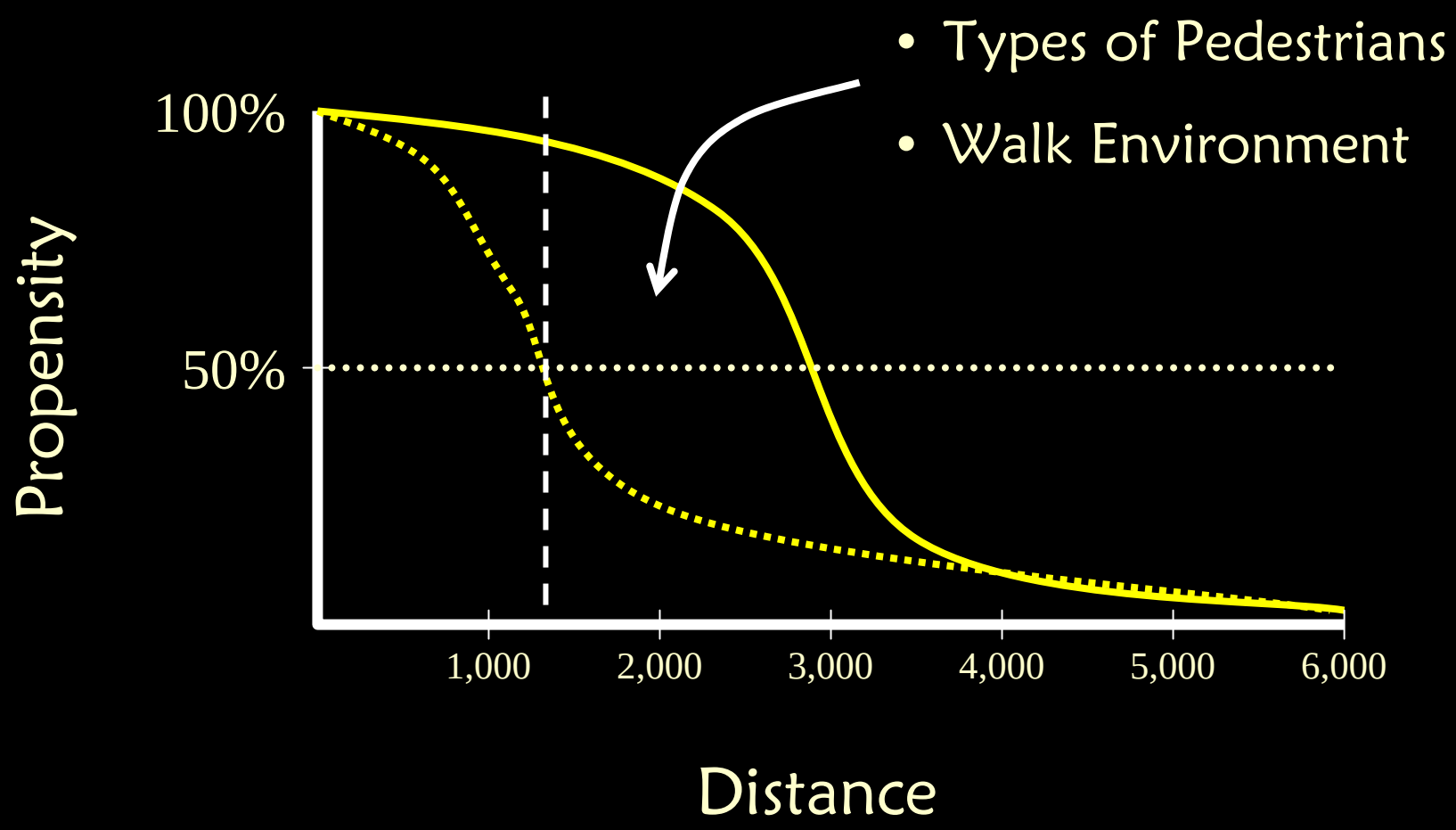


Example: Divided 2-Lane Avenue

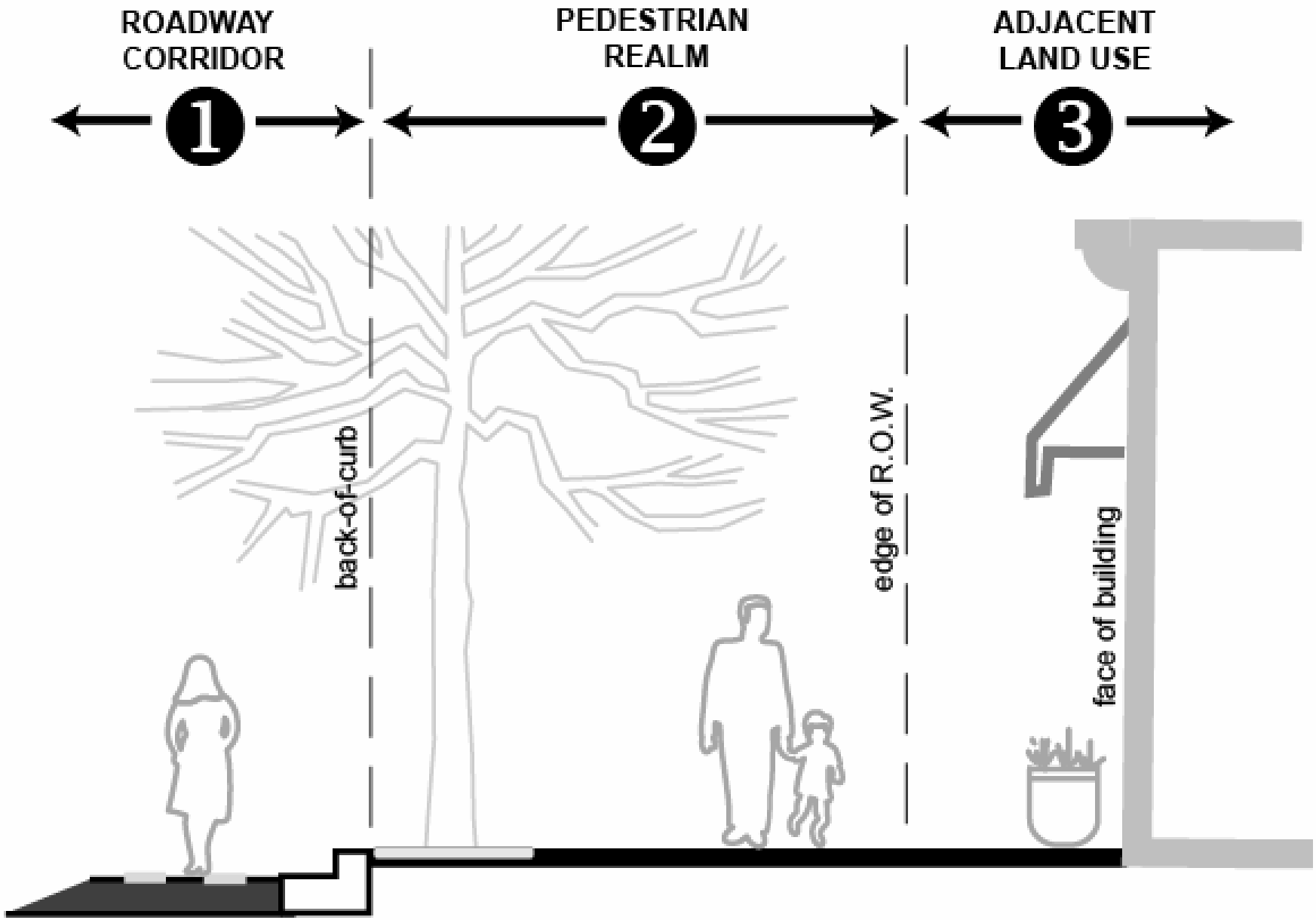


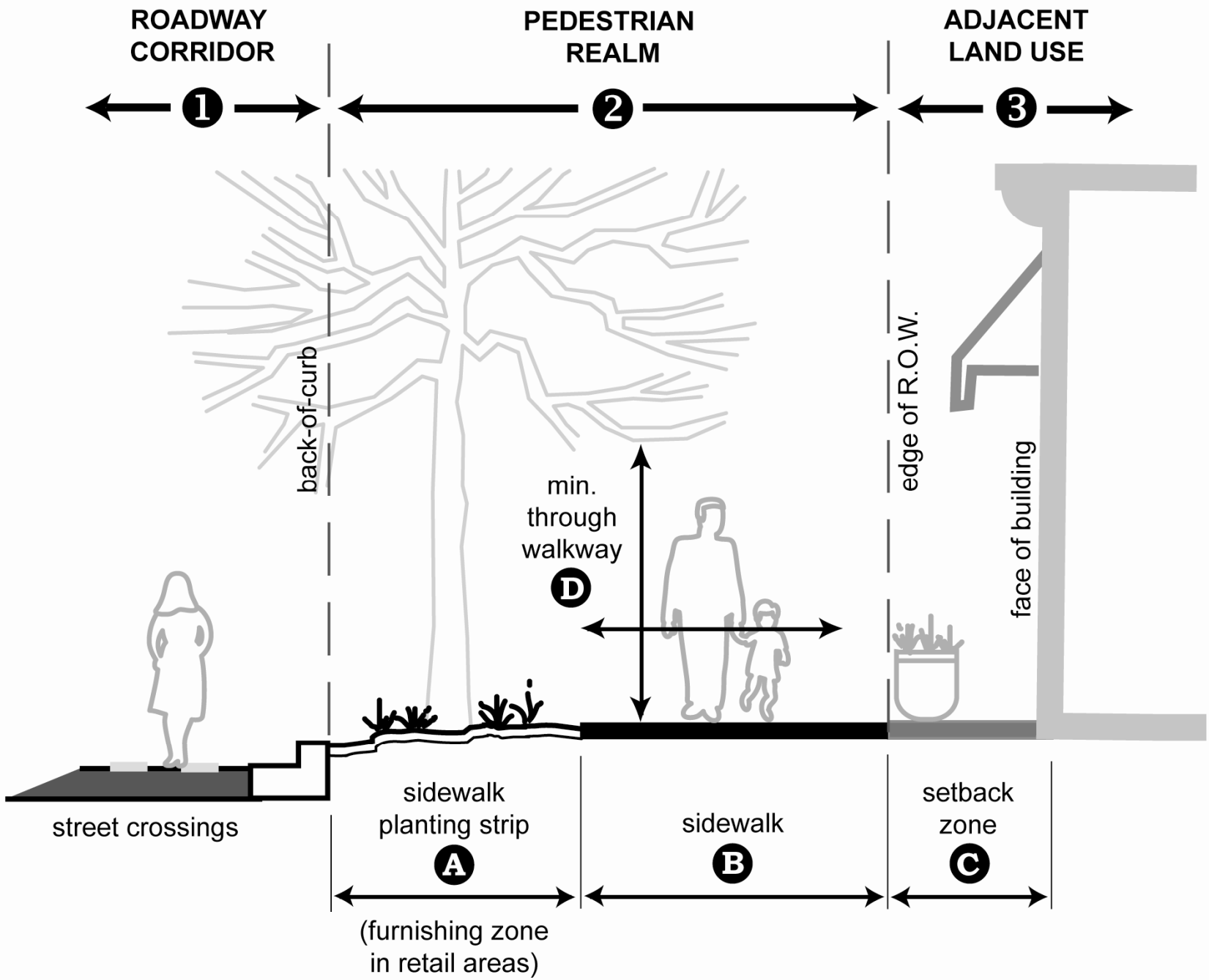
Pedestrians

Pedestrian Walk Distance



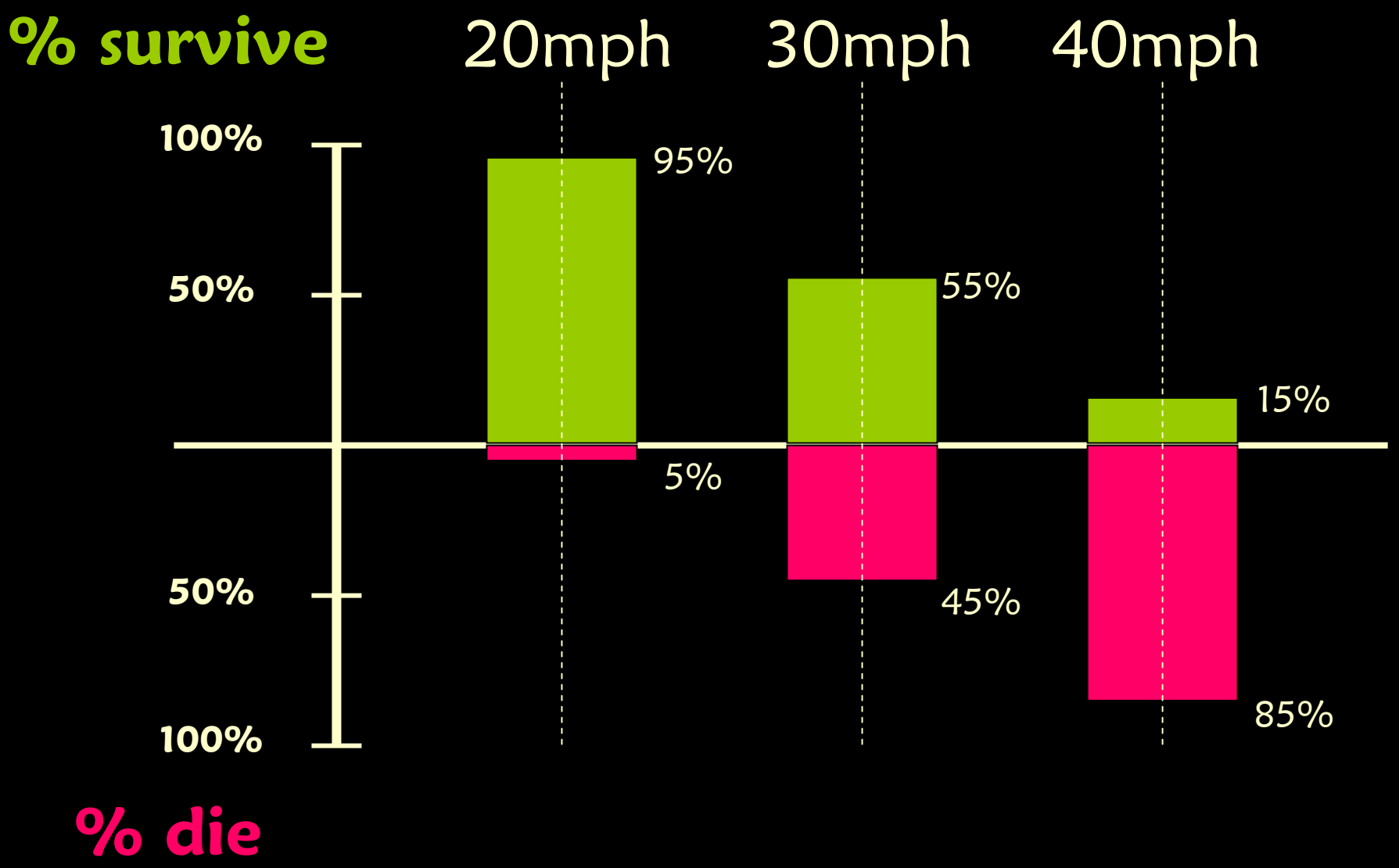

HURDLES


ROADWAY CORRIDOR
1
PEDESTRIAN REALM
2
ADJACENT LAND USE
3
back-of-curb
edge of R.O.W.
face of building


ROADWAY CORRIDOR
1
PEDESTRIAN REALM
2
ADJACENT LAND USE
3
back-of-curb
edge of R.O.W.
face of building
min. through walkway
D
street crossings
sidewalk planting strip
A
(furnishing zone in retail areas)
sidewalk
B
setback zone
C

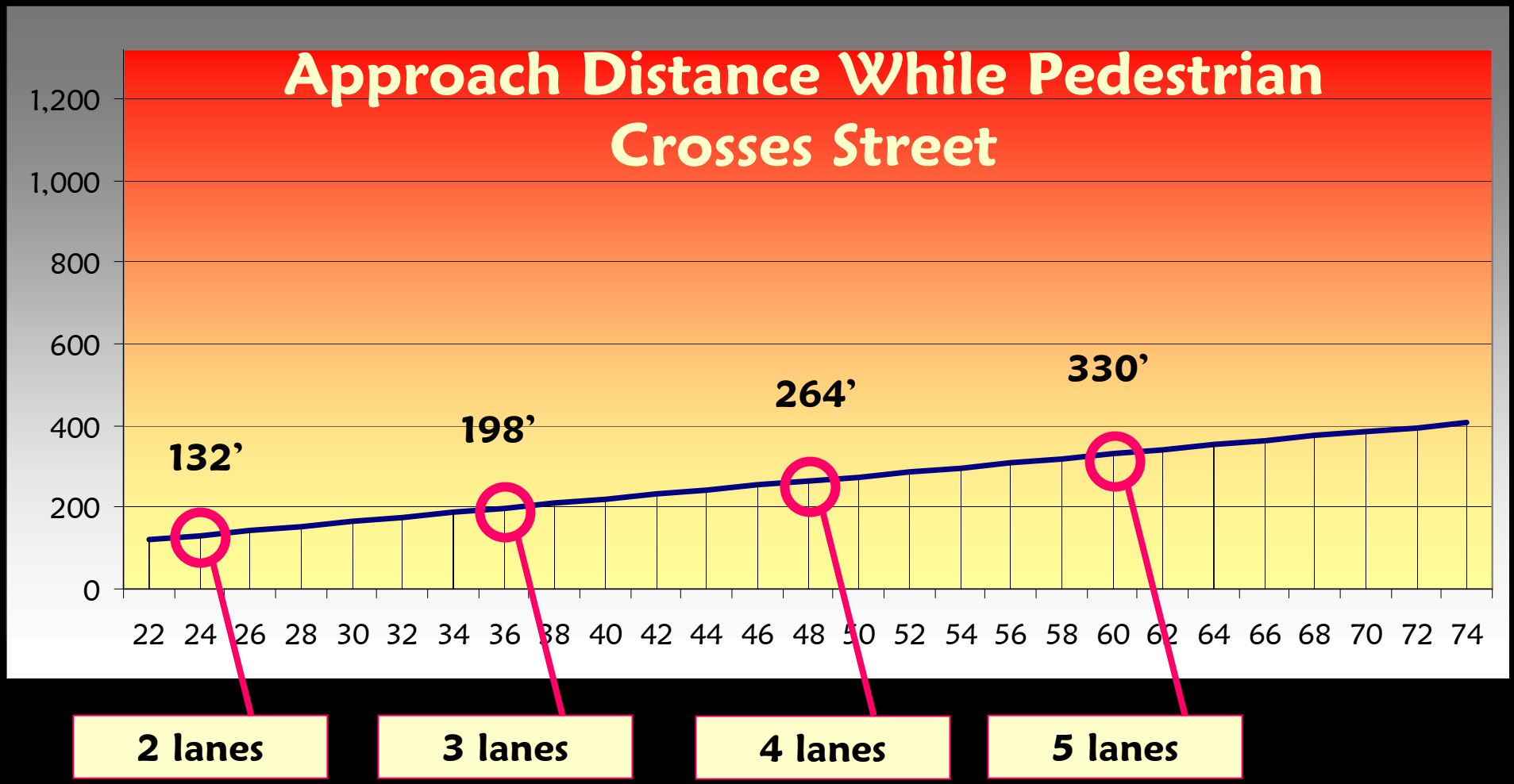

Prospect

Pedestrian Survival Rates – Vehicle Speeds



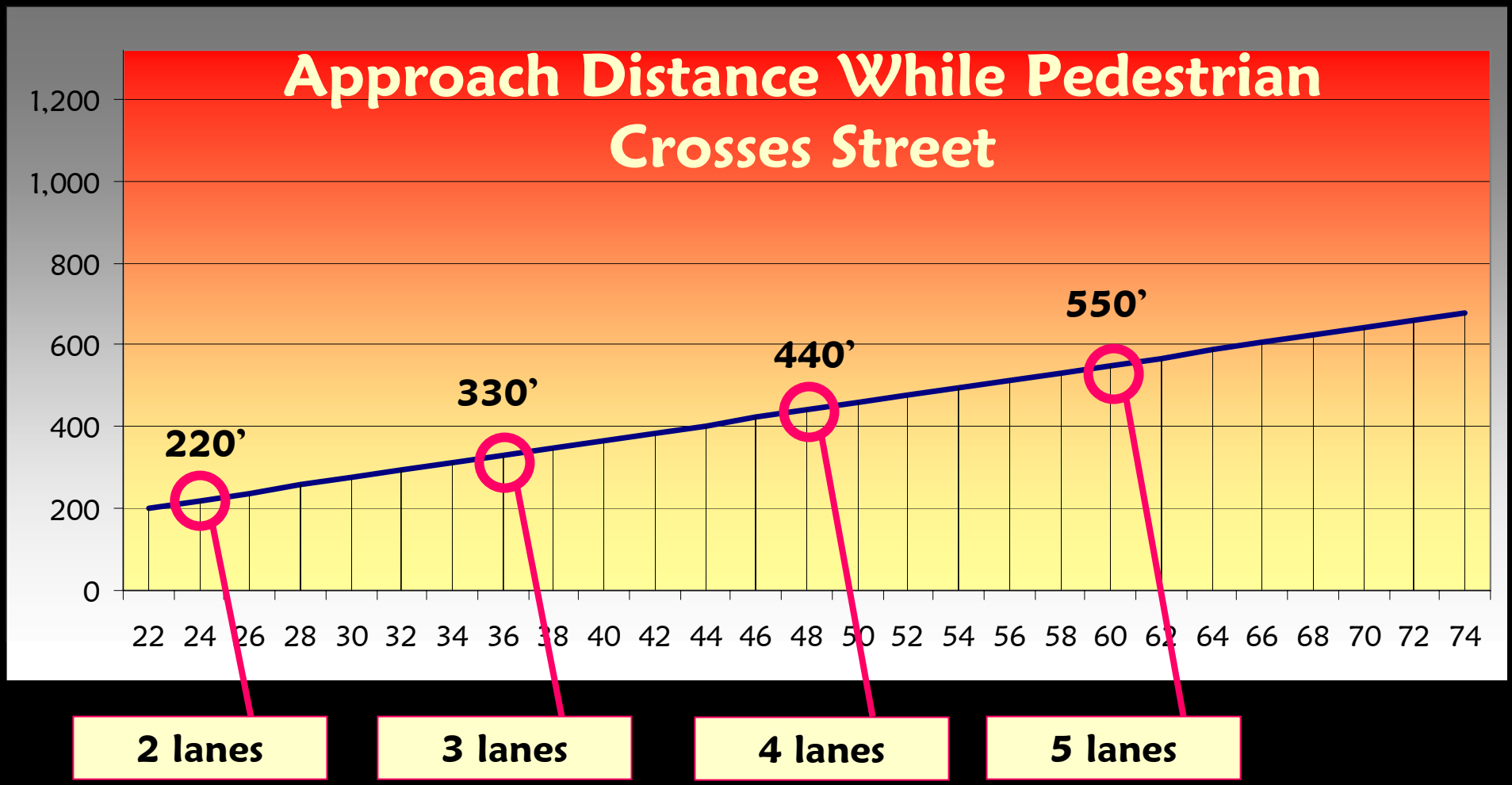
Approaching Vehicle @ 15 mph

(>95% Survival Rate)



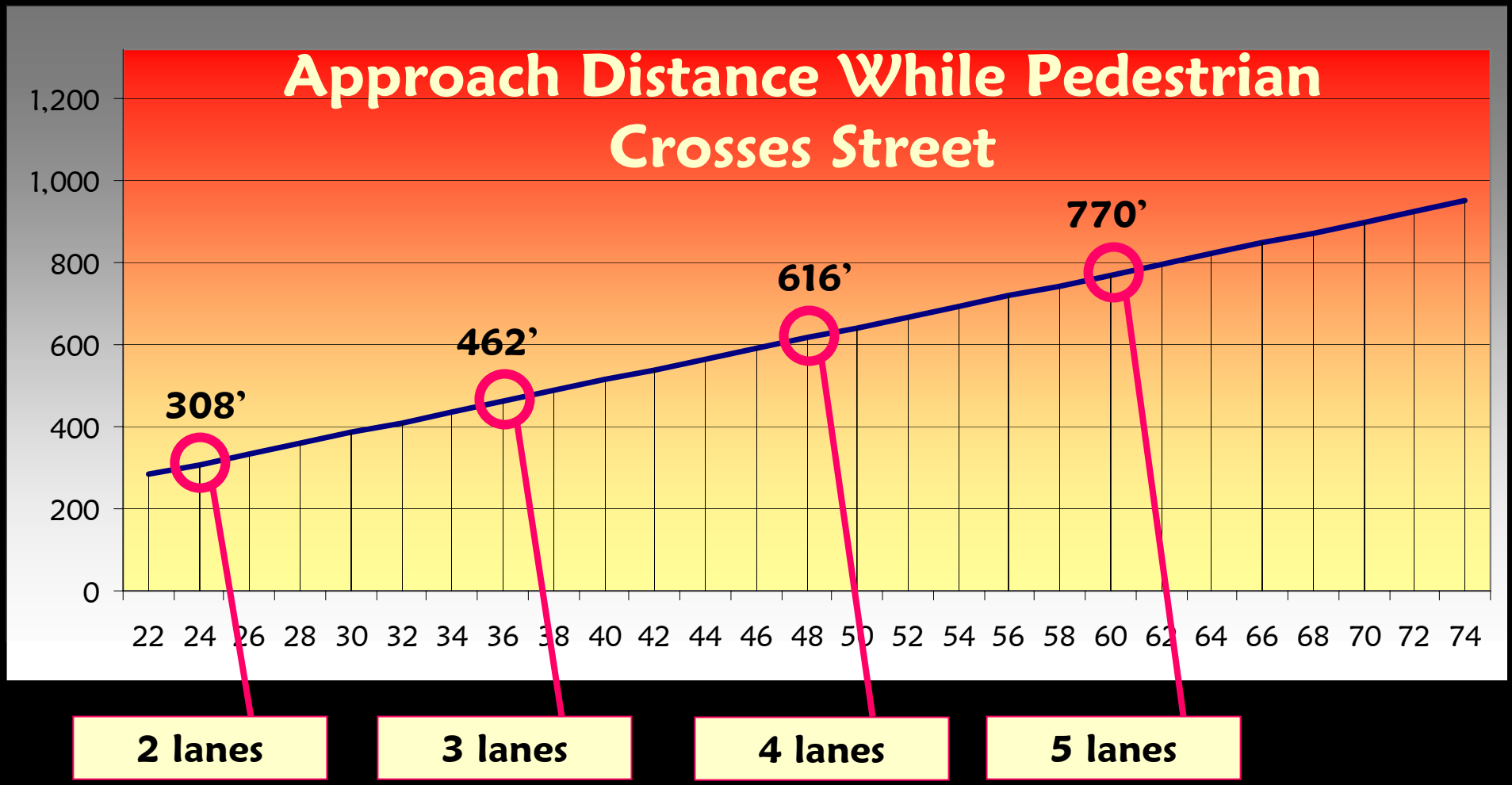
Approaching Vehicle @ 25 mph

(< 95% Survival Rate)



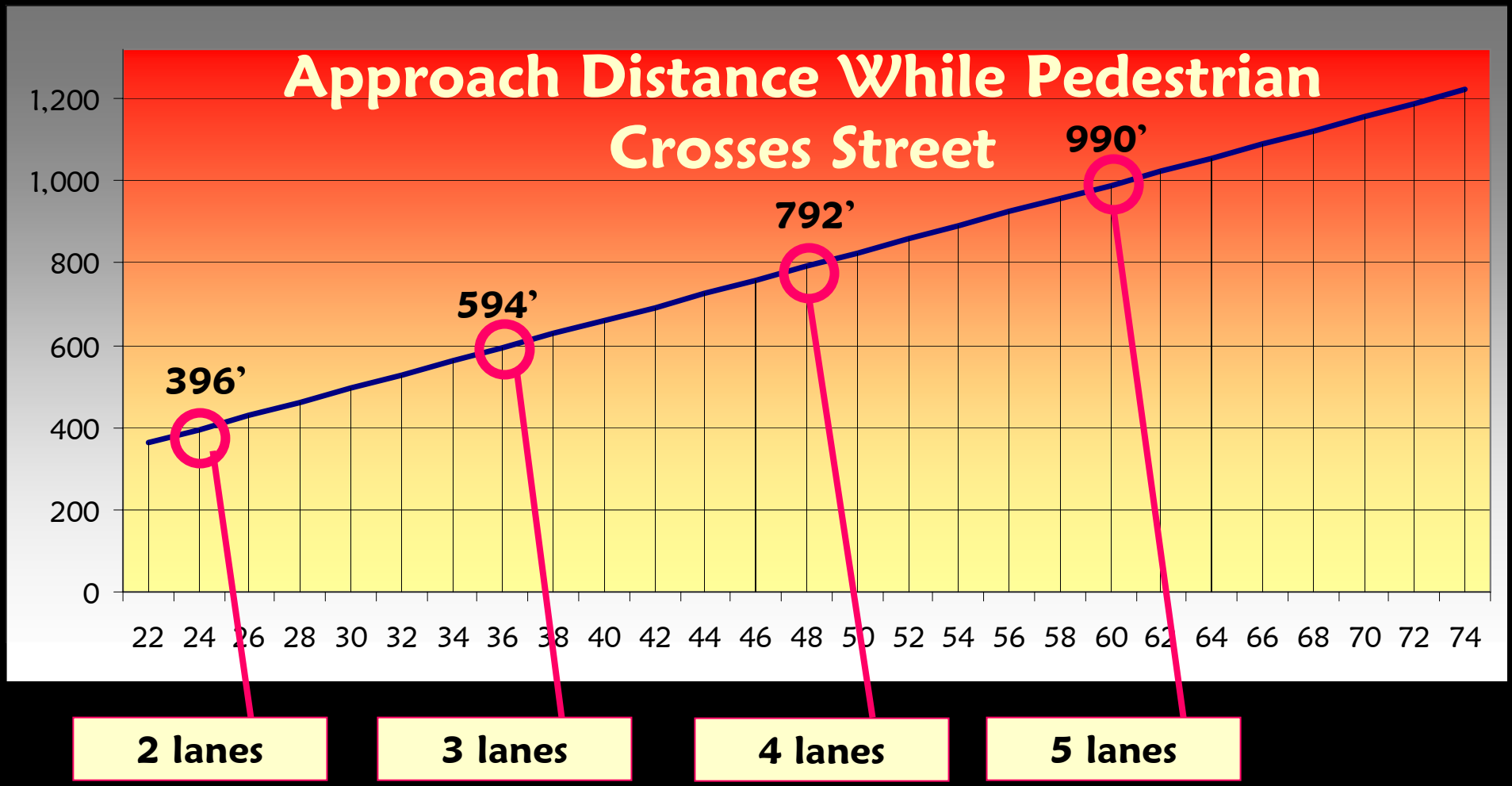
Approaching Vehicle @ 35 mph

(< 55% Survival Rate)



Approaching Vehicle @ 45 mph

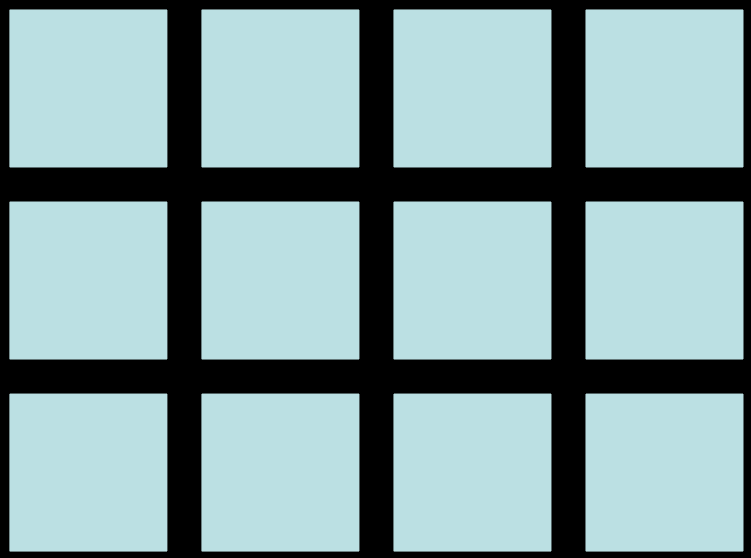
(< 15% Survival Rate)




ALOHA
Quality Gasoline
Unleaded
Unleaded Plus
Super Unleaded
AHEAD

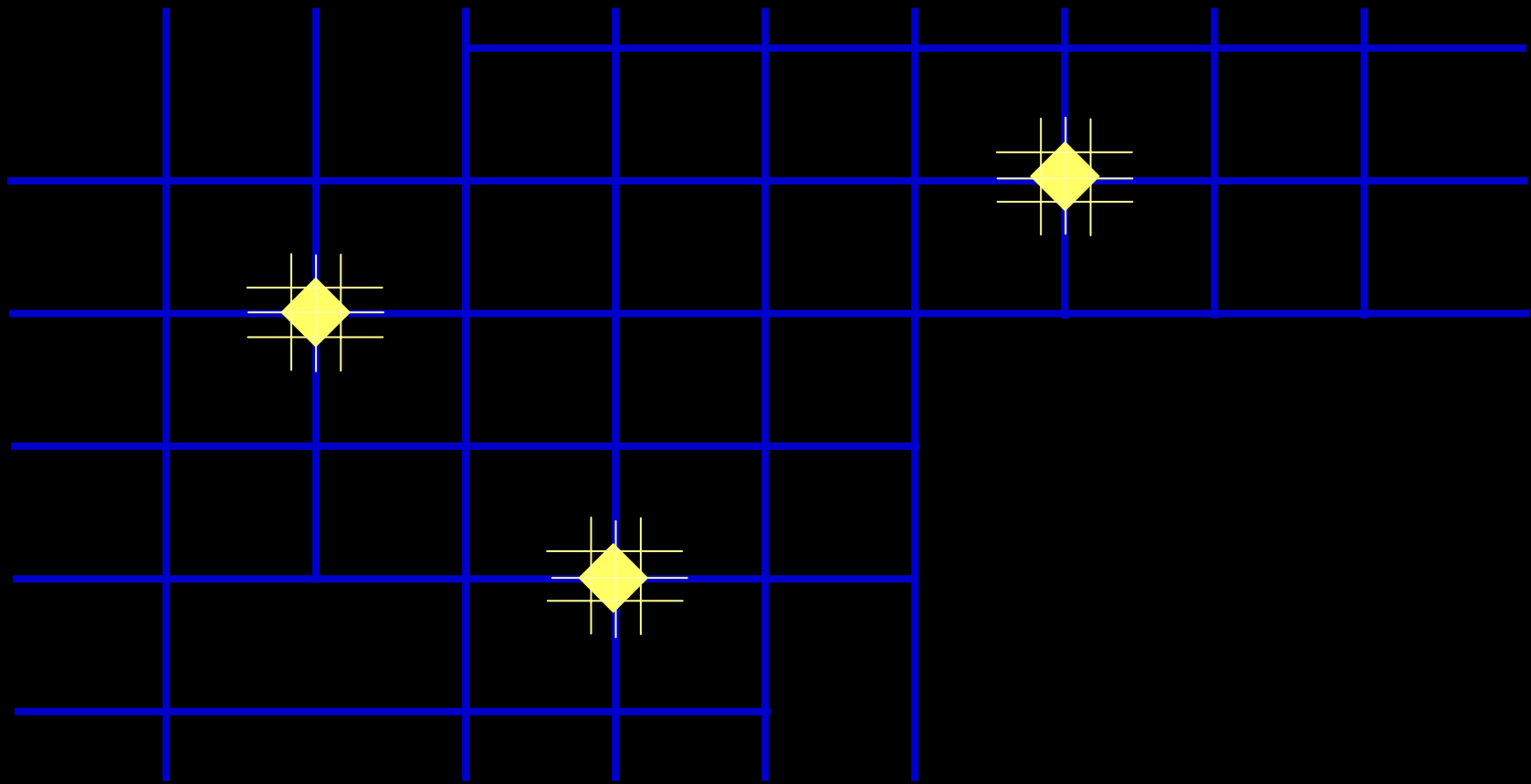

STOP
STOP
STOP

Pedestrian Networks



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

Real-World Pedestrian Structure
(Nodes and Corridors)



“Pedestrian Friendly”

Pedestrian Environment Continuum

Honolulu/Waikiki

Pedestrian Place


Pedestrian Place
Boulder


Winter Park, FL
SOLSTICE
Pedestrian Place


Miami Beach, FL
Pedestrian Place


Redmond
Pedestrian Supportive


Mt. Vernon, IA
Pedestrian Supportive


Longmont
2:00 AM
TO 5:00 AM
2 HR
PARKING
8:00 AM
TO 6:00 PM
WEEKDAYS
Pedestrian Supportive


Jackson, WY
Pedestrian Supportive


Redmond
Pedestrian Tolerant


Longmont
Pedestrian Tolerant


Longmont
MARTIN ST
ICE
Pedestrian Intolerant


Longmont
Pedestrian Intolerant


Flagstaff, AZ
KING
DRIVE TH
UNIVERSITY DR
ONLY
TAR ET
ONLY
Pedestrian Tolerant

Pedestrian Intolerant

Flagstaff, AZ

Smart Growth & Mobility – Casper

Suggested Priorities

- Balance, Diversification, Flexibility
- Dense, Connected Networks
- Efficient Street Design

Thank You