



Putting Connectivity Together

Connectivity Strategies for Vehicles and Pedestrians

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What's the Problem?



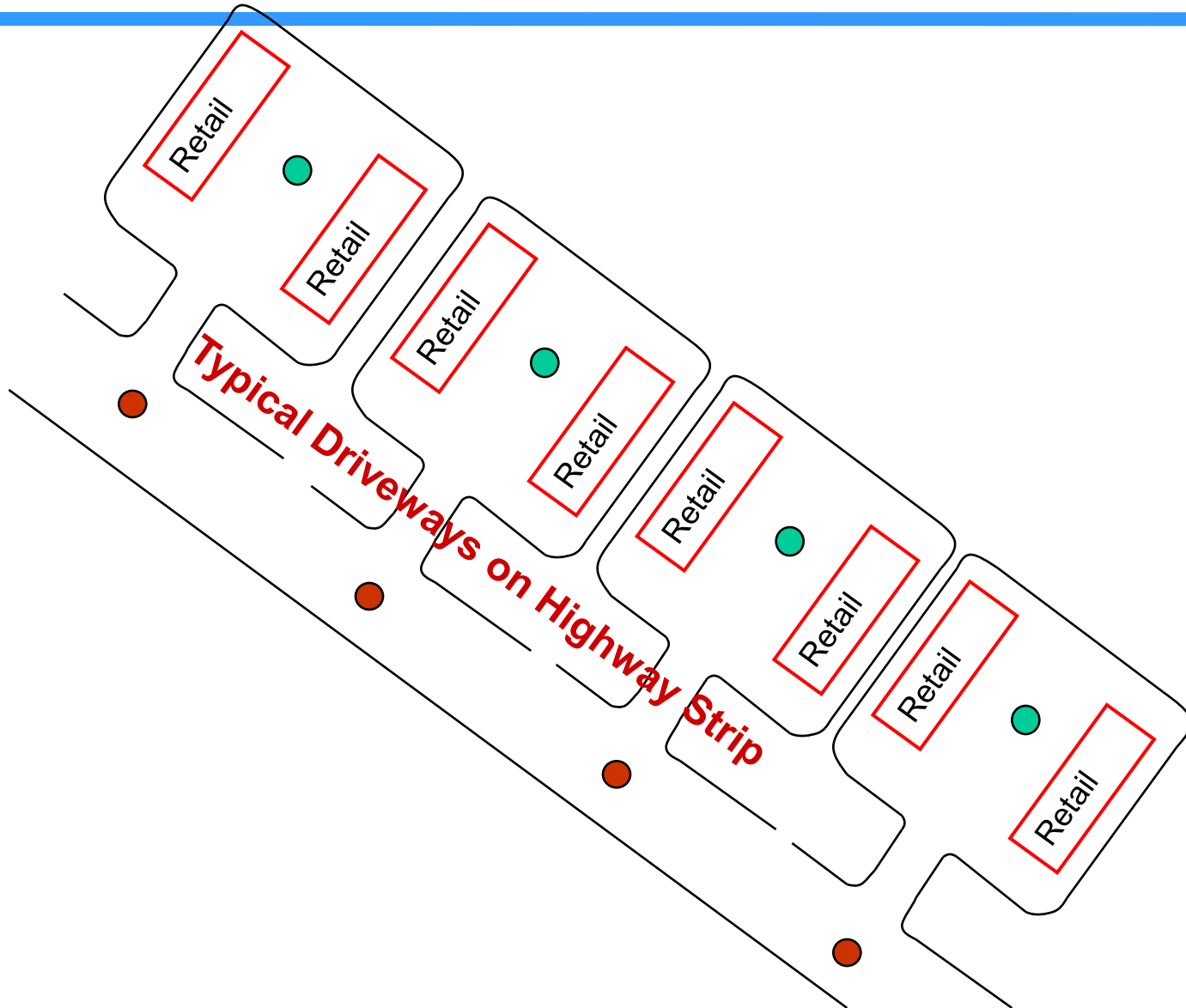


What's the Problem?



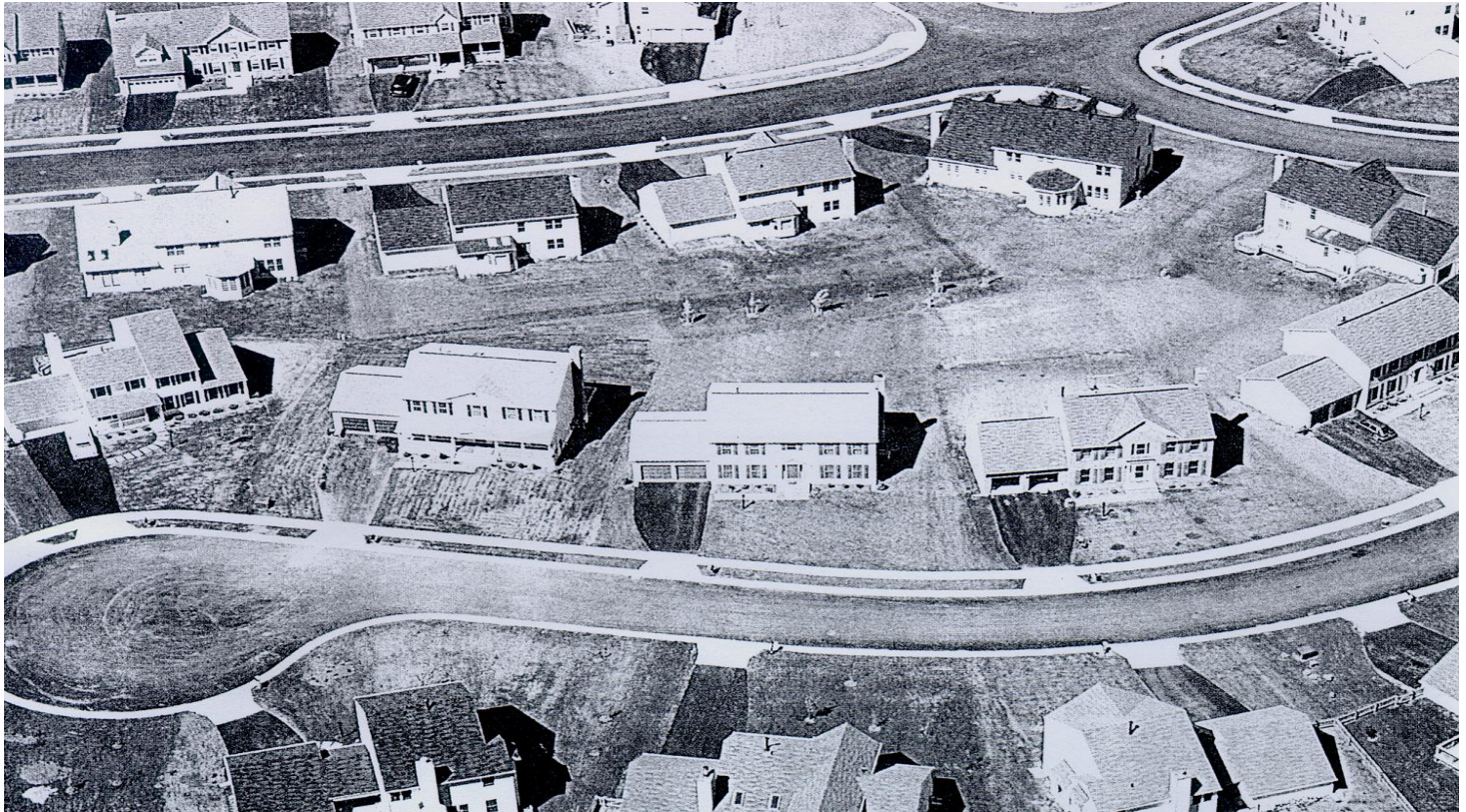


What's the Problem?





What's the Problem?





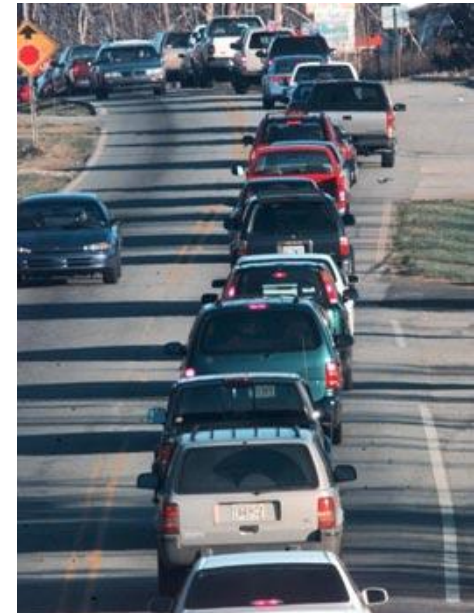
Barriers to Connectivity

Land Use/Design Factors

- Spreading out the functions of living
- Single-purpose land uses – “pods”
- Vast parking lots
- “Landscape strips”

Transportation factors

- Incomplete networks
- Too many cul de sacs
- No sidewalks
- No crosswalks
- No bike paths
- Un-crossable highways
- Too many driveways to nowhere





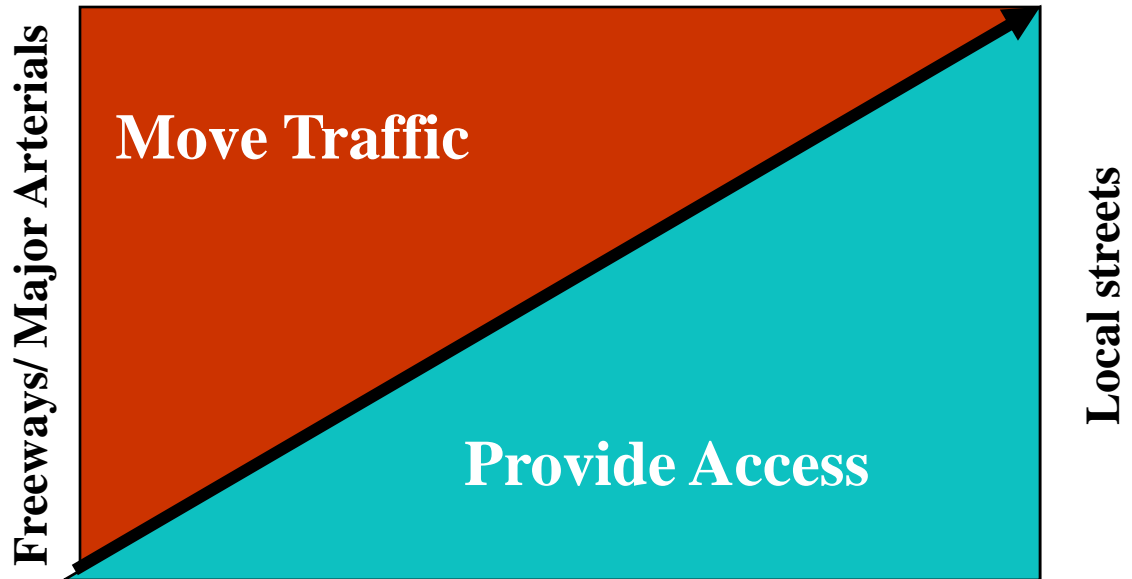
Multiple Functions of a Travel Corridor

Move Traffic (Capacity)

- Car
- Trucks
- Transit
- Bicycles
- Pedestrians
- Delivery trucks

Provide Access to property

- Driveways
- Sidewalks





Conflicted Regional Corridors



Primarily
Through
Traffic



Mixture of
Through
and Local



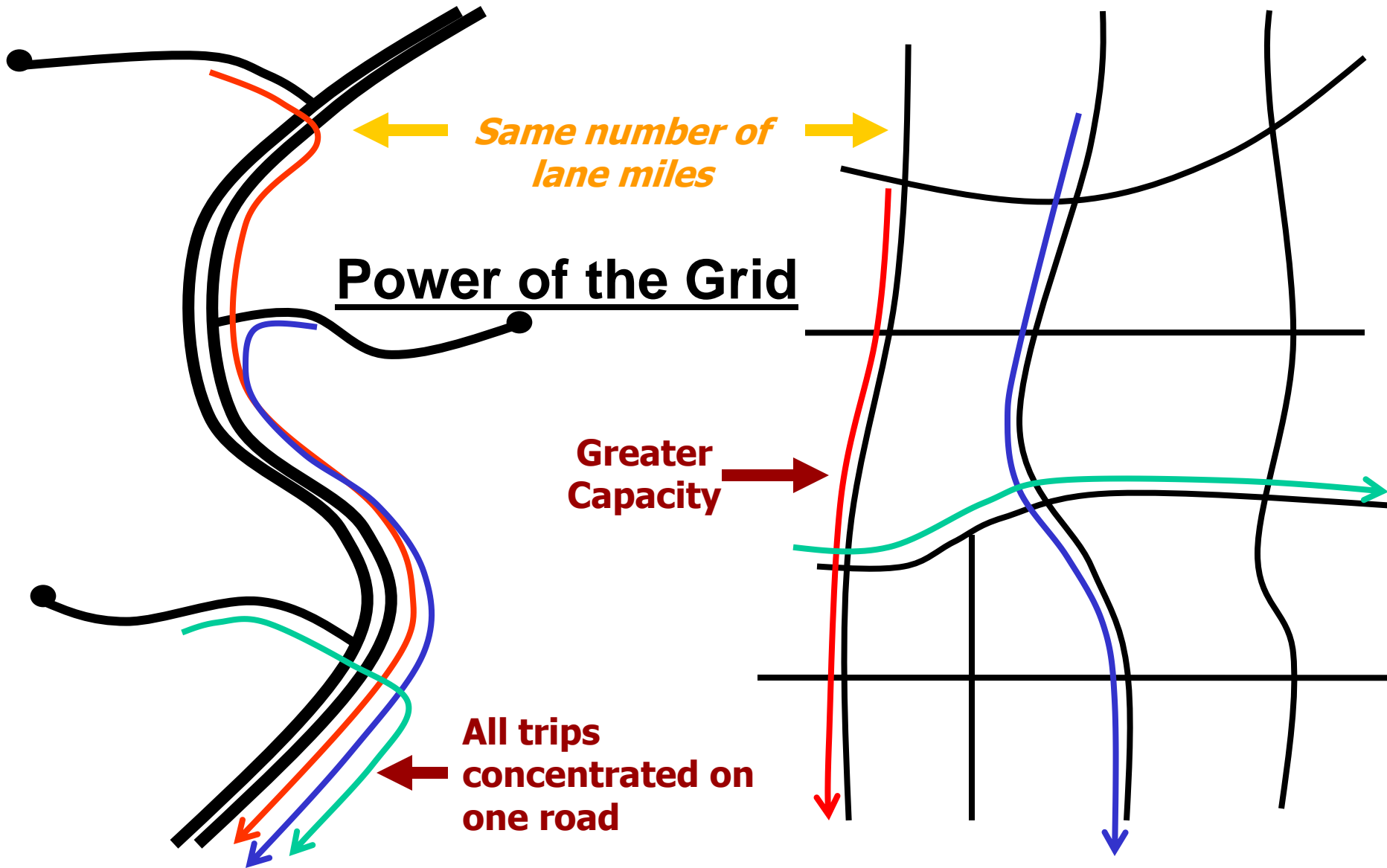
Primarily
Local
Access

Mobility

Accessibility



Connectivity: The Power of the Grid





Connectivity: The Power of the Grid

Hawthorne Traffic Equation

$$\text{Paths}(A,B) = \frac{(m+n)!}{m! \times n!}$$

A			
A 4x4 grid has 10 possible paths from A to B			
			B

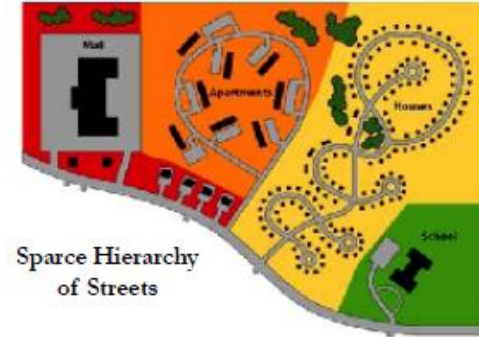
A							
A 8x8 grid has 12,870 possible paths from A to B							
							B



Connectivity for Vehicles

Benefits of Grid

1. More routes
2. Less traffic!
3. Better circulation for
 - Emergency Vehicles
 - School buses
 - Garbage trucks
 - Postal Vehicles
 - Everyone!
4. Efficient utility systems



A typical suburban tract at four housing units per acre on cul de sacs forms a rough grid of through streets spaced at about 3,000 feet apart, resulting in traffic volumes of 9,000 vehicles per day on the arterial grid – too much for neighborhood interaction.



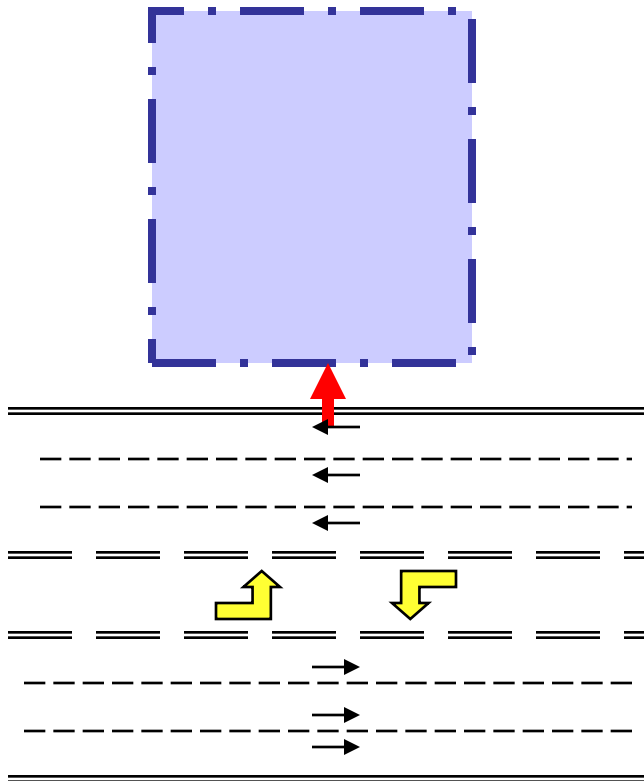
Placing the same houses on an interconnected grid size of 750 feet reduces the traffic on each street to less than 2,000 vehicles per day, which is satisfactory for neighborhood interaction. A smaller grid size would reduce traffic even more.²



Power of the Grid: Urban Model

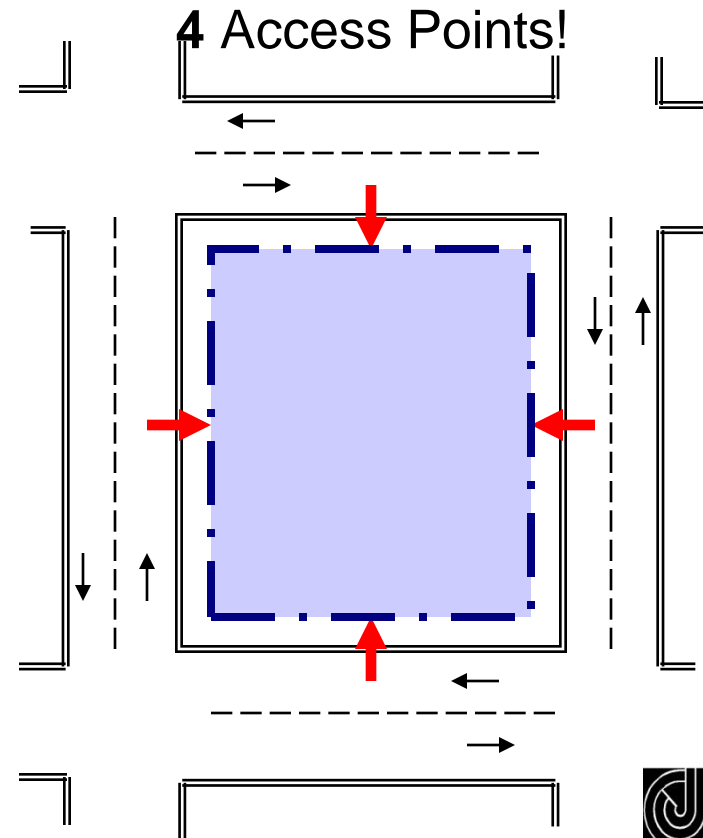
One Major Arterial Frontage

6 Lanes of Capacity - 1 Access Point



Grid Frontage

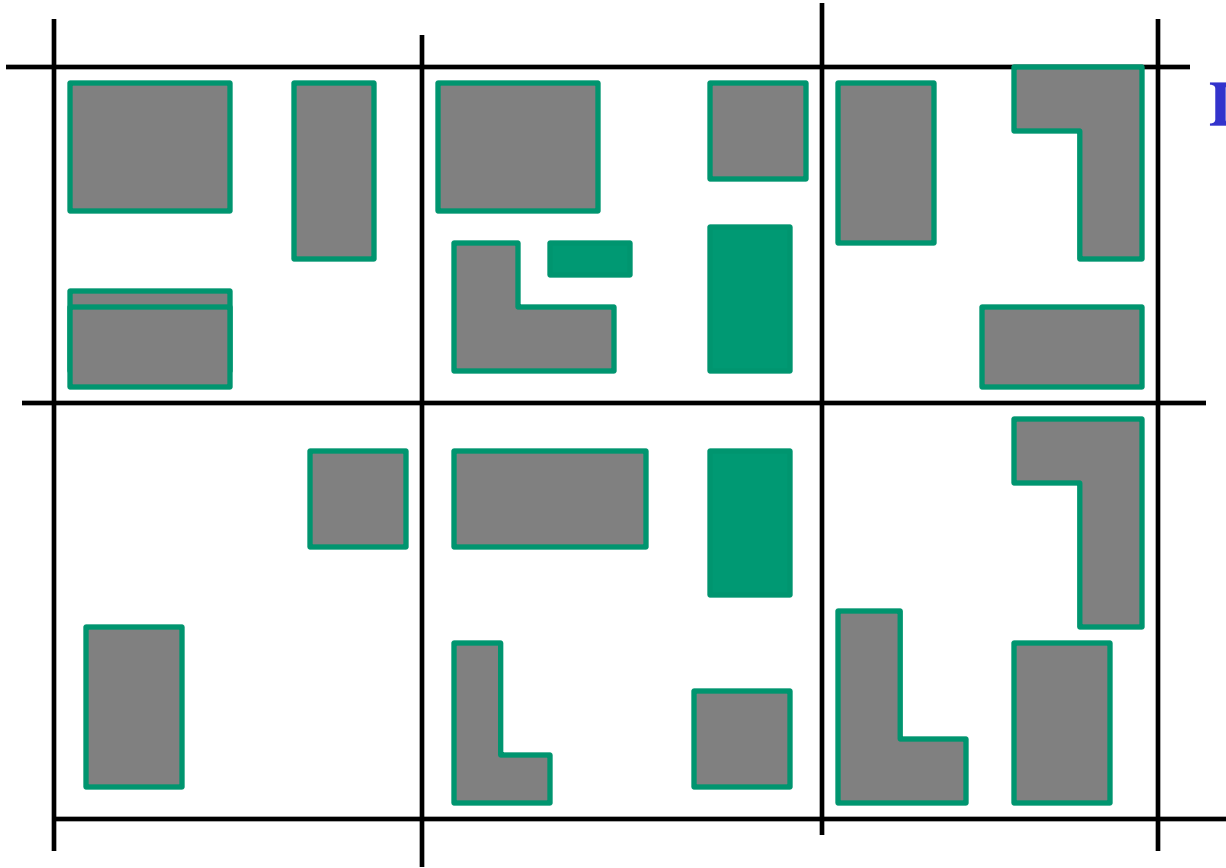
8 Lanes of Capacity





Two Kinds of Grids

Vehicular Grid

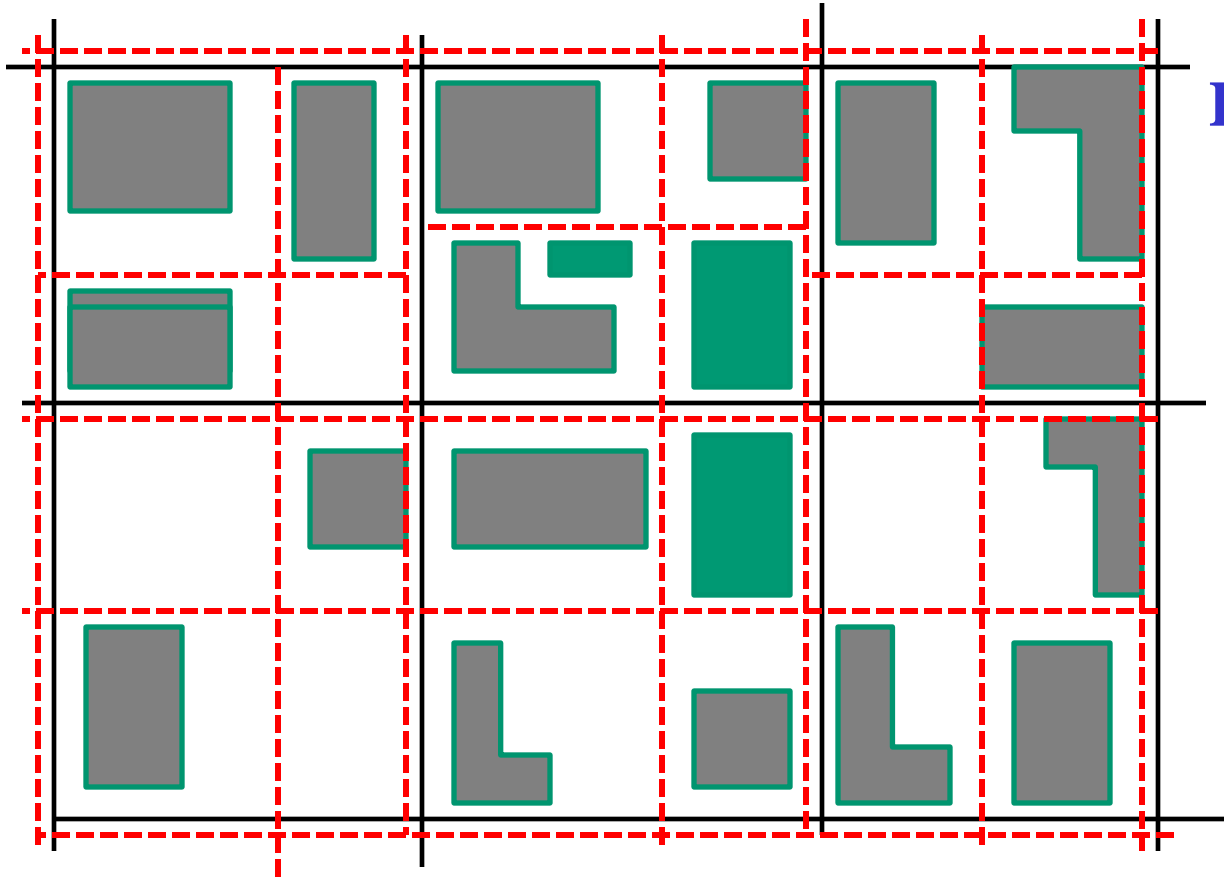


**Desirable dimensions:
400 – 500 ft.**



Two Kinds of Grids

Pedestrian Grid



**Desirable dimensions:
200 – 250 ft.**



Connectivity for Pedestrians

Benefits of Grid

1. Shorter paths for pedestrians
2. More pedestrian travel
3. More use of public transit
4. Less dependency on vehicle travel
5. Less traffic!
6. Economic development!
7. Healthier people!





Good Crosswalks Continue Sidewalks





Mid-Block Crossings

Urban model

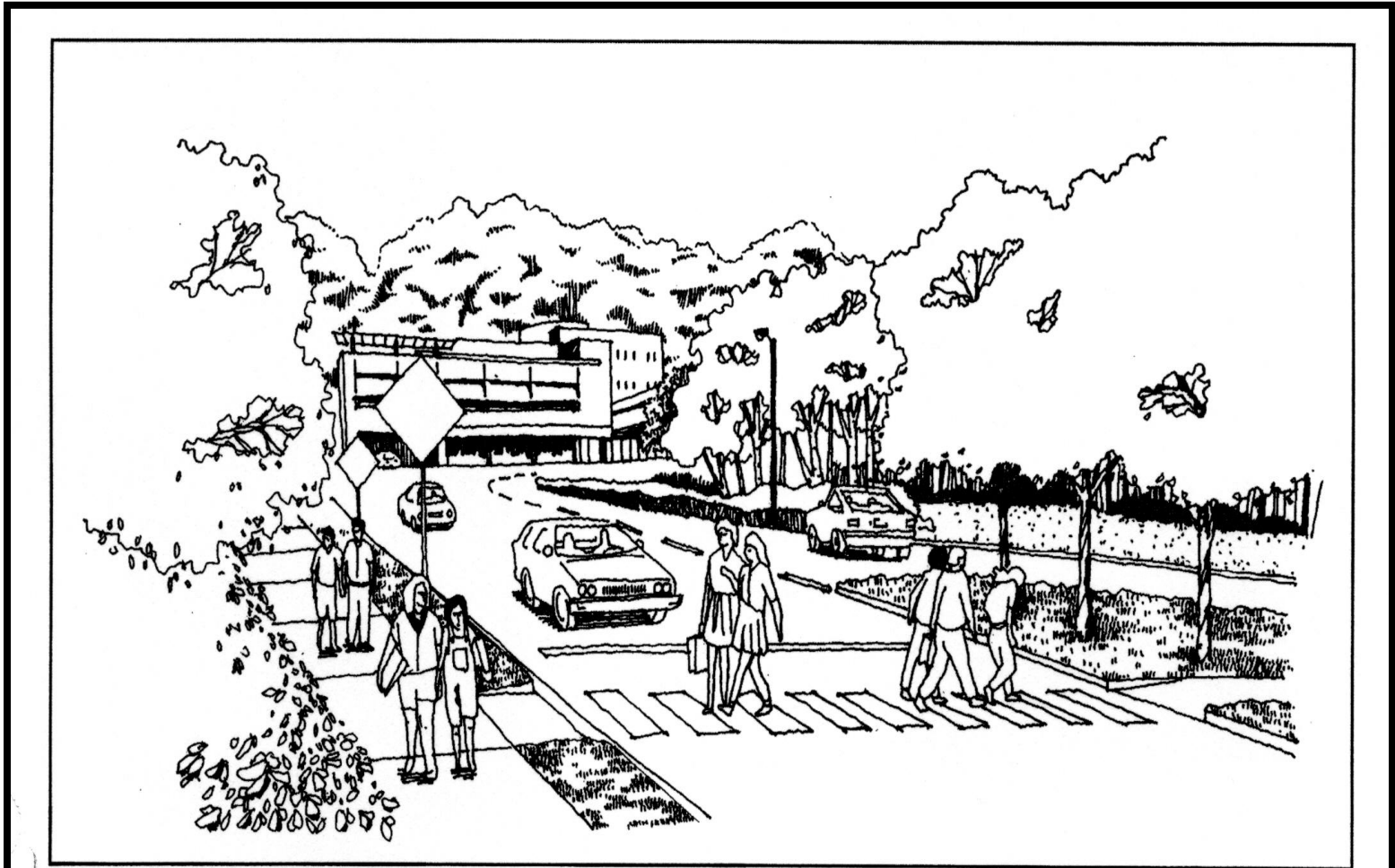
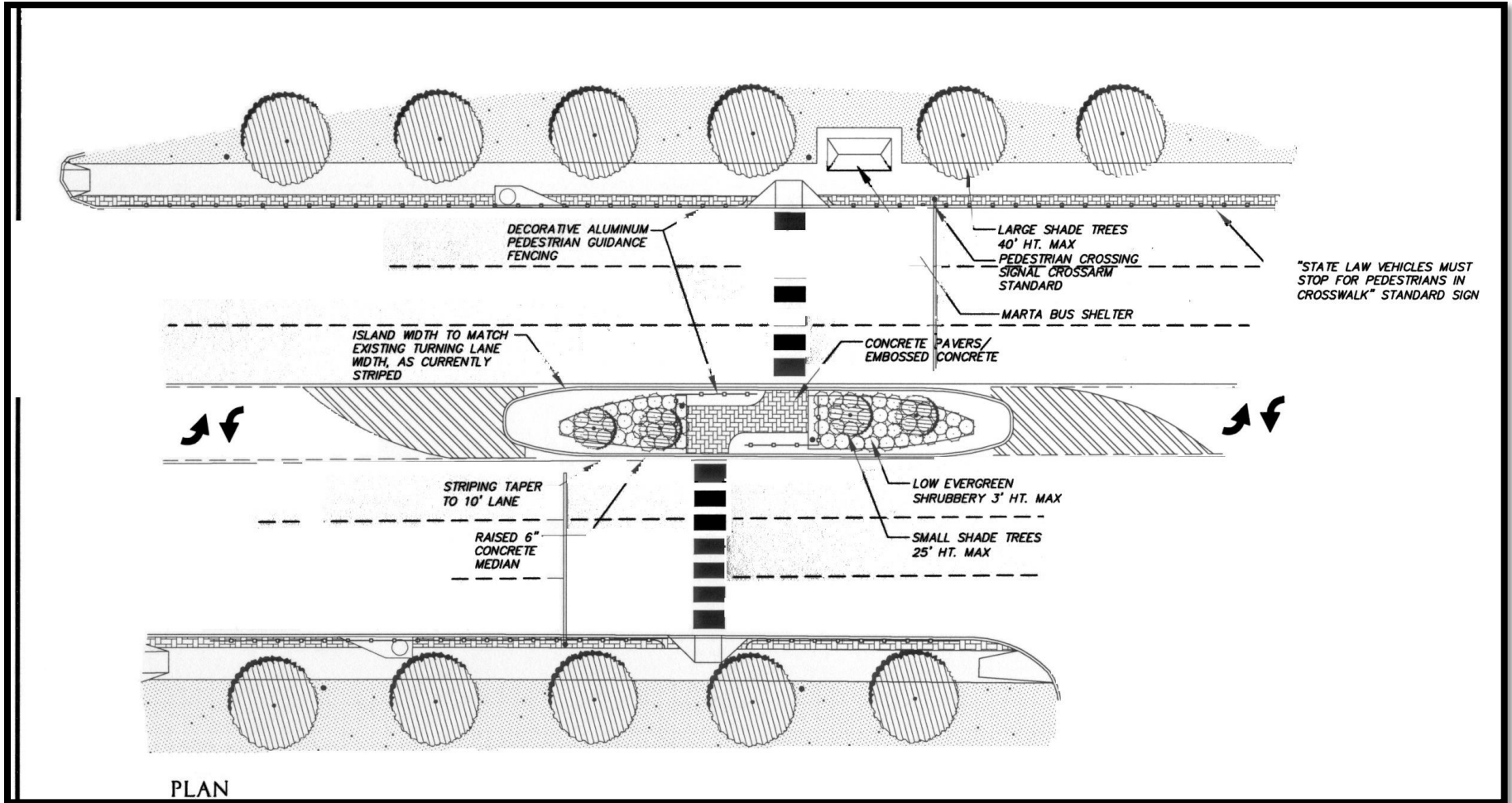


Figure 98



Mid-Block Crossings

Suburban model





Barriers to Pedestrian Connectivity

- Long blocks
- High-speed traffic
- High-volume turn lanes
- Too many driveways
- No right of way or space for sidewalks
- No sidewalks, gaps in sidewalks
- No crosswalks





Barriers to Pedestrian Connectivity

- **Buildings not oriented to street**
 - Big setback with parking in front
 - No front doors
 - No windows
- **Barriers in pathways**
 - Retaining walls, fences and hedges at prop. lines
- **No cover or shade**
- **No streetlights**
- **No trees or landscaping**





Solutions to Pedestrian Connectivity

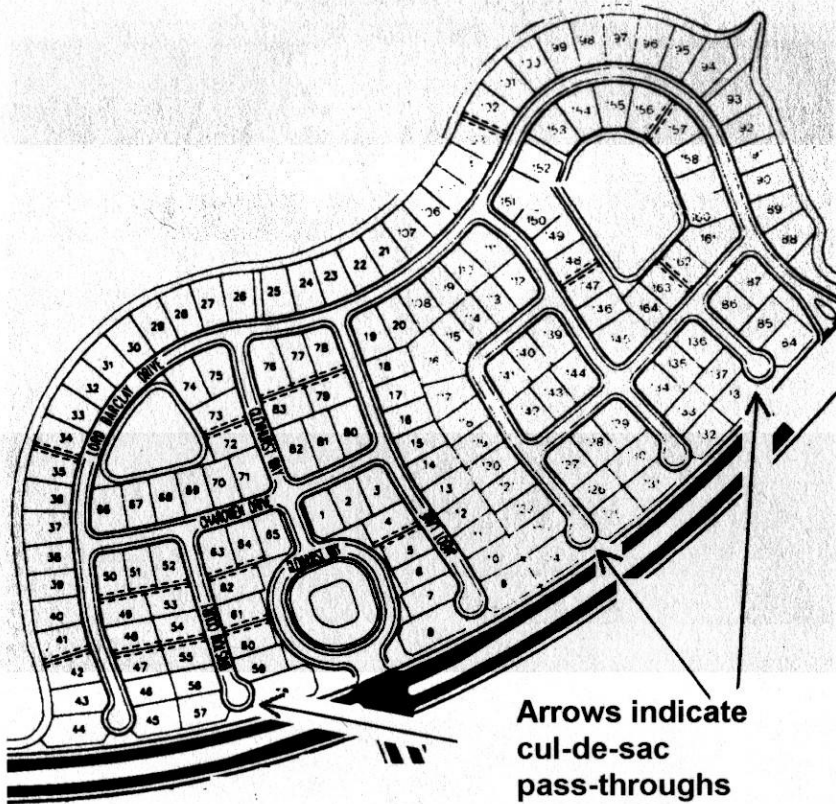
- Clustered land uses
- Mid-block crossings
- Pedestrian access plan
- Street orientation/build-to lines
- Grid system with short blocks
- Street trees and landscaping





Breaking out of Cul se Sacs

*Planned Cul-De-Sac Pass-Throughs
at Hunter's Creek*

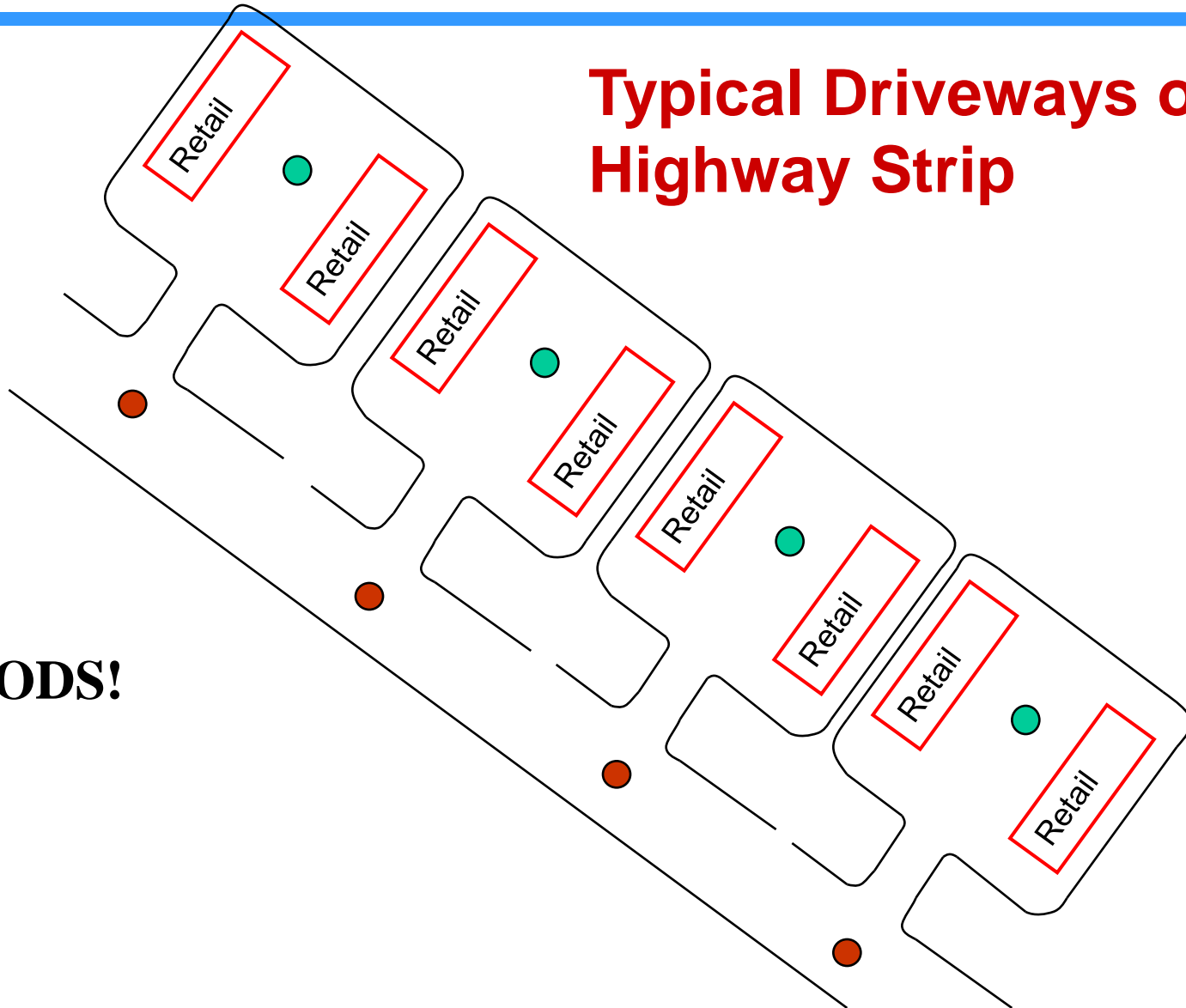




Suburban Strip: No Connectivity

Typical Driveways on Highway Strip

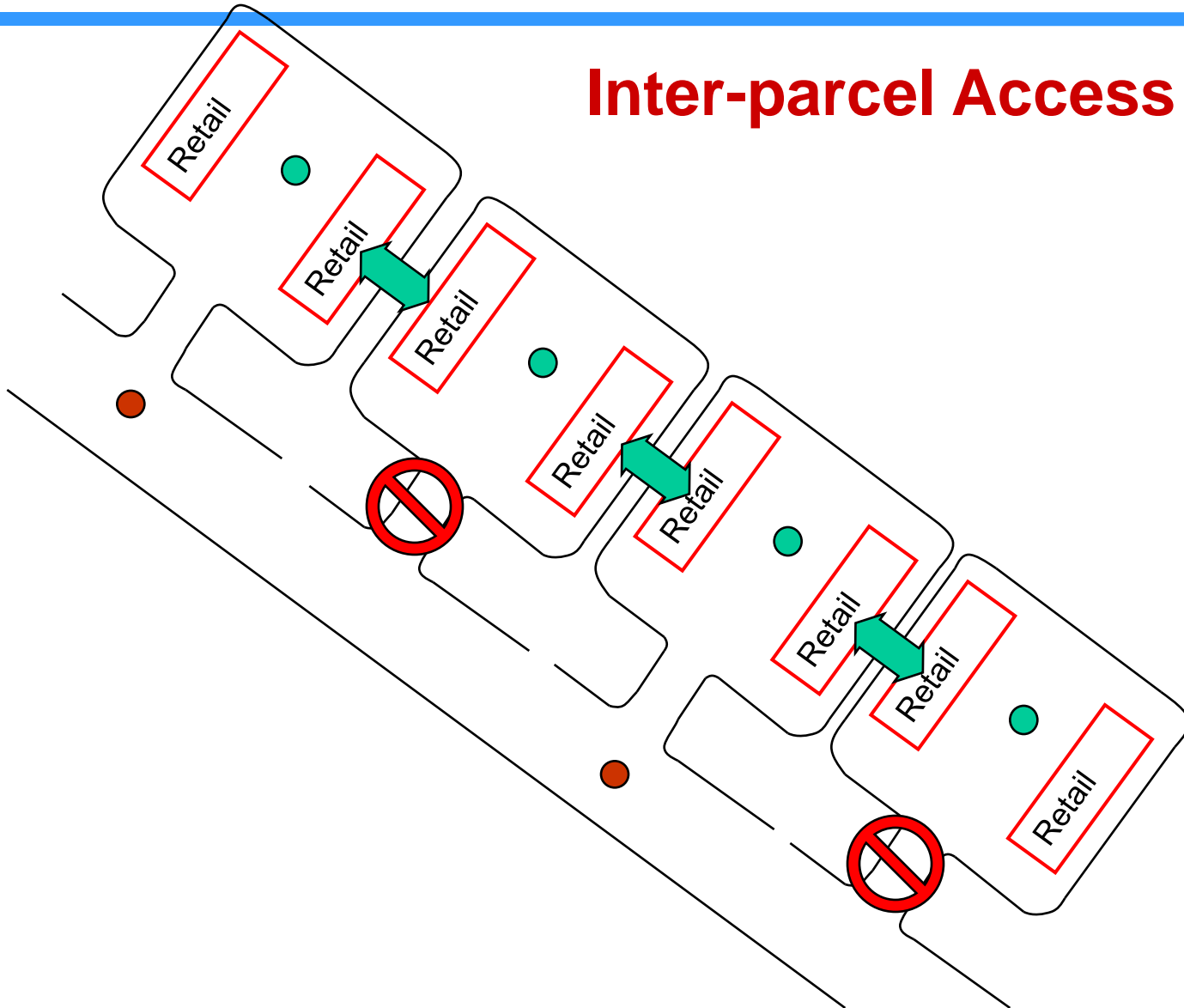
PODS!





Suburban Strip: 1st Order Connectivity

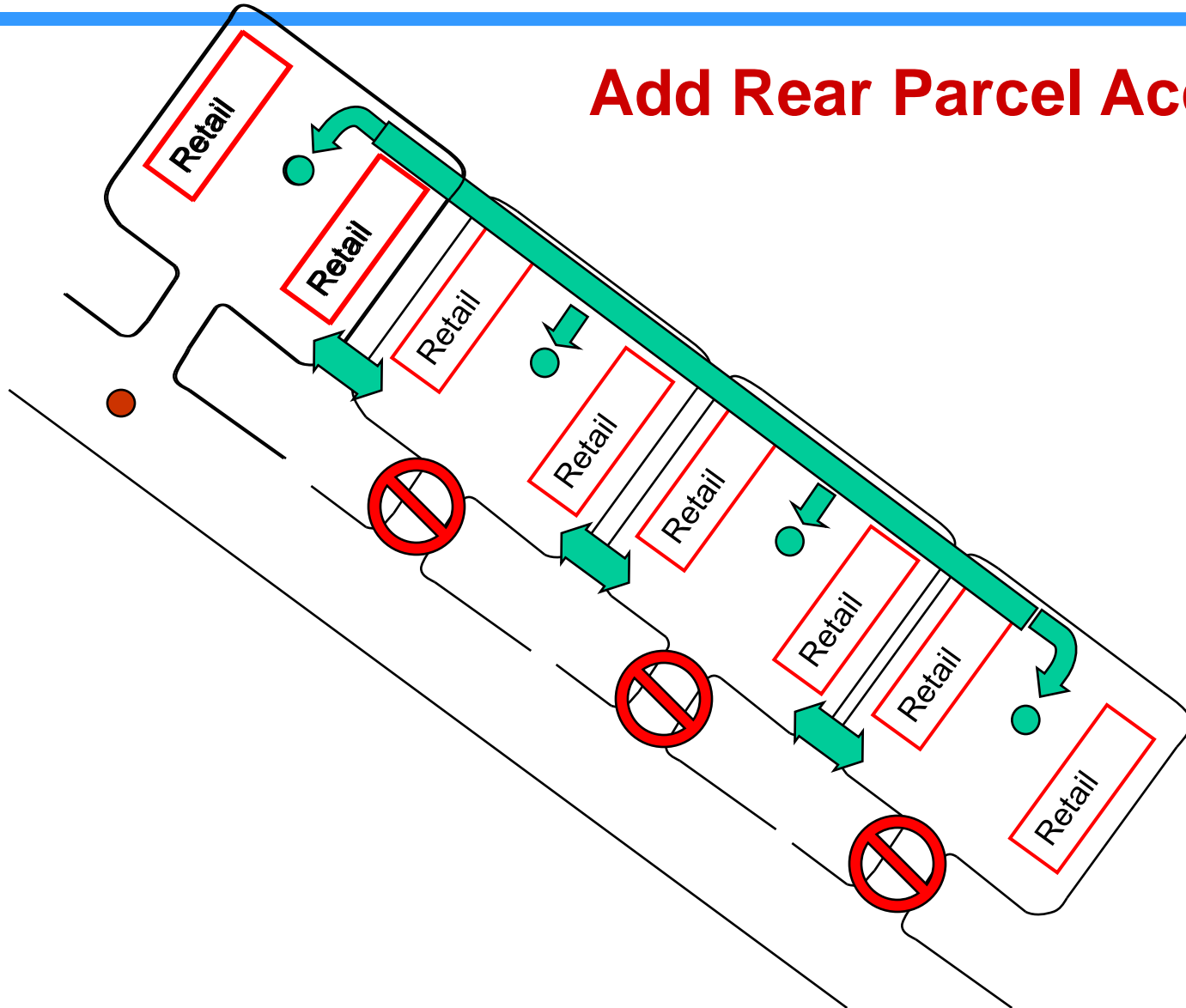
Inter-parcel Access





Suburban Strip: 2nd Order Connectivity

Add Rear Parcel Access





What's wrong with this picture?





Extend the Grid through Parking Lot

Internal Block Connectivity

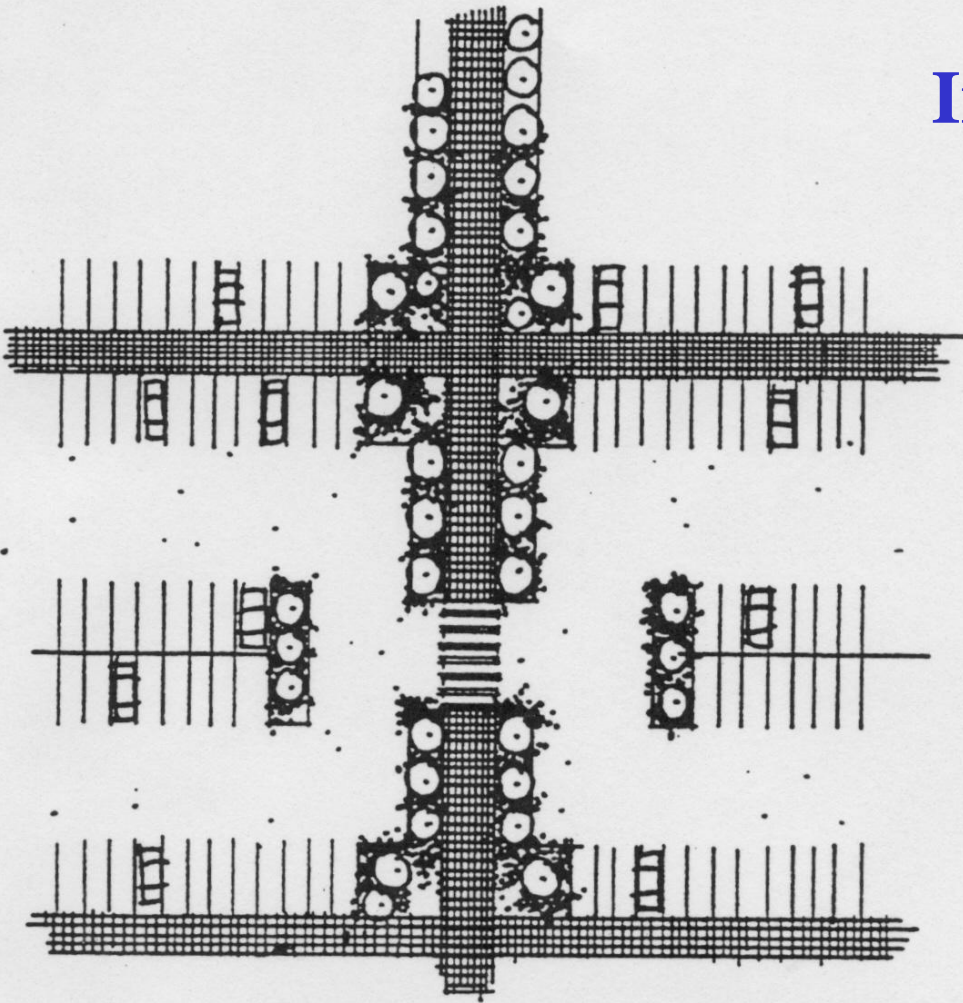


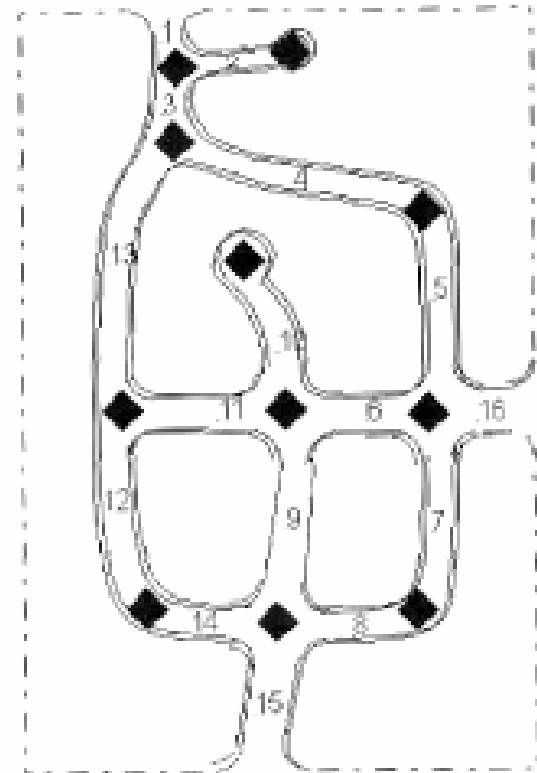
Figure 15. Walkways through parking area.



Regulatory Tools for Connectivity

- Maximum block length
- Connectivity index
- Interparcel access required with cross-access easement
- Stub street requirement
- Prohibit gated streets
- Density neutral provision

(16 links/11 nodes = 1.45 ratio)

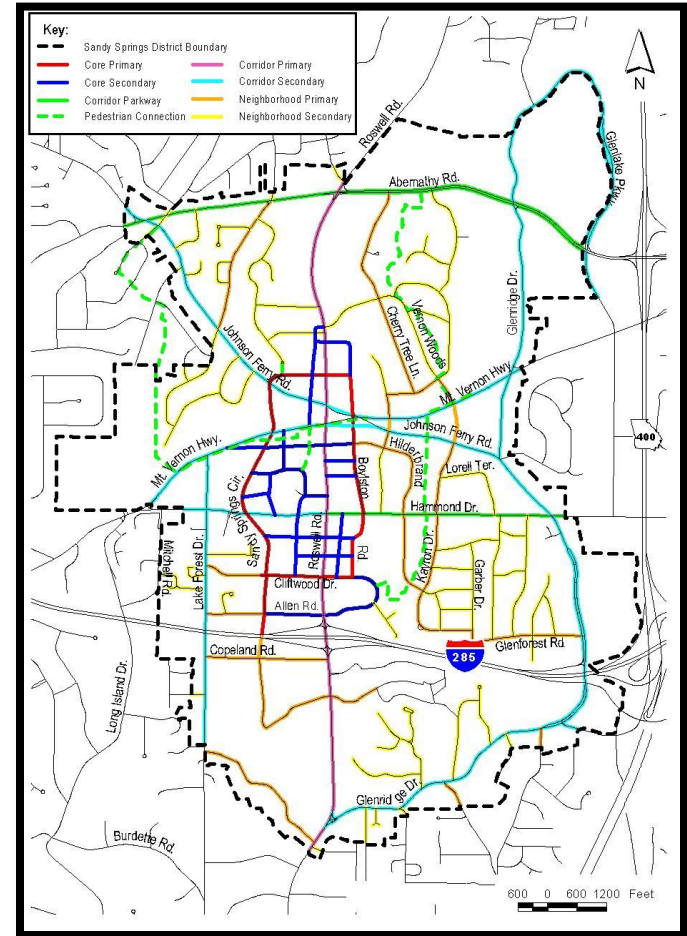


Kentucky Transportation Cabinet, Street
Connectivity Zoning and Subdivision Model
Ordinance



Planning Tools for Connectivity

- Bicycle and Pedestrian Plans
- Multi-modal Access Plans and Connectivity Studies
- Mapped Street Ordinance
- Traffic calming





Strategy: Reinvent Parking



Surface parking...
wastes valuable land

Mean walking distance
800 ft. radius

46 Acres

10% Streets (4.6 acres)
25% Buildings (11.5 acres)
60% Parking (27.6 acres)
5% greenspace (2.3 acres)



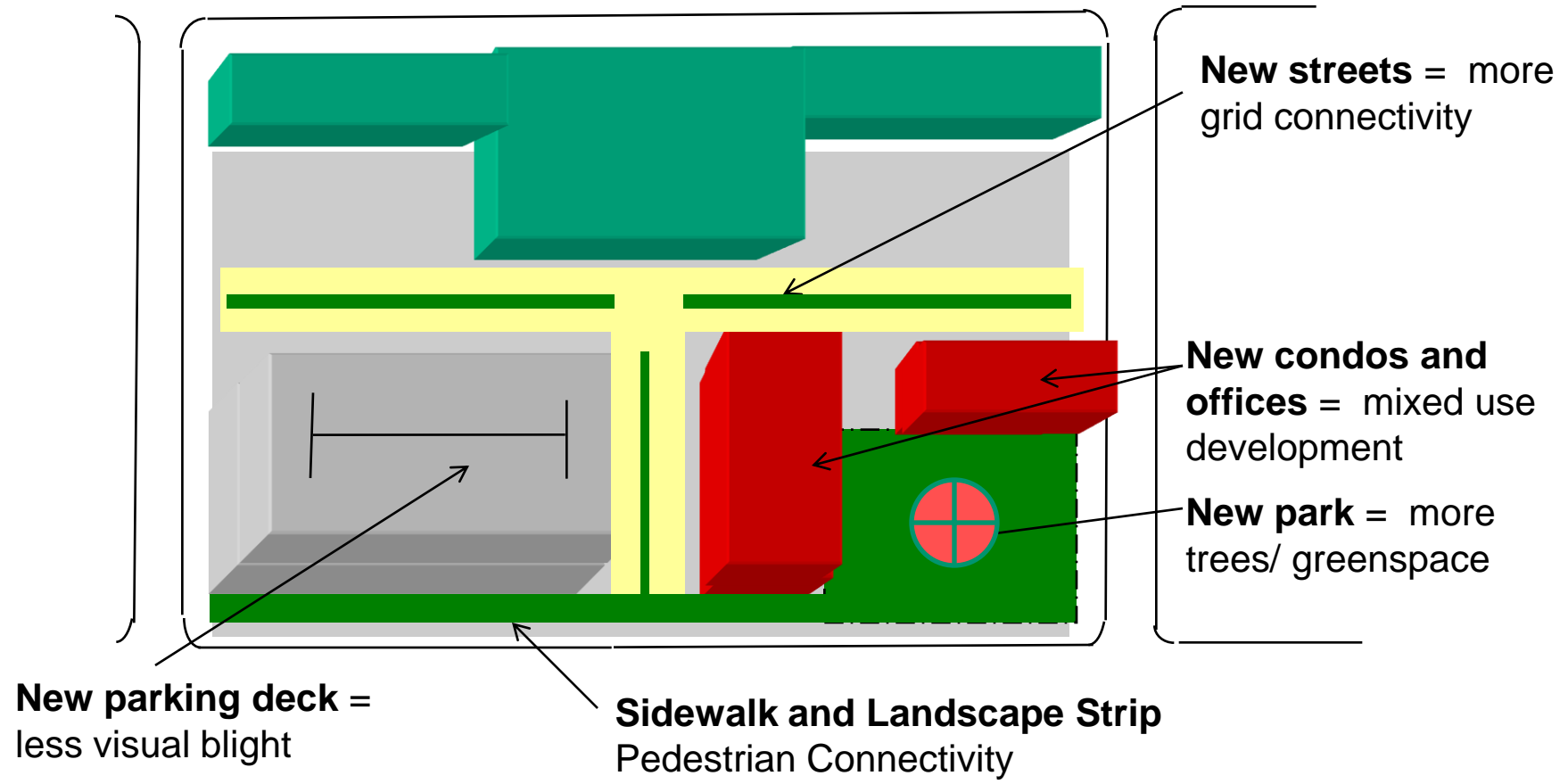
Urban Strategy: Roswell Road





Strategy: Reinvent Parking

Award Density Bonus of .1 FAR for each 1% of park area.





Result: Parking Lots Into Parks





A String of Emeralds

Questions ? Comments?

