

# MOBILITY

## 3. Complete Streets and Mobility

## 4. Parking Strategies & Guidelines



# ISSUES TO BE ADDRESSED BY PRACTICES

## 3. Complete Streets and Mobility

- Accommodate alternative non-vehicular modes
- Provide transit priorities & improved transit user access
- Assure smooth flowing & calm vehicular traffic
  - Reclaim Streets for Multiple Purposes
  - Decrease Greenhouse Gas Emissions
  - Lower Vehicle Miles Traveled
  - Improve Safety for All Users





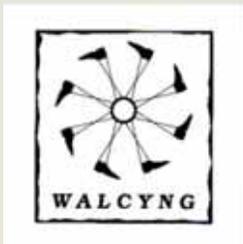
**Complete Streets**

**Smart Growth**

**Sustainable Communities**

**Transit Supportive Planning**

**Walkable Communities**



**Active Transportation**

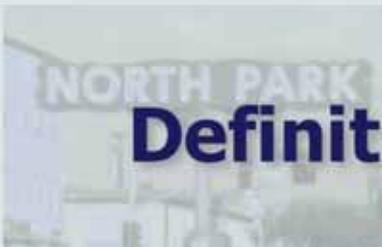
**Urban Forestry**



**Solutions Today Need to Solve Many Problems**



*Complete Streets are designed and operated so they are safe, comfortable and convenient for all users – pedestrians, bicyclists, motorists and transit riders of all ages and abilities.*



## **Definition of a Complete Street**



- 25-45% of land in major U.S. urban areas are streets, sidewalks, parking lots and alleys
- Streets are lands controlled by the public that can be reclaimed for more uses than just vehicles



**Streets Set Urban Form and Land Use Structure**

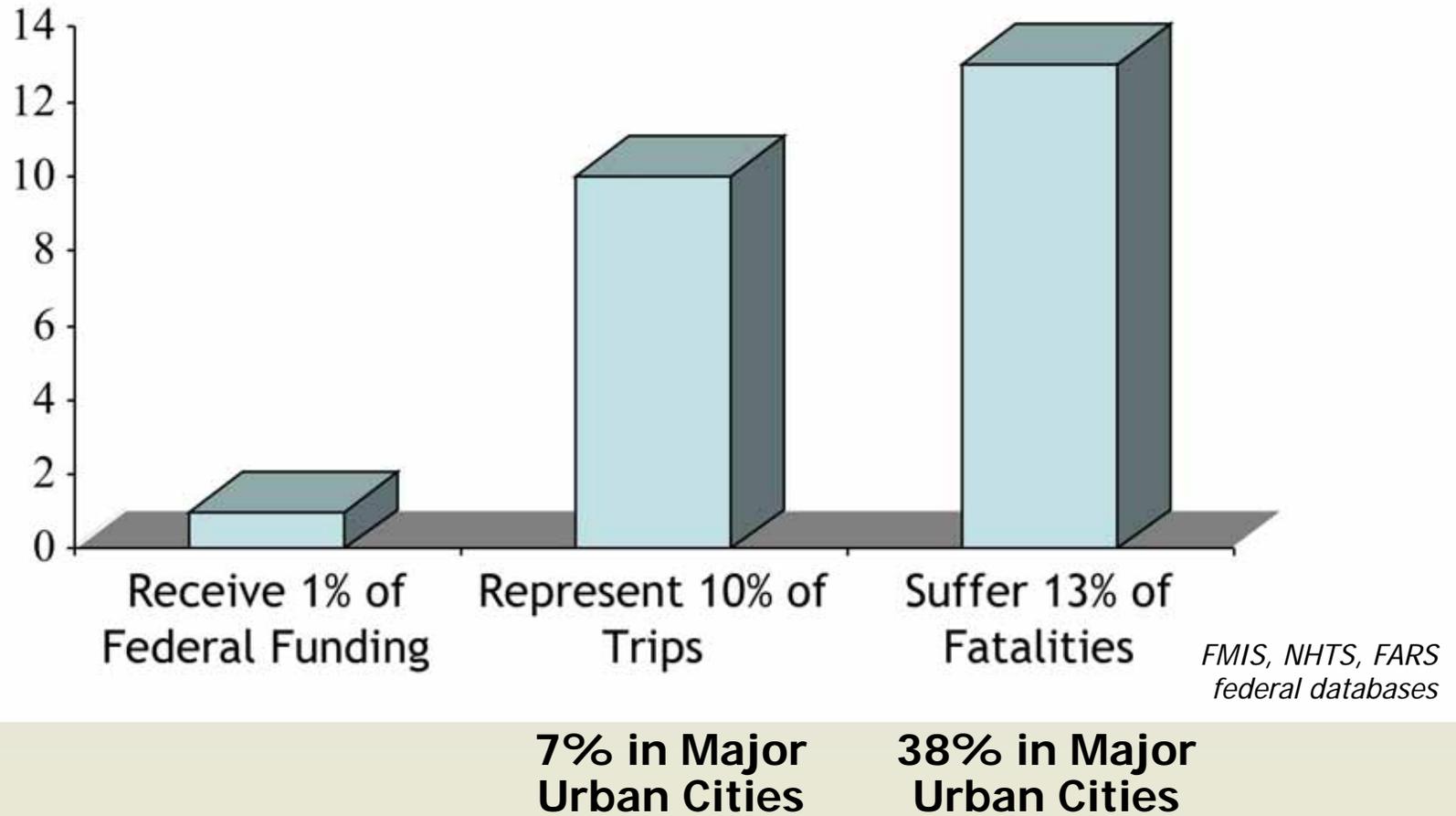
**In urban areas, 28% of vehicle trips are < than 1 mile:**

- Many trips are walkable (1/2 mile) & bikeable (several miles)



## **Mobility Trip Characteristics**

## Pedestrians and Bicyclists...

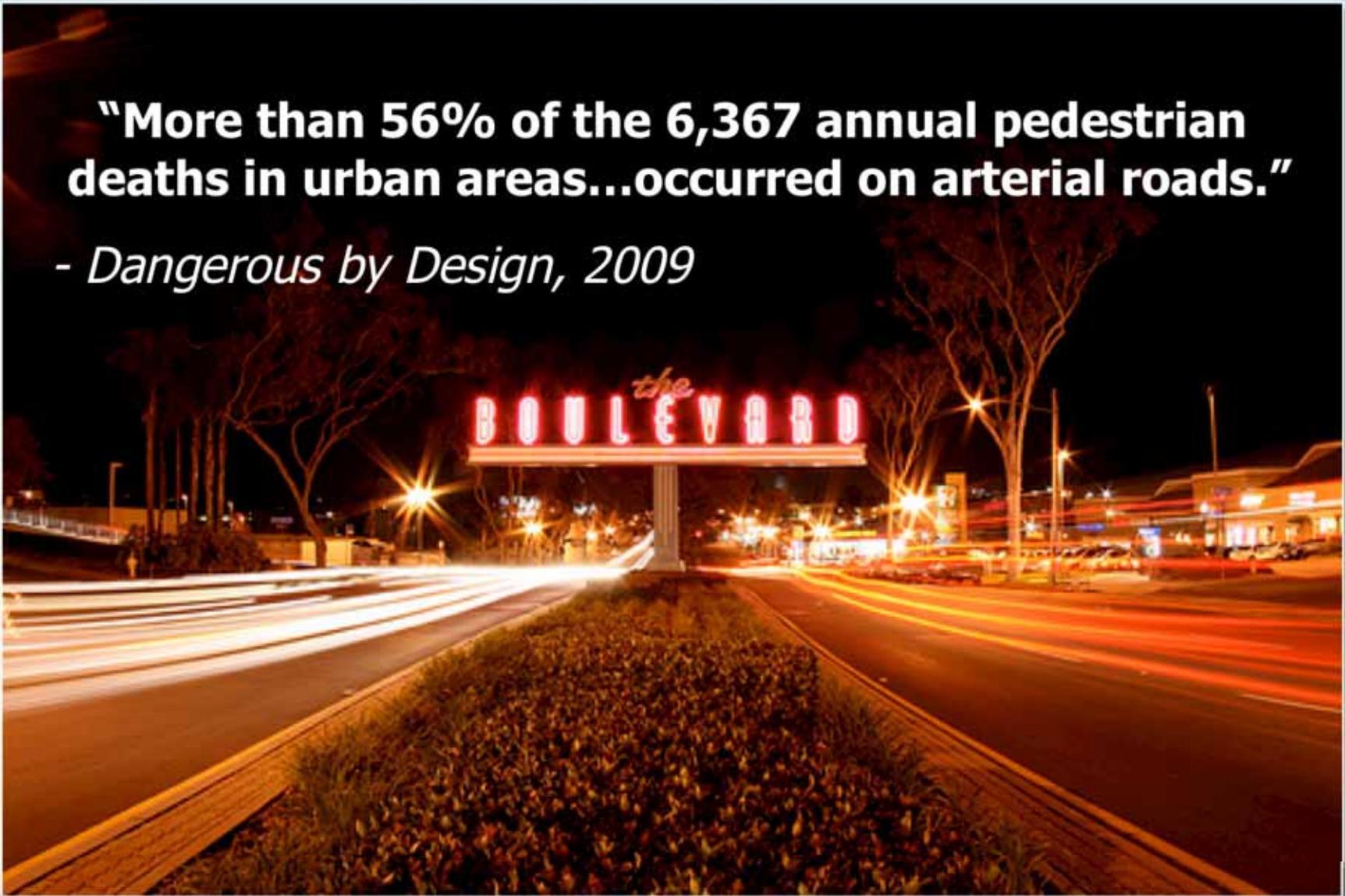


**Incomplete Streets are Unsafe**



**“More than 56% of the 6,367 annual pedestrian deaths in urban areas...occurred on arterial roads.”**

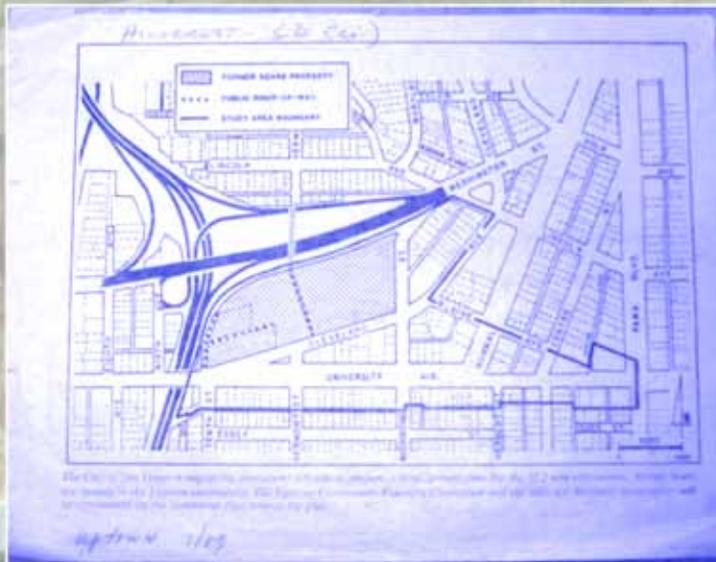
*- Dangerous by Design, 2009*



**Primary Safety Challenge: Major Arterials**

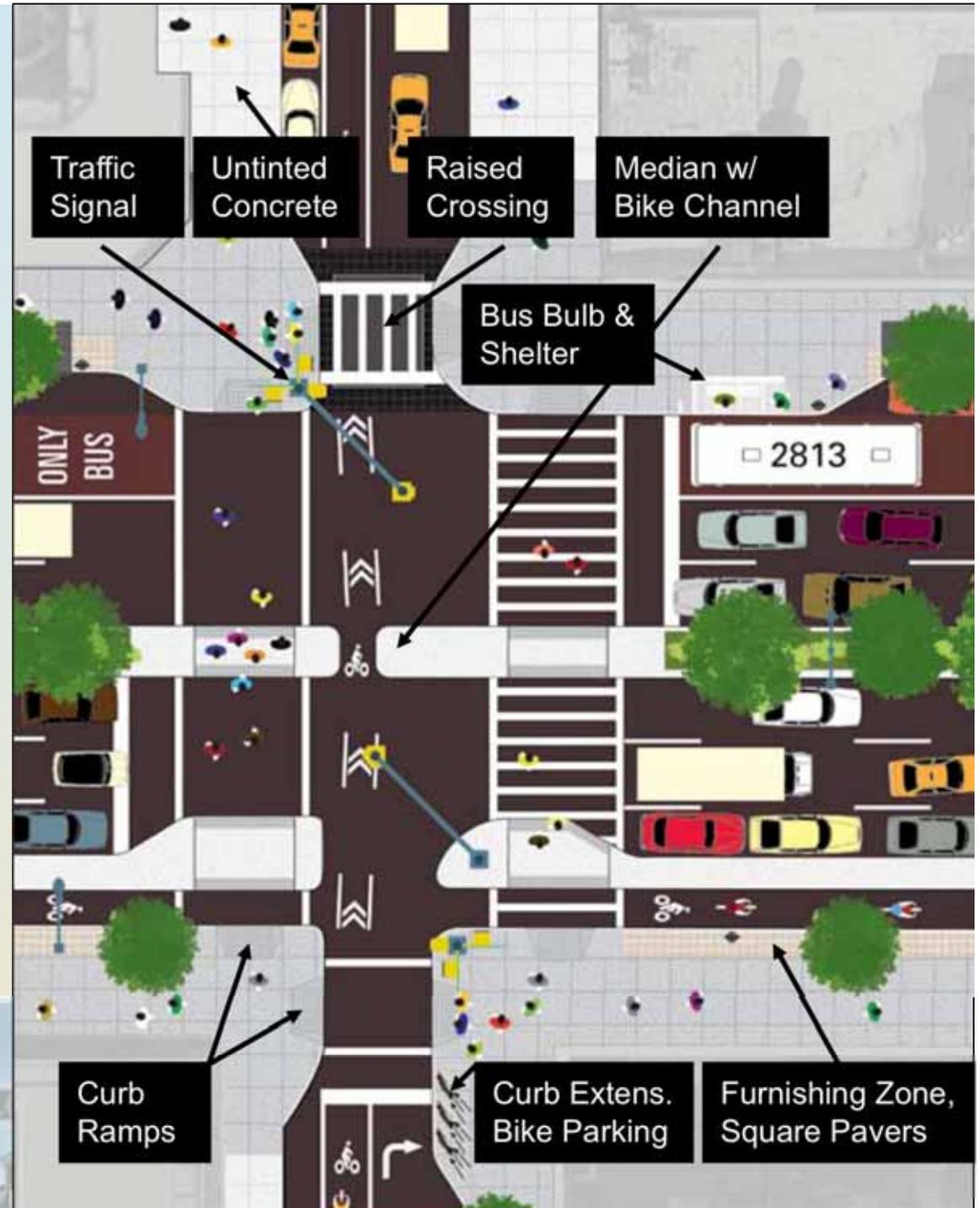
**“What we must do is to operate the 90% or more of our surface streets just as we do our freeways.”**

*- Kenneth Stonex, General Motors  
1966 National Highway Safety hearing*



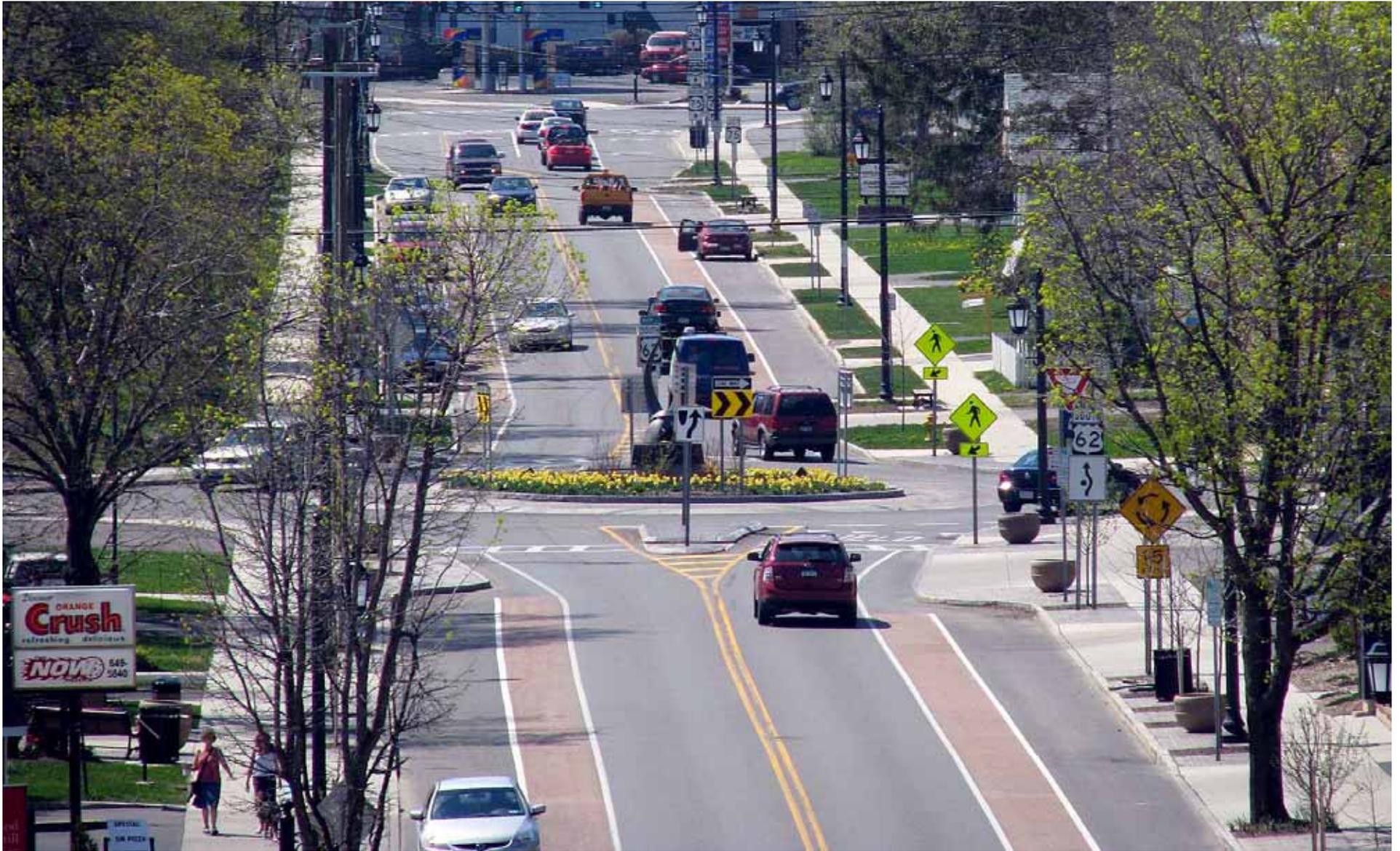
**Street Design Philosophies of the 1960s**

- Plan entire ROW
- What opportunities are present?
- What innovations can be tried?
- Can sustainability be increased?





**Innovation: Dual Bike Lanes on One-Way St.**



## Innovation: Street Redesign for Multiple Uses



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**Innovation: Multi-Way Boulevards**





**Innovation: Changing a Bad Street into a Complete Street**

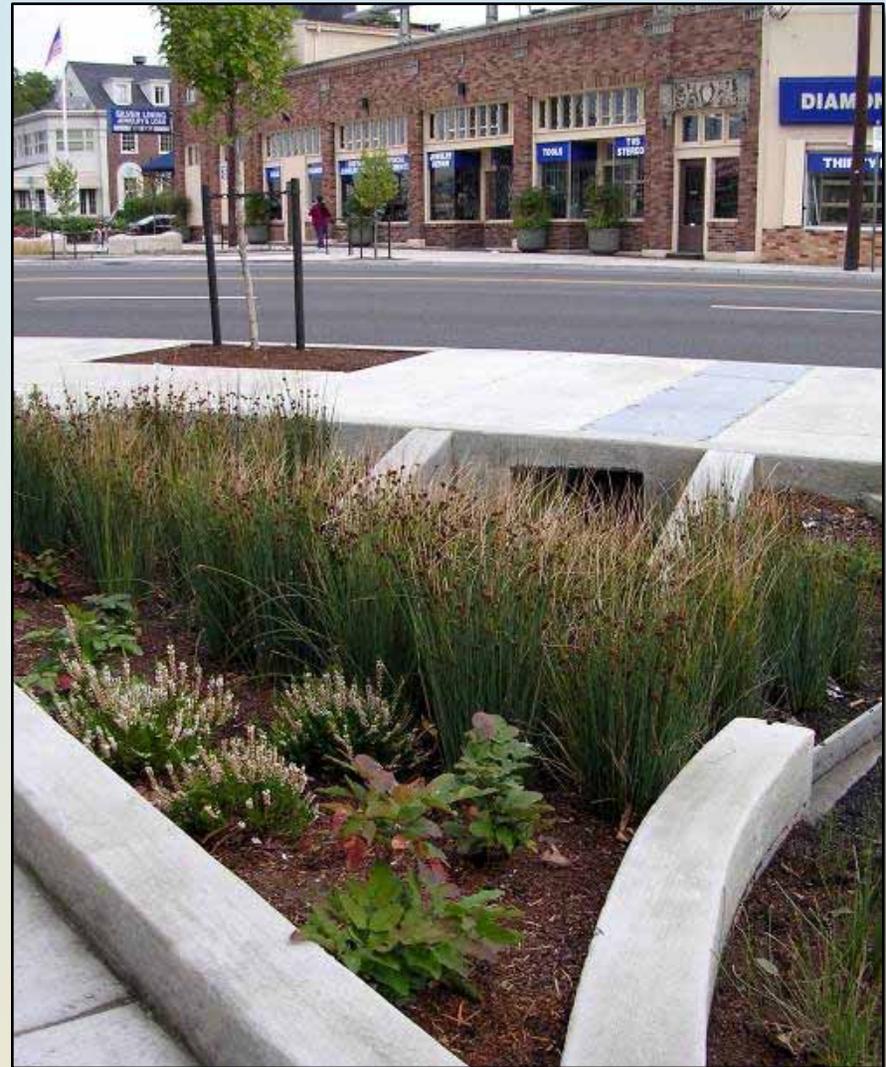
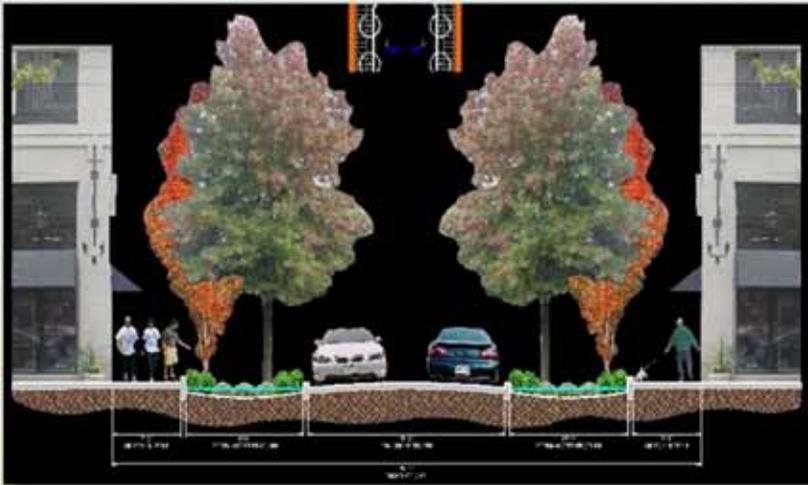


Innovation: **Bikeway Boulevards**



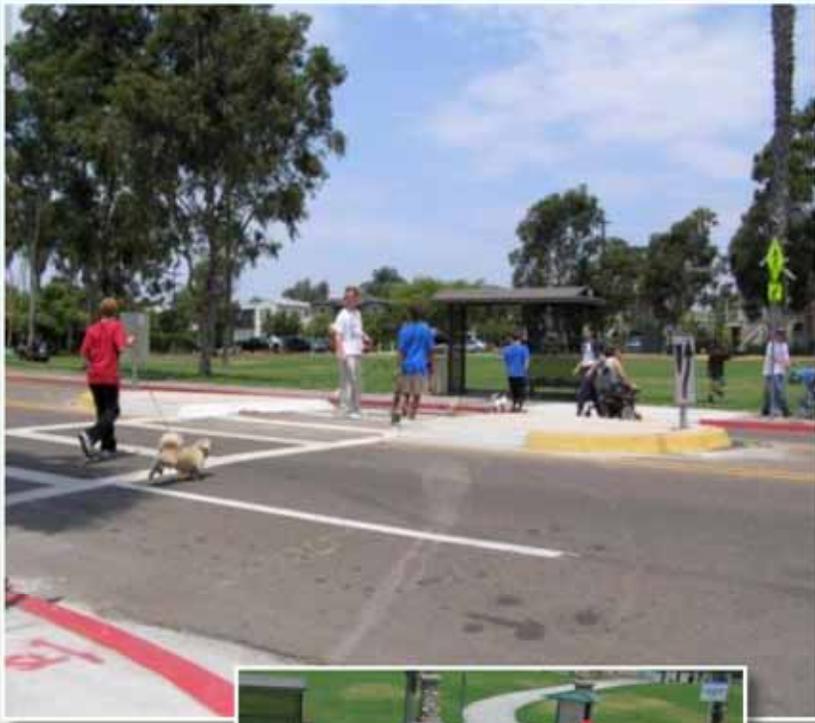
## Innovation: Pedestrian Refuges

- 11% less impervious surface
- 99% less stormwater runoff





**Pedestrian Improvement Tools: Traffic Calming Tools**



**Pedestrian Tools: Median Refuges & Funneled Crossings**



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## Extra Streetlights



## Pedestrian Instructions



## Guide Fence with Direction Change



Advance  
Stop Line  
with  
Signage



Pedestrian Improvement Tools: **Pedestrian Crossing Signage**



# Pedestrian Improvement Tools: **Mid-block Crossing Devices**



## Pedestrian Improvement Tools: **Pedestrian Crossing Signals**



**Pedestrian Improvement Tools: Enhanced Crosswalks**

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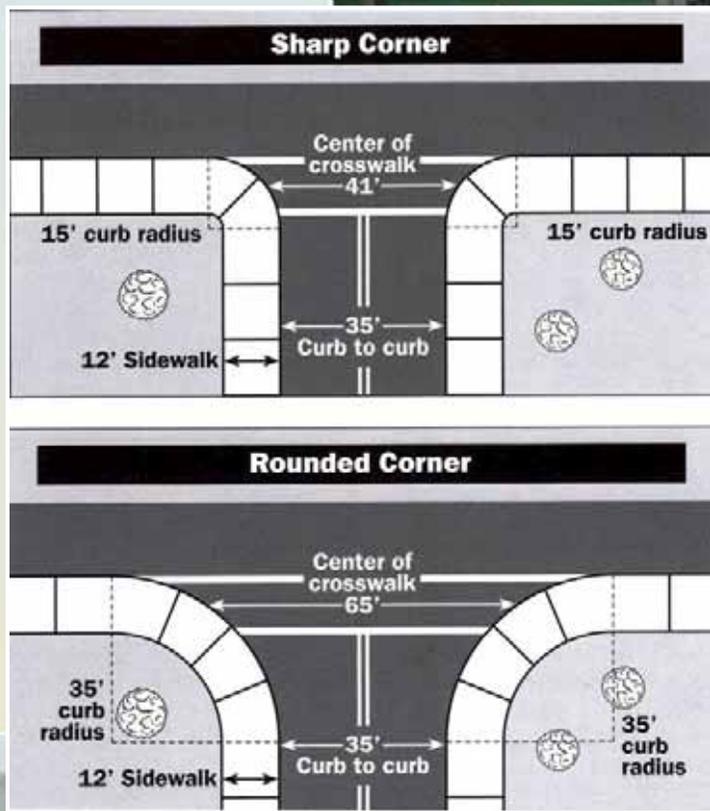
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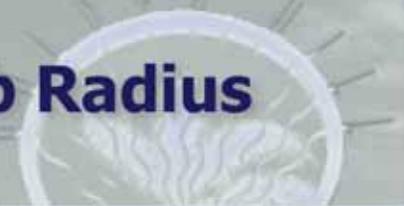


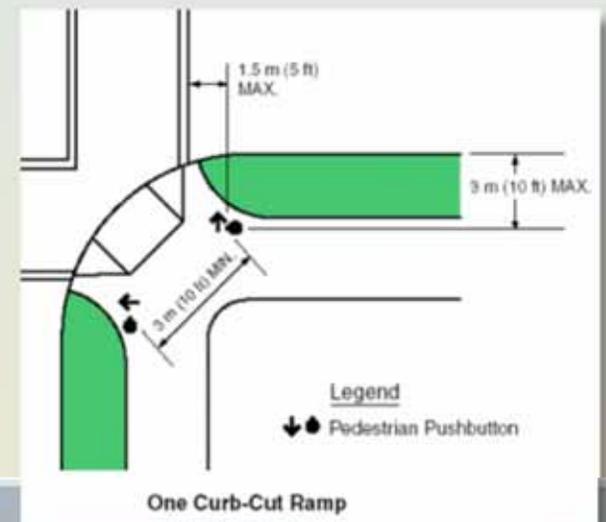
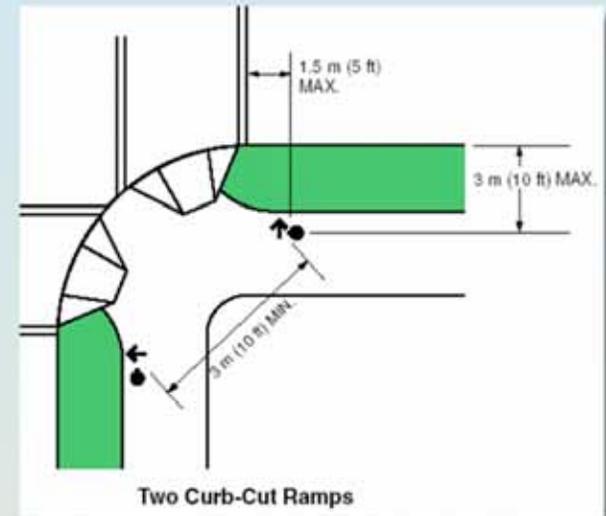
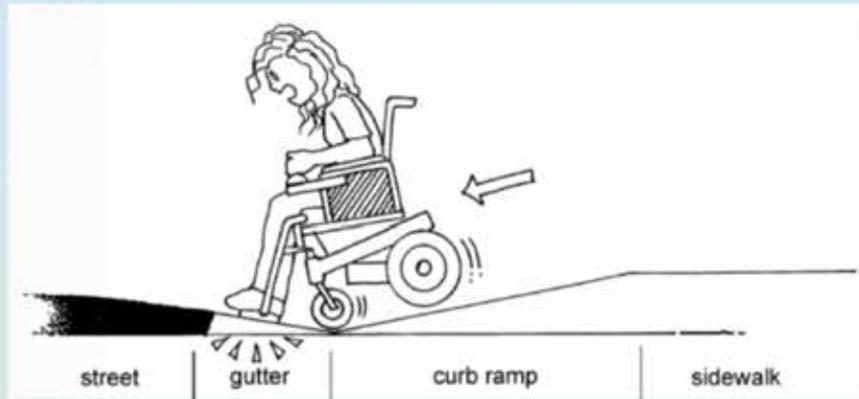


**Pedestrian Improvement Tools: Crosswalks at Roundabouts**



## Pedestrian Improvement Tools: **Reduced Curb Radius**





# Pedestrian Improvement Tools: Accessible Curb Ramps



## Safety



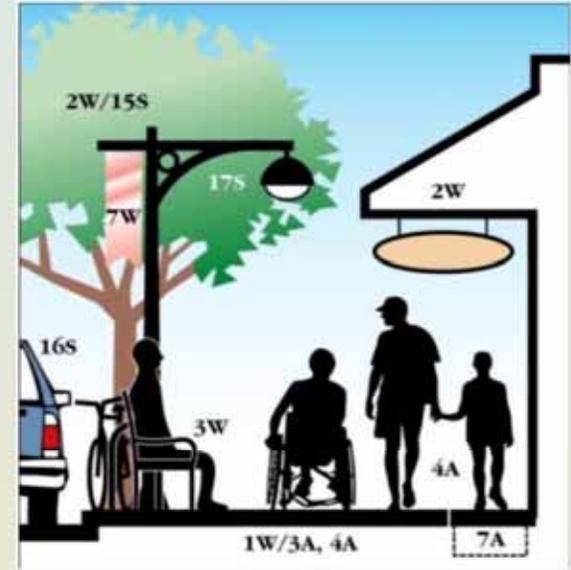
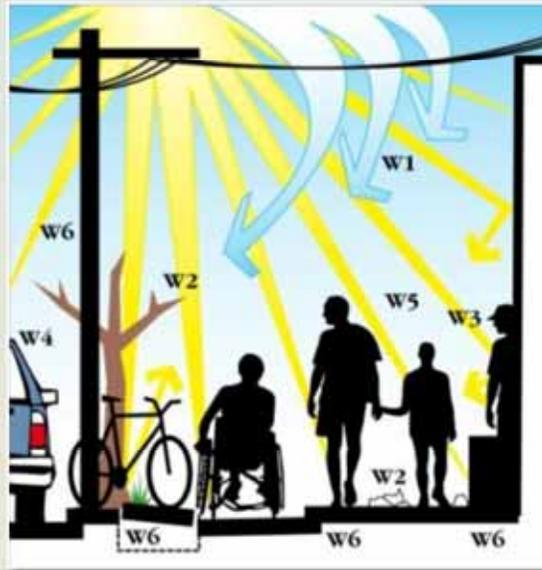
## Accessibility



## Connectivity



## Walkability



Walkability: Required Components



“The sidewalk is the focal point of public life.”  
Larry Beasley, co-director, Vancouver  
Planning Department





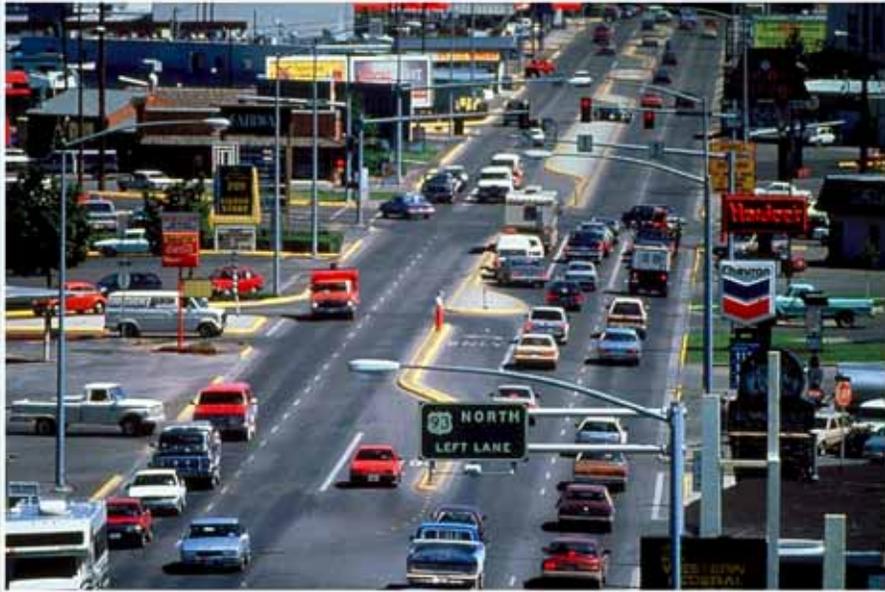
## Walkable Urban Areas

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**When you design only for vehicles, this is what you get**

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**When you design for people, this is what you get**

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**Proper Design Activates the Street and Supports Retail**

# ISSUES TO BE ADDRESSED BY PRACTICES

## 4. Parking Strategies & Guidelines

- Provide Adequate Parking without Dominating the Site
  - Integrate Land Use & Mobility to Reduce Demand
  - Find Cost Effective Solutions to Keep Area Affordable
- Eliminate Parking Overflow Problems into Neighborhoods



Credits: Nelson/Nygaard



*A progressive approach to parking that responds to the problems of supply and outdated parking design*



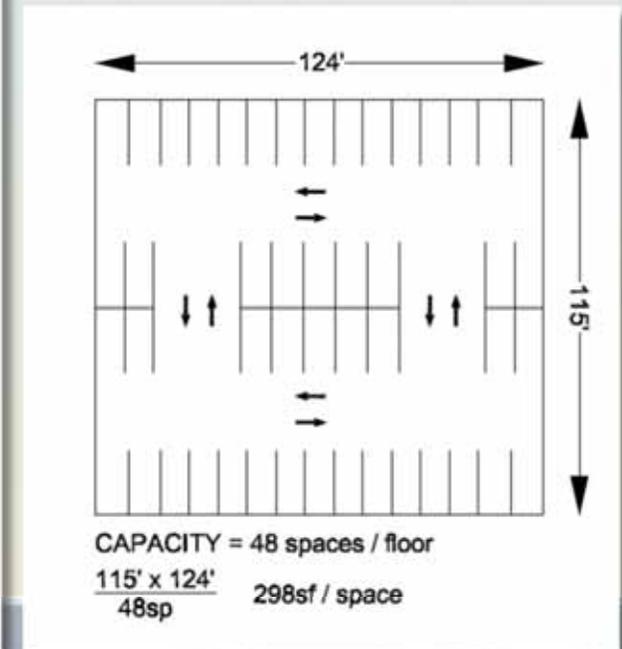
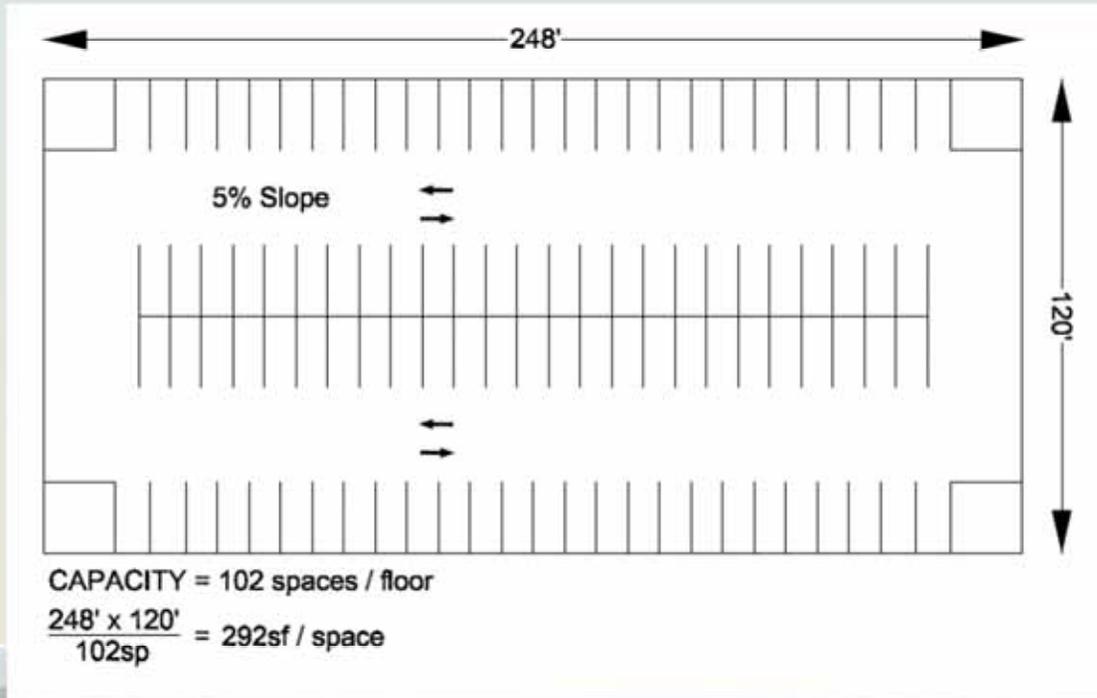
Parking: **What is Smart Parking?**



- Deterioration of community character
- Loss of valuable land
- Unwalkable environments
- Excessive impervious surfaces & heat buildup

**Parking: Problems with Too Much Surface Parking**

- Not all parcels are able to build structured parking
- Central parking structures may be necessary in small lot commercial areas



## Parking Strategies: **Parking Structures**

Encourage structured and automated parking



Objective 2: **Parking Structures**

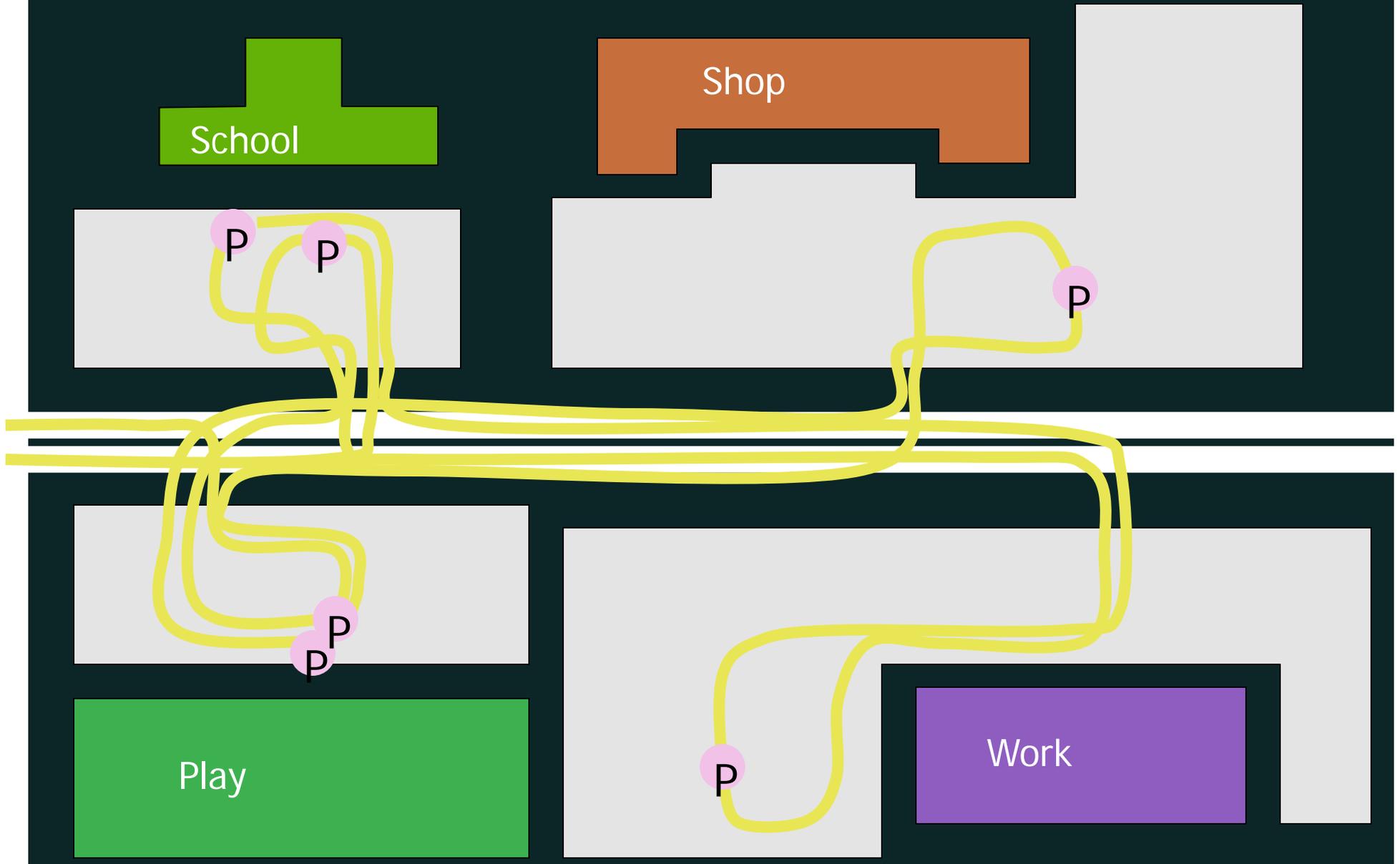
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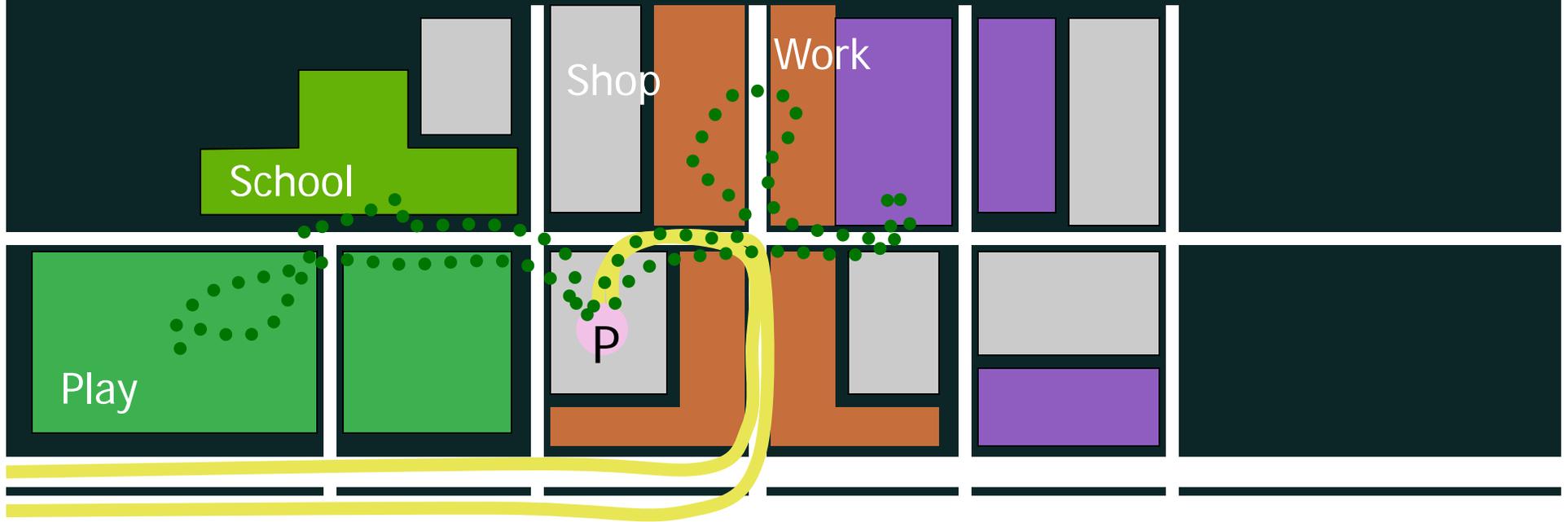
# Conventional Development

Source: Jeffery Tumlin, Nelson/Nygaard



# Mixed Use, Park Once District

Source: Jeffery Tumlin, Nelson/Nygaard

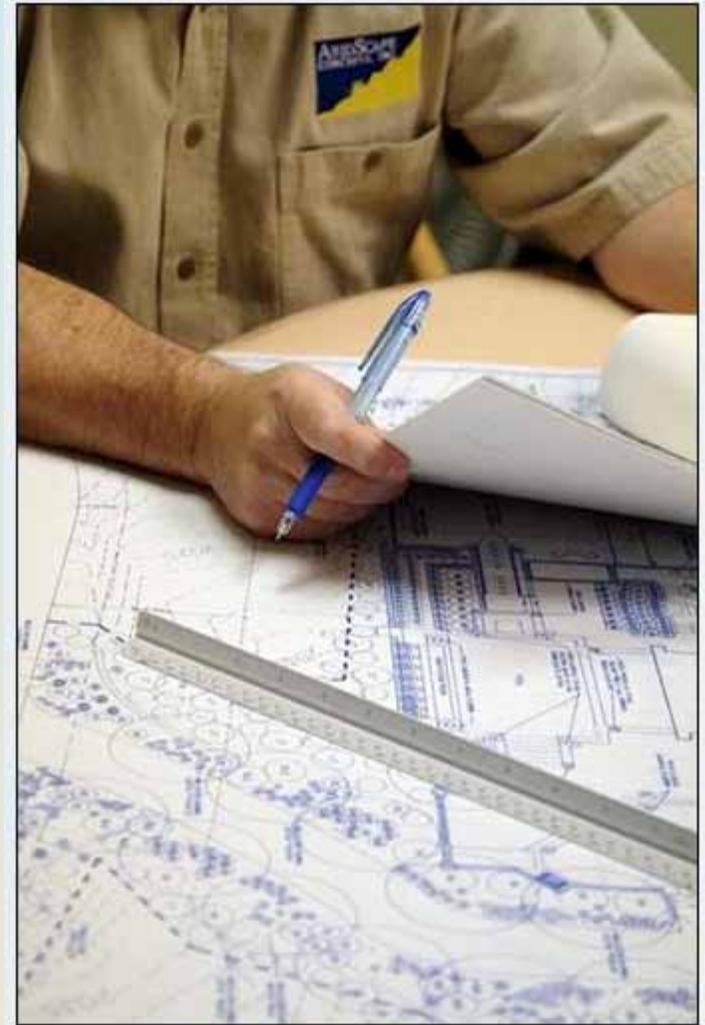


## Results:

- $< \frac{1}{2}$  the parking
- $< \frac{1}{2}$  the land area
- $\frac{1}{4}$  the arterial trips
- $< \frac{1}{4}$  the vehicle miles traveled

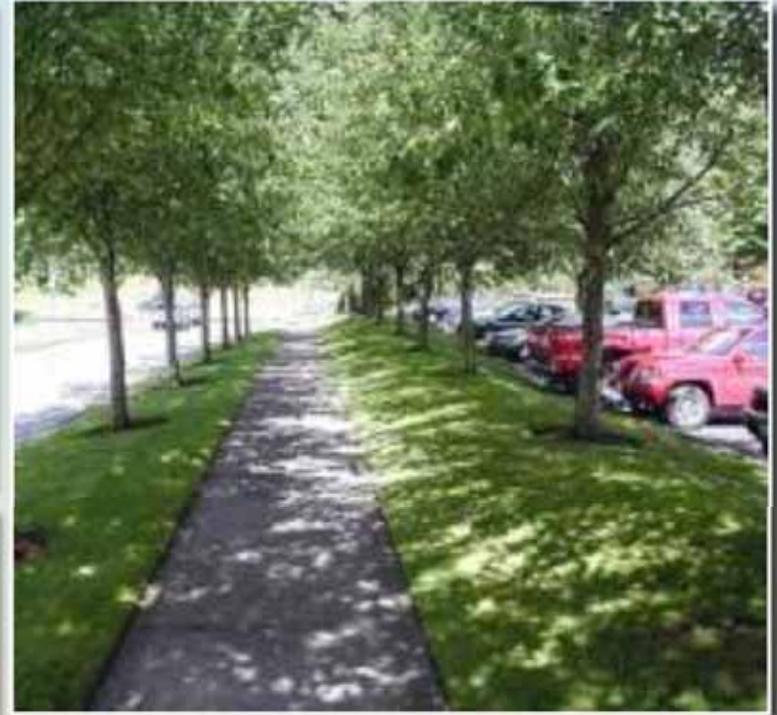
## Four objectives to Smart Parking design:

- 1) Ensure vehicles do not dominate the site
- 2) Minimize impervious & dark parking surfaces
- 3) Utilize low impact stormwater features
- 4) Create a positive pedestrian environment



Parking: **Parking Facility Design**

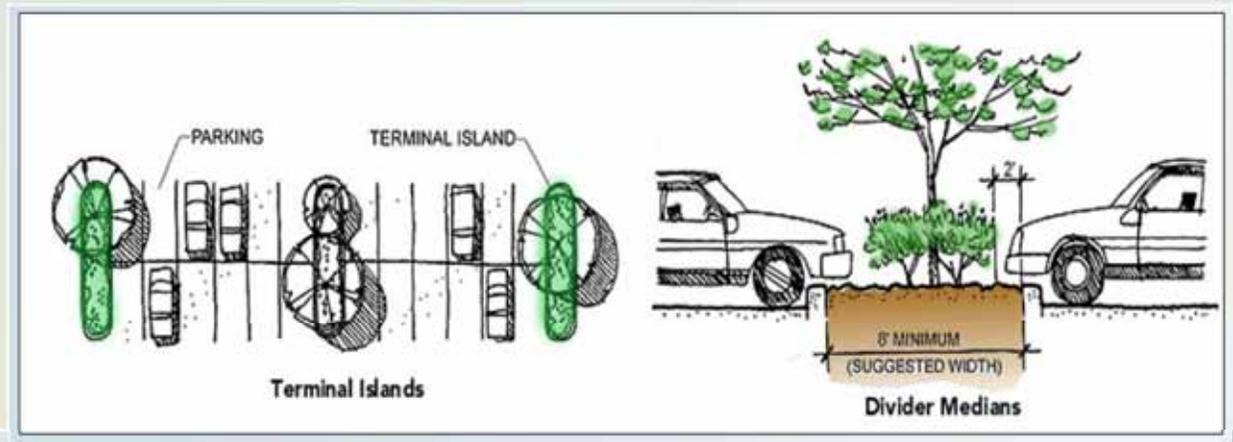
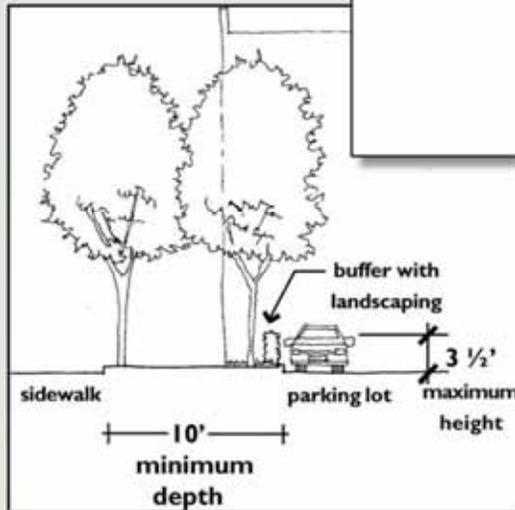
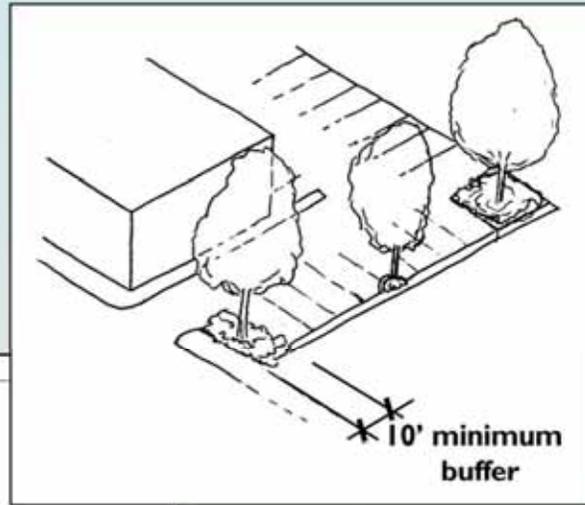
Place parking facilities only in partially visible locations or work street elements into the plan to lower dominance



**Objective 1: Ensure Vehicles do not Dominate the Site**



# Establish appropriate landscape buffer requirements



Objective 1: **Ensure Vehicles do not Dominate the Site**

## Utilize permeable concrete (reduces runoff and urban heat island affects)



Objective 2: **Minimize Impervious and Dark Surfaces**

Maximize on-street parking since the street is already paved



Objective 2: **Minimize Impervious and Dark Surfaces**

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Overflow parking should be allowed on non-asphalt surfaces that double as public spaces when not used for parking



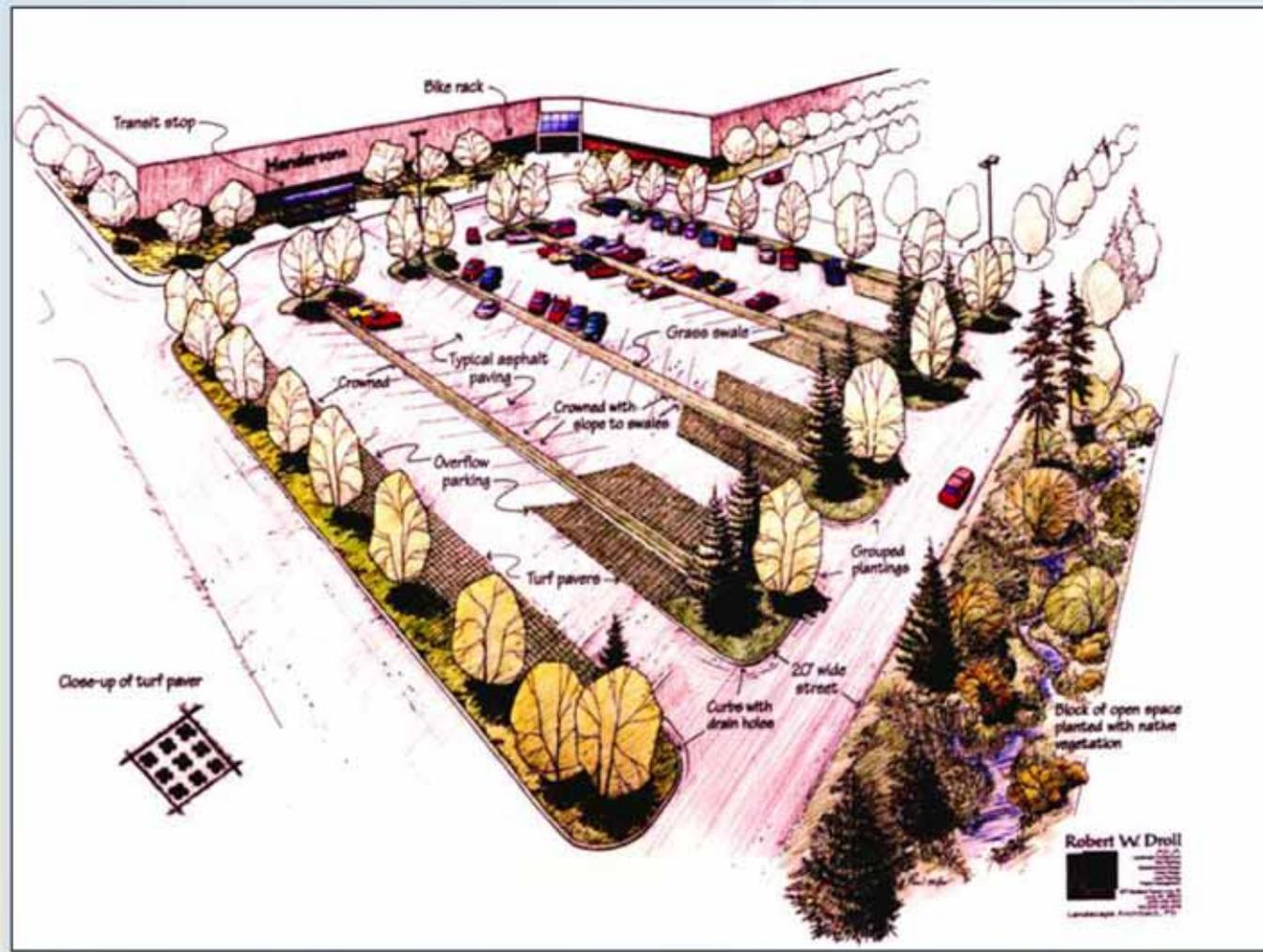
Objective 2: **Minimize Impervious and Dark Surfaces**

## Utilize permeable pavers



Objective 2: **Minimize Impervious and Dark Surfaces**

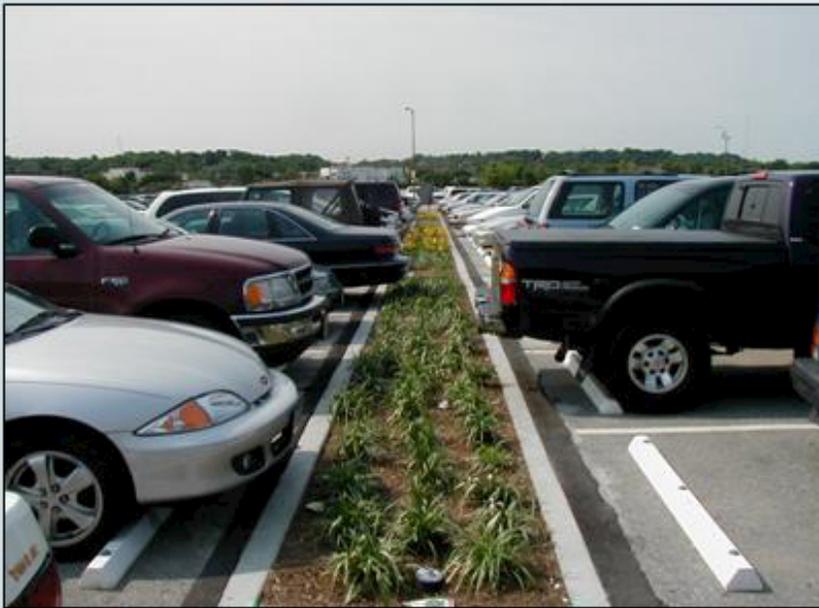
# Runoff water is a benefit, not a nuisance



Objective 3: **Utilize Low Impact Stormwater Treatments**

Incorporate vegetative swales that direct stormwater into bio-retention ponds for infiltration & water quality improvement

Vegetative Swale



Bioretention Pond



Objective 3: **Utilize Low Impact Stormwater Treatments**



Utilize traffic calming measures and controls in and around parking facilities and driveways



Objective 4: Create a Positive Pedestrian Environment

Provide well marked pedestrian pathways using alternative paving



Objective 4: Create a Positive Pedestrian Environment



Parking Samples: **Not the Way to Handle Parking**



Parking Samples: **Parking Often Fills Voids**



Parking Samples: **Single Family Parking Solutions**



## Parking Samples: **Multi-Family Parking Solutions**



# Parking Samples: Multi-Family Parking Solutions



**If you plan around cars, plan on having cars all around**

