

Implementing Green Streets

Learning from San Francisco

Green Streets: Multi-Modal, Multi-Functional, and Totally Fabulous

April 4, 2008

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COMMUNITY DESIGN ARCHITECTURE
REGION • CITY • NEIGHBORHOOD • BUILDING



The Better Streets Plan is a cooperative planning effort of the following agencies



SAN FRANCISCO
**PLANNING
DEPARTMENT**

Mayor's Office on
Disability



MTA

Municipal Transportation Agency

CD+A's Consultant Team

Community Design + Architecture

Lead Consultant & Urban Design

Nelson|Nygaard

Transportation Planning

Sherwood Design Engineers

Civil & Environmental Engineering

Jacobs Macdonald - Cityworks

Street Design

Auerbach•Glasgow

Lighting Design

Eisen|Letunic

Best Practices Research

Hydroconsult Engineers

Hydrological Engineering

Professor Joe McBride

Urban Forestry

Parisi Associates

Transportation Engineering

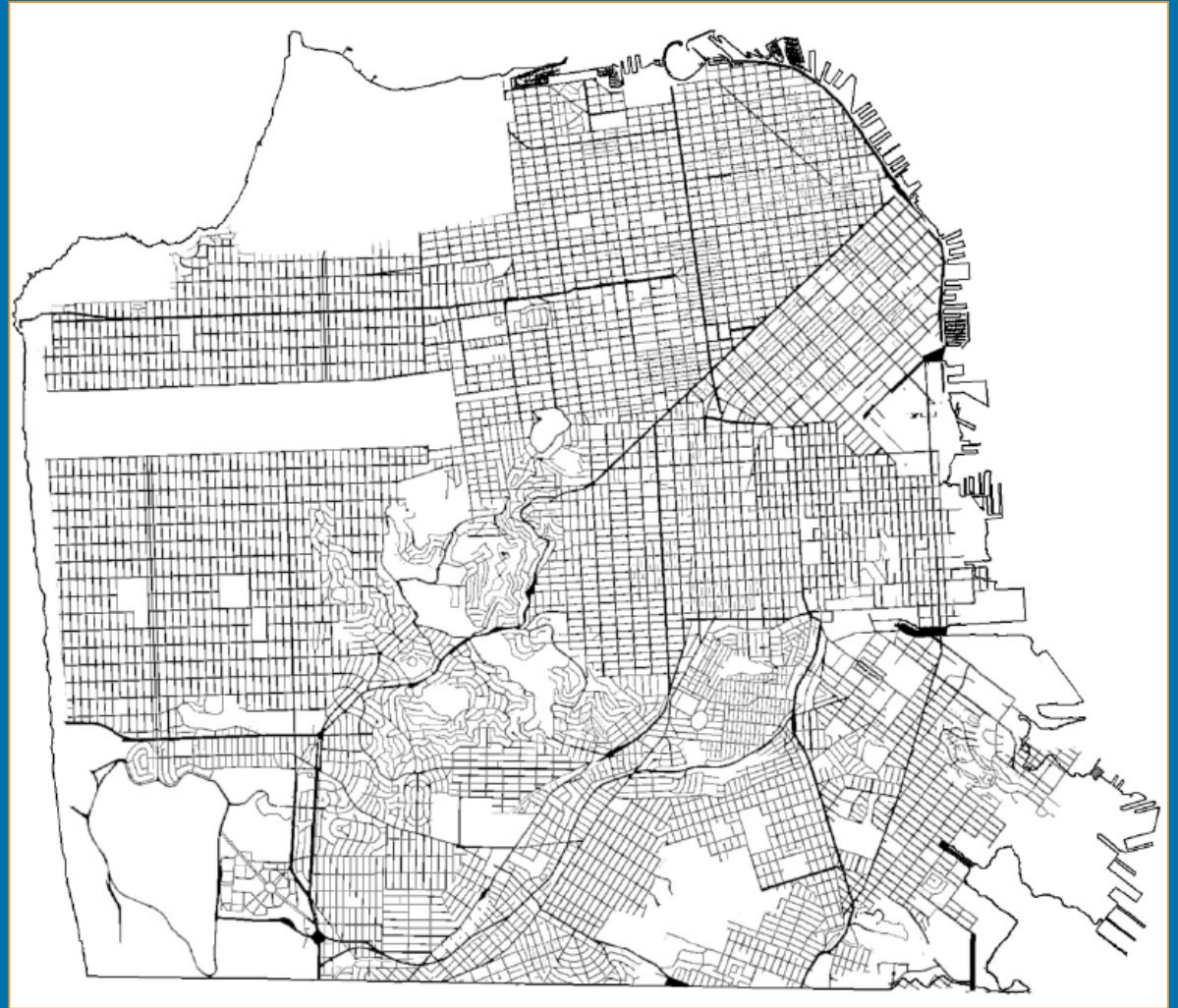
- Green Streets
- Great Streets
- Multi-modal Streets
- Complete Streets
- Context Sensitive Streets

- How about just –

Better Streets

What are Green Streets?

- **Developed Parcels:**
57% of city land
- **Parks:**
18% of city land
- **Streets:**
25% of city land



Why the Better Streets Plan?



Why the Better Streets Plan?





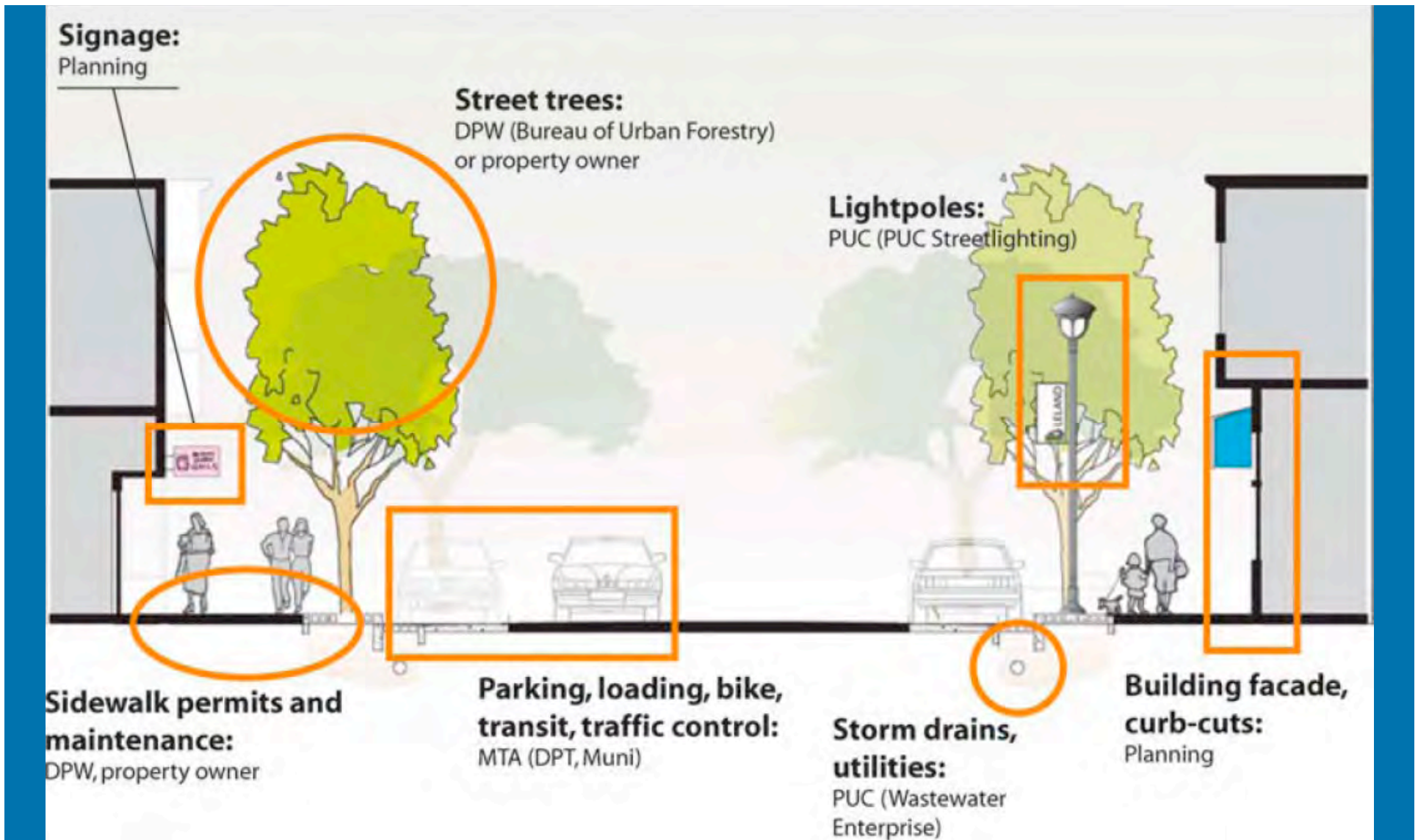
Why the Better Streets Plan?



- Legislative Direction
 - Transit First policy
 - Better Streets policy
 - Complete Streets policy
- Community Concerns
 - Pedestrian safety
 - Bicycle safety & access
 - Traffic calming
 - Greening



Why the Better Streets Plan?



- Need of Agency Coordination

Why the Better Streets Plan?

- Need for -
 - Standards for street design & maintenance
 - Framework for implementation
 - Citywide 'cookbook' for use by all agencies



Why the Better Streets Plan?

Standard Streets

- Downtown
 - Commercial
 - Residential
- Commercial
 - Throughway
 - Neighborhood
- Residential
 - Throughway
 - Neighborhood
 - “Green”
- Industrial
 - Industrial
 - Mixed Use

Special Streets

- City Pattern Streets
 - Landscaped Streets
 - Parkways
 - Multi-way Boulevards
 - Park Edge
 - Ceremonial
 - Processional
- Small Streets
 - Alleys
 - Urban Trails/Paseos

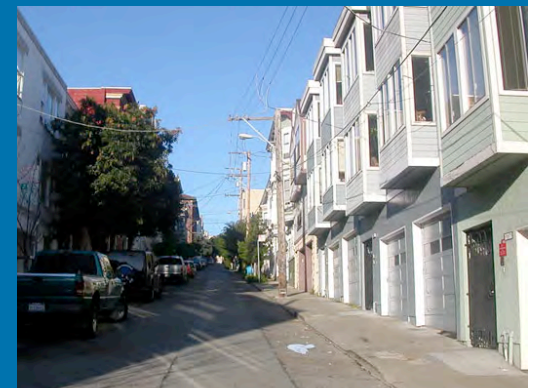
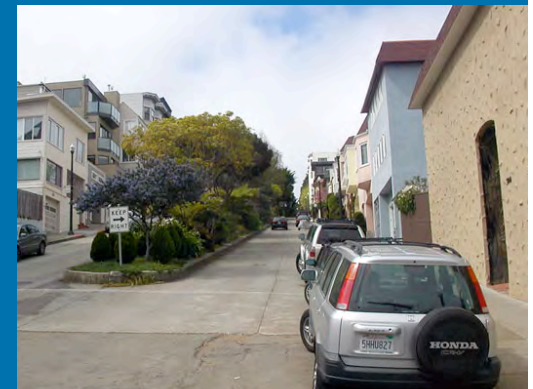
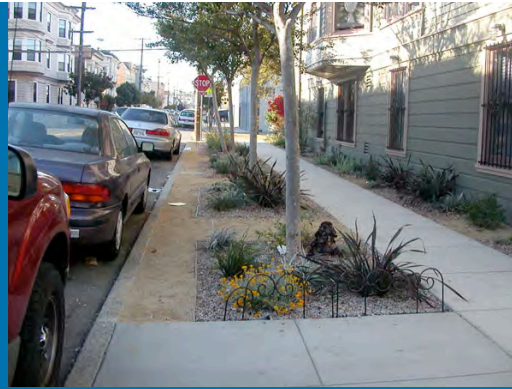
Street Types

- Existing Challenges

- Wide travelways encourage speeding and create unsafe crossings

- Sidewalks interrupted by driveways

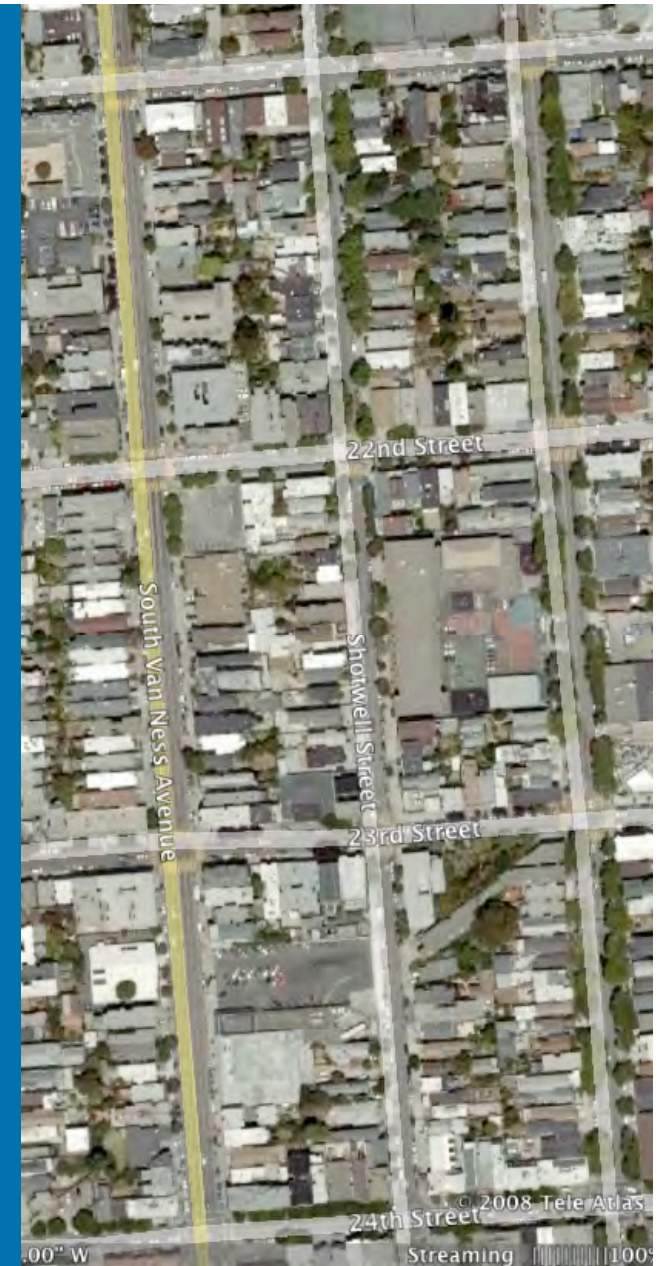
- Tree planting difficult
- Little space for other amenities



Residential Neighborhood Street



- Precedent - Shotwell Greenway
 - Neighborhood effort to re-landscape street



Residential Neighborhood Street



- Precedent - Shotwell Greenway "Big Moves"



Residential Neighborhood Street

- Precedent - Shotwell Greenway "Details"



Permeable Driveways



Planter Cut-outs

Residential Neighborhood Street

- Precedent - Shotwell Greenway

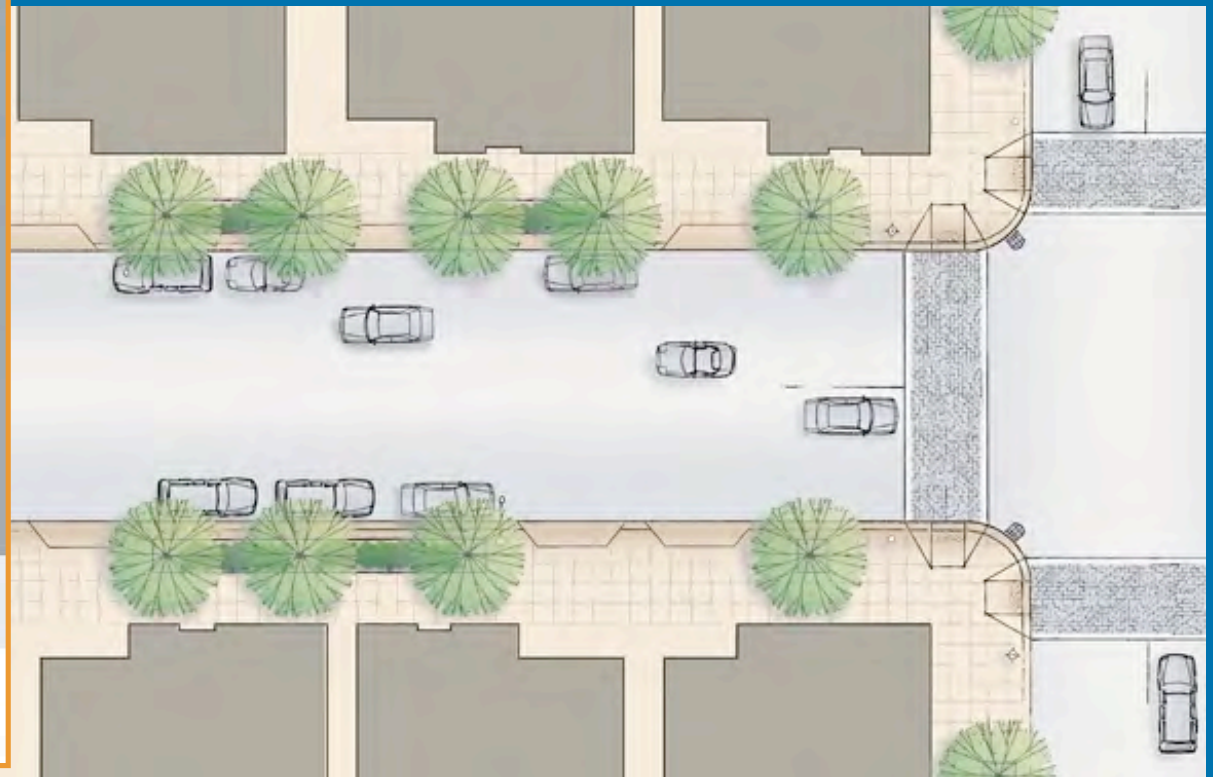


Residential Neighborhood Street

- Basic Improvements

- More consistent tree & landscape planting
- Pedestrian-scale lighting

- Corner curb extensions at corners with major streets
- High visibility crosswalks with directional curb ramps



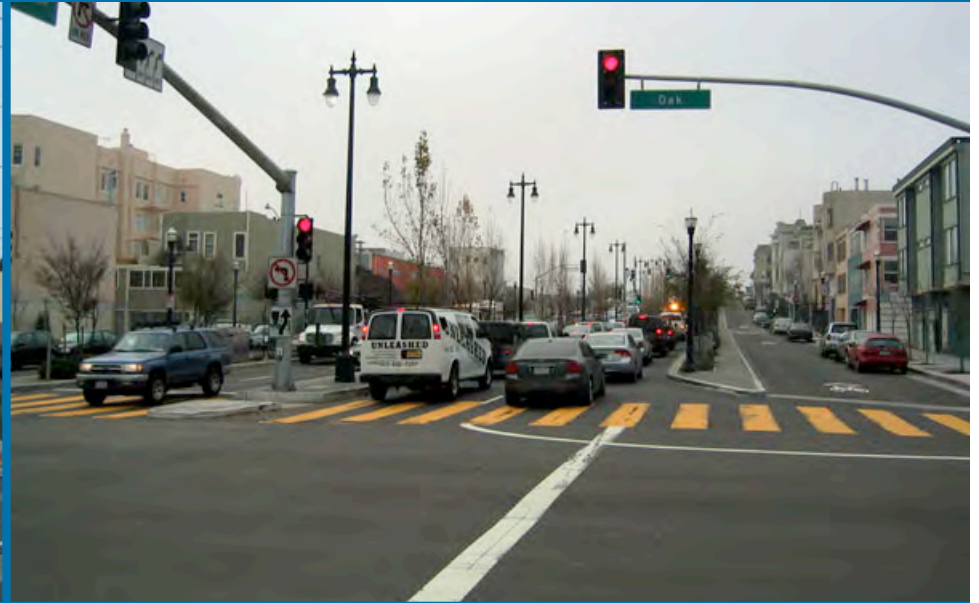
Residential Neighborhood Street

- Existing Challenges
 - Side access lane widths too wide resulting in
 - speeding
 - cut-through traffic
 - Need to maintain adequate width for emergency vehicle access
 - Better urban design of side access lane improves function for local residents & business owners



Multi-way Boulevard

- Precedent - Octavia Boulevard



Multi-way Boulevard

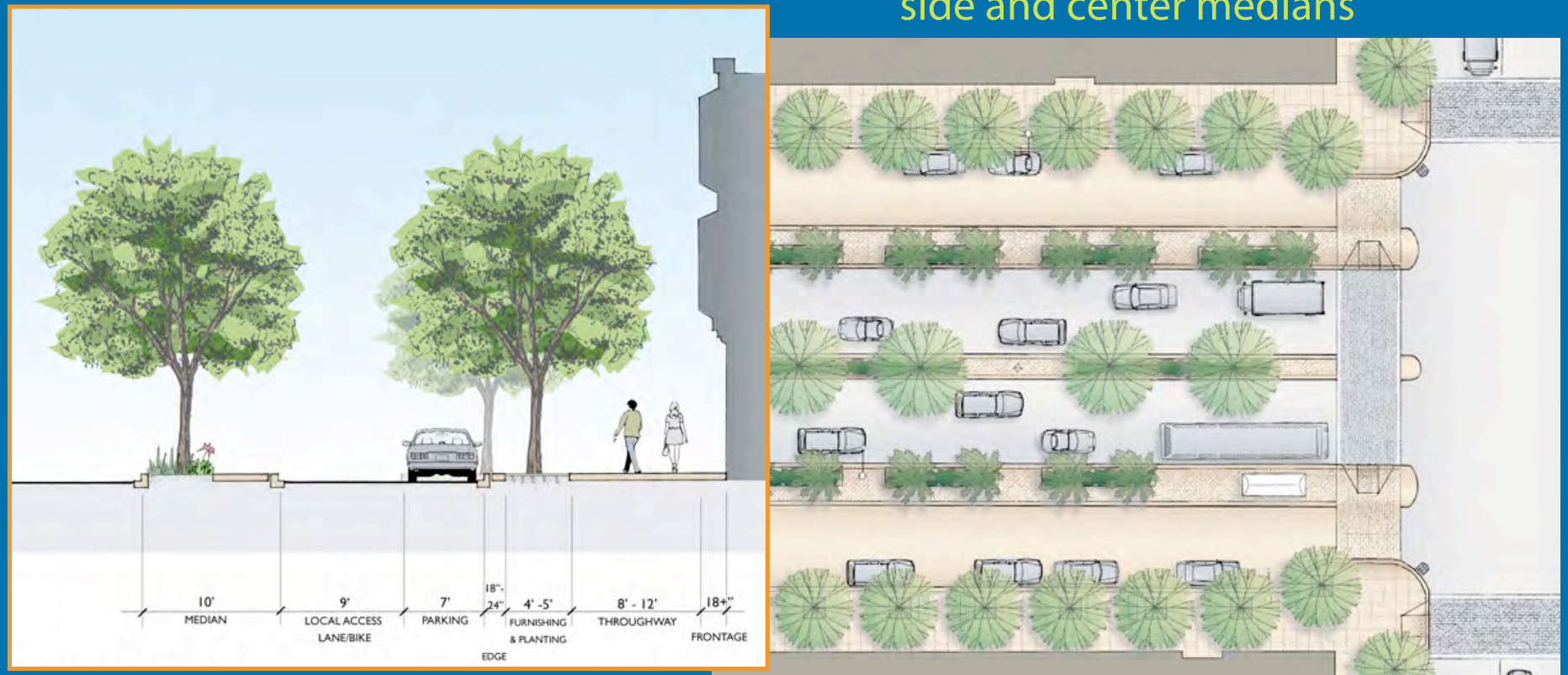
- Precedent - Octavia Boulevard



Multi-way Boulevard

- Basic Improvements

- Narrower local access lane entry
- Wider side median and narrower local access lanes
- Curb extensions at every corner
- High visibility crosswalks with directional curb ramps
- Special paving in furnishing zones in commercial areas
- Landscaped infiltration planters in side and center medians



Multi-way Boulevard

- Street Design Elements

- Curb Extensions
- Curb Radii
- Pedestrian Crossings
- Median and Median Islands
- Sidewalk and Median Pocket Parks
- On-street Parking Lanes
- Curb Cuts
- Intersection Treatments
- Special Conditions

- Streetscape Elements

- Urban Forest
- Lighting
- Paving
- Street Furnishings
- Consolidated Parking Meters
- Wayfinding Signage
- Public Art

- Sub-surface Elements

- Stormwater Treatment
- Underground Utilities

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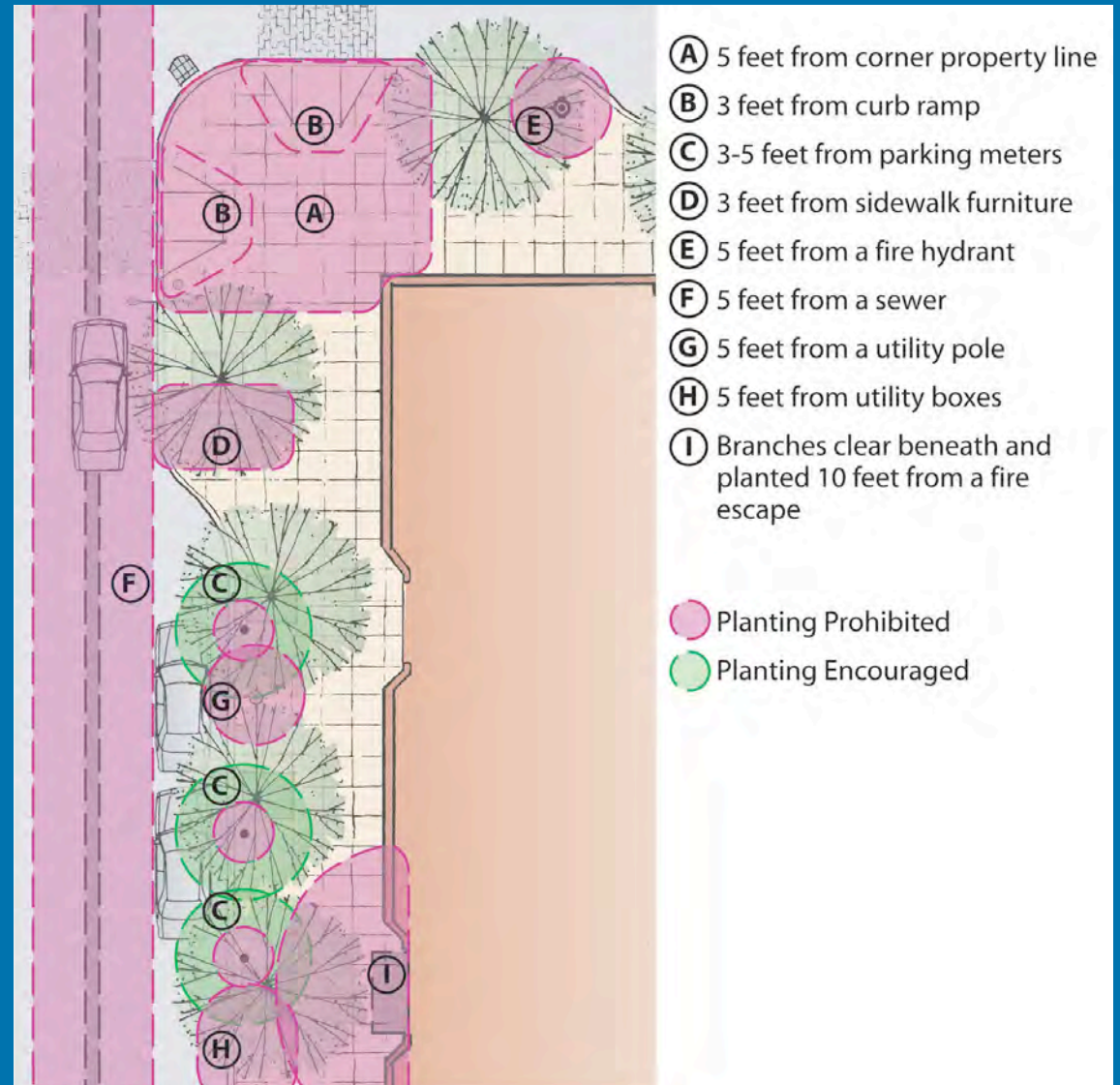
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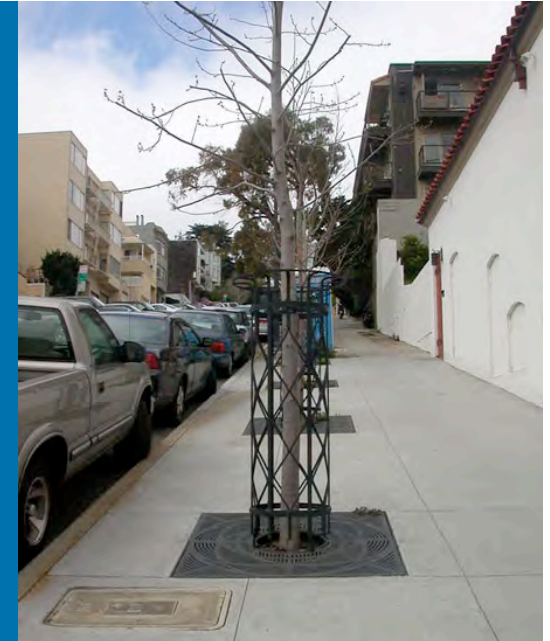
- Stormwater Treatment
- Underground Utilities

- Finding Space to Plant the Urban Forest



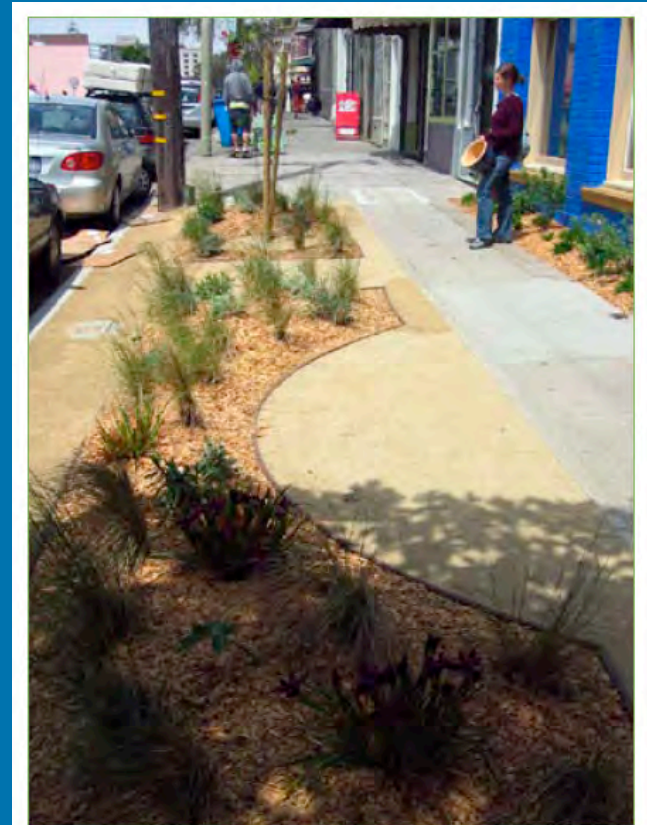
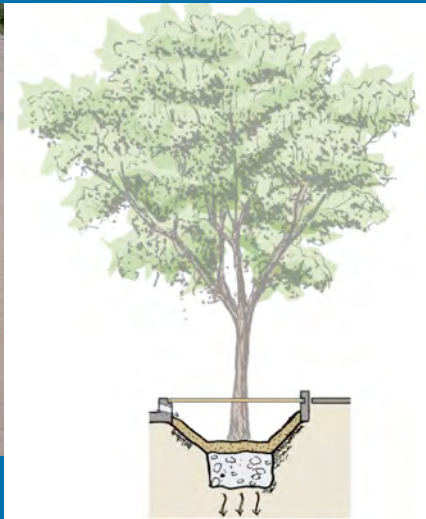
Urban Forest

- Street Trees in Basins: Basin Covering
 - Metal grates can look nice, but often girdle trees when not maintained properly
 - Paver stones can provide an adaptable level surface, but may require maintenance



Urban Forest

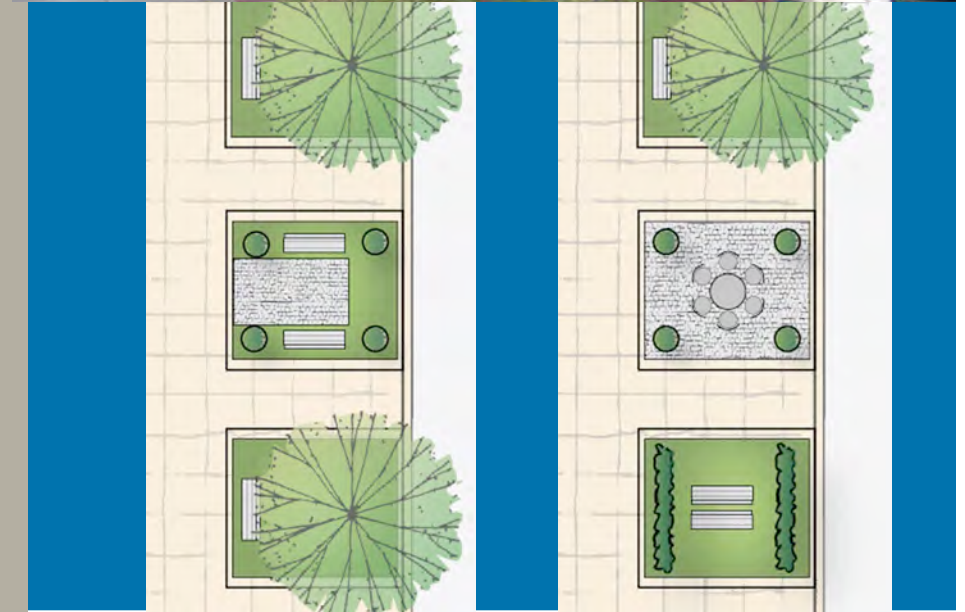
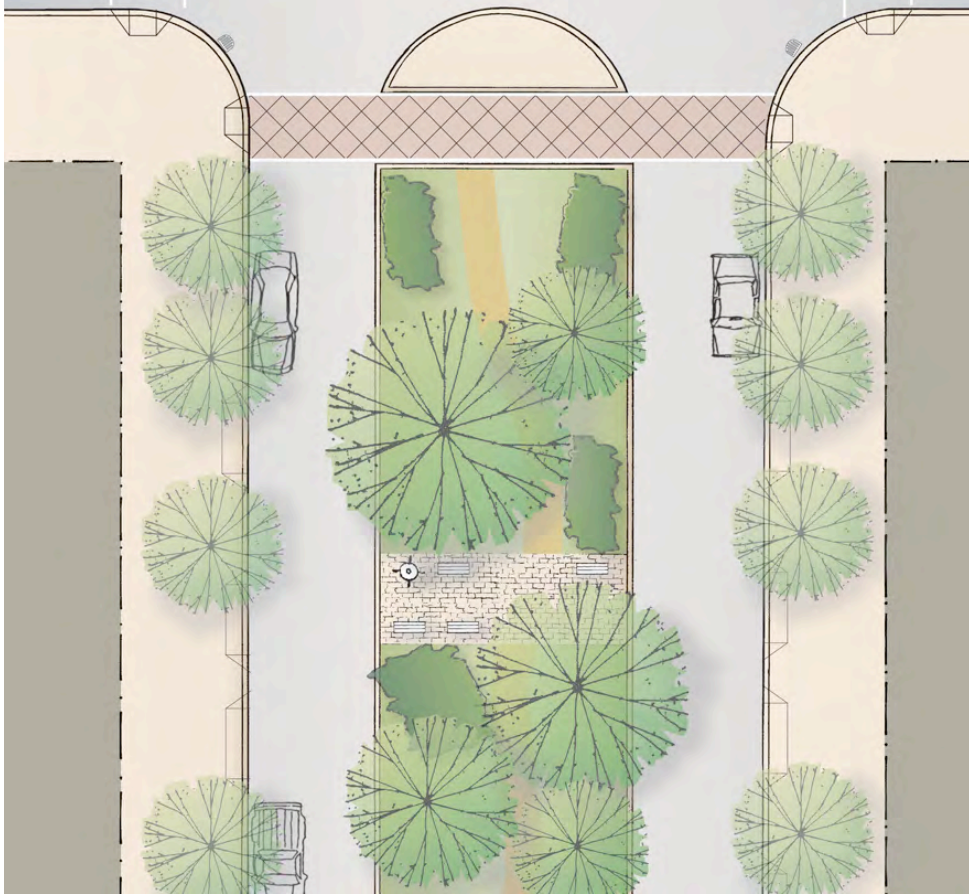
- Other considerations
 - Stormwater management
 - Reuse of underused r.o.w. space
 - Culturally-sensitive plantings
 - Along streets with many Asian residents feng shui can be important in designing the streetscape
 - Urban forest as habitat



The reuse of underused spaces for increasing greenery on San Francisco's streets is a key strategy for improving the public realm and realizing a more sustainable City.

Urban Forest

- Capture excess space in sidewalks and between the curbs for pocket parks



Sidewalk and Median Pocket Parks



Simulation by: Urban Advantage

Redesign of a Neighborhood Street





Simulation by: Urban Advantage

Redesign of a Neighborhood Street



Simulation by: Urban Advantage

Redesign of a Neighborhood Street



Management & Maintenance is the Key!!!

- **Management Issues**

- City primarily responsible within curbs
- Property owners responsible outside of curbs
- Lack of coordination between agencies
- Often adversarial relationship between agencies and property owners

- **Maintenance Issues**

- Current maintenance funding shortfalls
- Extensive differed maintenance
- Green infrastructure elements cross typical agency responsibilities

- **Management & Maintenance issues discourage streetscape improvement projects**

Making Better Streets Happen

Management & Maintenance Solutions

- **Funding strategies**
 - Community benefit districts
 - Community parking districts
 - Pedestrian realm development impact fee
 - Periodic funding strategies at sale or building permit
 - Deferred assessment district
 - Proof of maintenance compliance
- **Maintenance strategies**
 - Community partnerships
 - Maintenance agreements between city agencies and business or neighborhood groups
 - SF programs
 - Street Parks Program
 - Sidewalk Landscaping Permits
 - Agency partnerships
 - Cost sharing agreements
 - Maintenance agreements

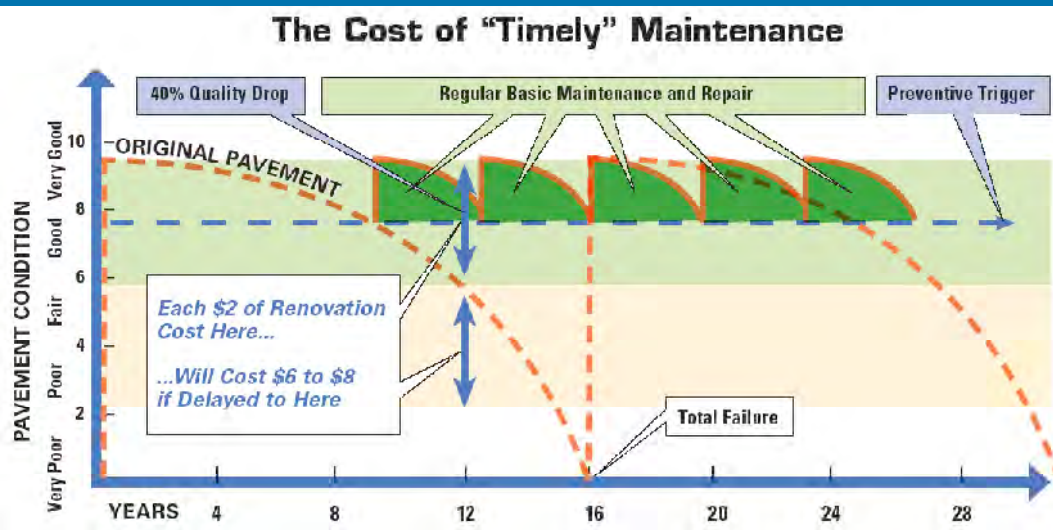
Making Better Streets Happen

Management & Maintenance Solutions

- Maintenance practices
 - Prioritize routine maintenance to extend the life of major investments

- Use life-cost analysis

- Investment in more durable & higher-cost capital improvements should decrease future maintenance costs
- Difficulty to move funds between capital cost and maintenance cost
- More research & analysis needed to verify applicability



Making Better Streets Happen

Management & Maintenance Solutions

- Example life-cost analysis of narrowed streets
 - Reconstruction of roadway:
 - \$14 to 20 per sf
 - 20 year average life
 - Sidewalk replacement:
 - \$8 to 12 per sf
 - 50 year average life
 - Present-value cost savings over 40 year period:
 - **\$20 to 28** for every sf of roadway converted to sidewalk



Making Better Streets Happen



Simulation by: Urban Advantage

Making a Better "Greener" Street





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Making a Better “Greener” Street





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