



Principles of TOD: Just the Basics

GB Arrington
arrington@pbworld.com

Mission Bay TOD, San Francisco, CA

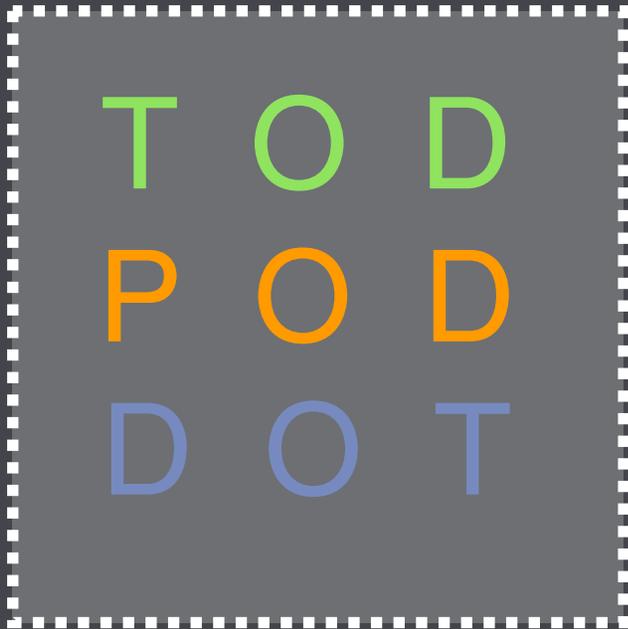
"Tenth-ranked Ducks hand
Trojans worst loss since '97"

ESPN



Oregon 47
USC 20





1. Transit-Oriented Development
2. Pedestrian-Oriented Development
3. Development-Oriented Transit

Creating Value with transit



TOD or TAD?

Transit-Oriented Development or
Transit Adjacent Development



Cisco Systems **TAD**
San Jose, CA

- Majority of development at US transit stations are not TODs
- TOD is still illegal in at most of US transit stops
- Not enough to be next to transit, must be shaped by transit



Street Car **TOD**
Portland, OR

Shaped by Transit

- Greater density
- Less parking
- Better public realm
- Mix of uses
- Very walkable
- Tame the car



San Diego, Portland, San Francisco, Washington, DC, Denver

Transit-Oriented Development



Orenco Station

Fundamentals
for TOD
a great neighborhood

- Safe streets
- Strong center
- Local services
- Parks & open space
- Housing choices
- Good jobs

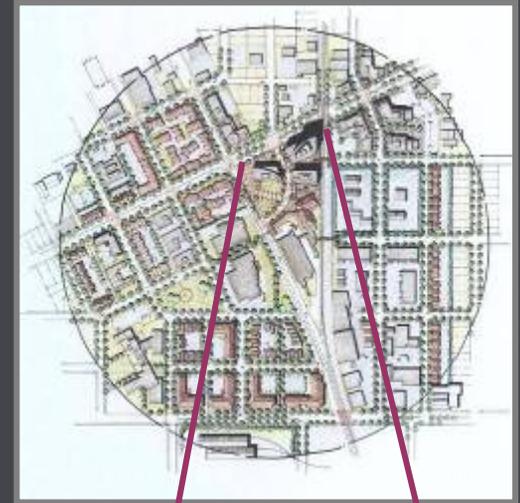


Scale matters



More than a Parcel, More than a Project

- Create a walkable district
 - Area w/in a 5 minute walk
 - Approximately 125 acres
 - Walkable complete community
- Most “TODs” don’t meet this standard
 - Requires broader strategy, cooperation
 - Understanding the bar needs to be higher

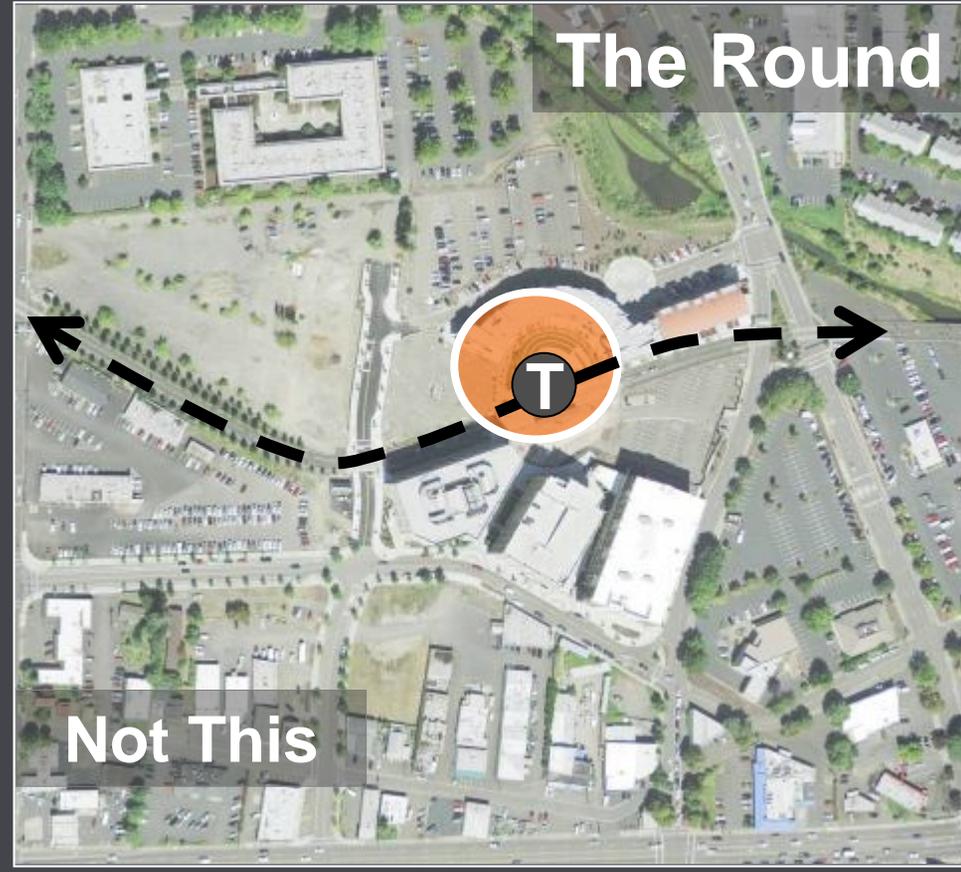


Santa Ana TOD



Santa Ana Station Development

TOD: District not a Project



Market for TOD



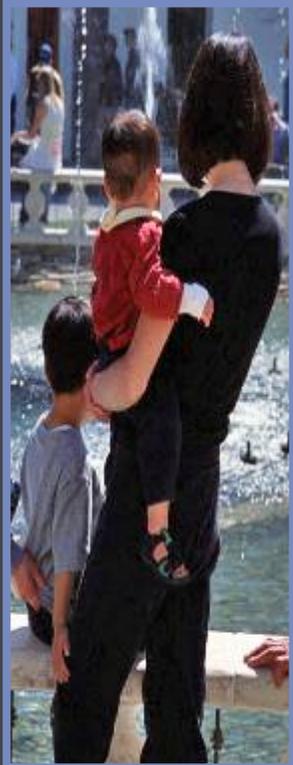
Understanding your market

- *Emerging Trends in Real Estate '08:*
 - TOD a top investment prospect
 - Holds value well
- Majority of TOD residents are childless
 - Empty-nesters & young urban professionals
- TOD households tend to be higher income
 - Reflects newer construction



Decline in Families w/ Children

50% of households



1950

33% of households



2000

12% of households



2010 - 2030

- 30% current US housing demand
 - Dense, walkable, mixed-use communities
- Today less than 2% of housing

Residents Near Transit Want

From Transit Community Resident Surveys:

- Well designed communities
- Easy access to a center
- High quality residence
- Quality transit service
- Pedestrian Friendly
- Good price value

*“The ability to walk
to a pint of milk”*



The Merrick



Orenco Town Center

TOD Principles



a successful

Six Principles for TOD

1. Medium to higher density
2. Mix of uses
3. Compact pedestrian-oriented
4. Active defined centre
5. Limited, managed parking
6. Public leadership



a successful

Principles for TOD



1. Medium to higher density

- Greater than community average
- Distance to transit matters
- To support transit on average:
 - 6 to 7 du/ac for frequent bus
 - 9 to 25 du/ac for rapid transit
- Retail & office closet to transit
- Minimum density effective tool



Rosslyn Ballston Corridor

- Development since 1980
 - 25m square feet office
 - 14,400 residential units
- Station areas
 - 25% county housing
 - 37% county jobs
- Transit Access
 - Arlington: 73% walk, 13% by car
 - Fairfax: 15% walk, 58% by car



*Land use can change
transportation behavior*



“An Oasis of Stability Amid a Downturn”

The New York Times October 7, 2009



“(The Rosslyn-Ballston Corridor) has remained resilient during the worst recession in decades, and should continue to do so”

a successful

Principles for TOD



2. Mix of uses



- Vertical or Horizontal
- Most difficult TOD element
- Great TOD benefits
 - More walking
 - More ridership
 - Reduced auto-use
- Prohibit auto-oriented uses closest to transit

Pearl District Portland

Former rail yard & warehouses

- Public & private development agreement
 - Housing
 - Infrastructure
 - Parks
- Development since 1997 \$750m+
- 2700+ units built
- 131 units per acre minimum density

pb placemaking group



Before

a successful

Principles for TOD



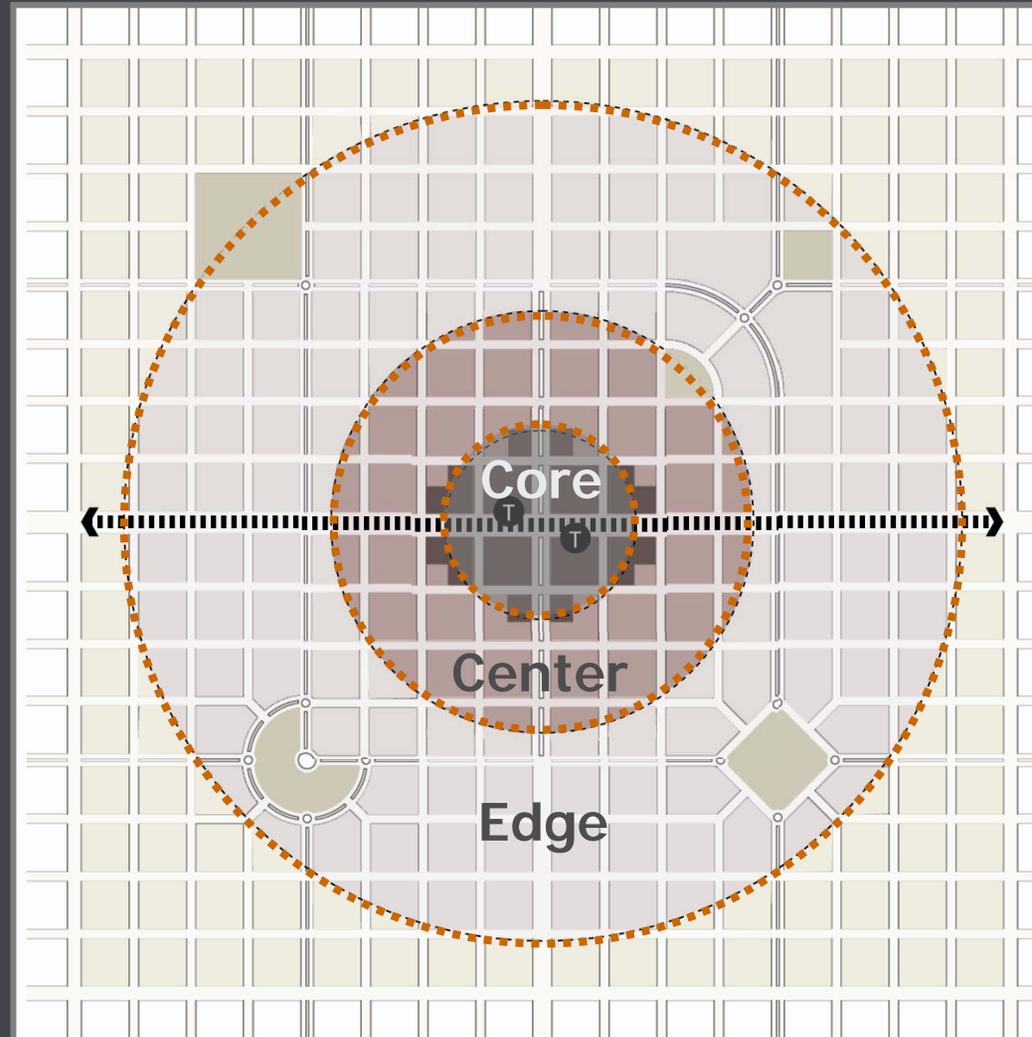
3. Compact pedestrian-oriented

- Block sizes for 5-minute walk
 - Max of 400 ft block face
- Orient buildings to sidewalks
- Calm streets
- Active street edges with wider sidewalks



Core Center Edge

- Core:
Up to 800 ft
greatest intensity
- Center:
800 to 1600 ft
intermediate
intensity
- Edge:
1/4 m to 1/2 m
greater than
community average
of intensity



Distance & Mode Share

2005 WMATA Development-Related Ridership Survey

Distance from station	Metrorail Mode Share		Auto Mode Share	
	Office	Residential	Office	Residential
At station	35%	54%	48%	29%
¼ mile	23%	43%	66%	41%
½ mile	10%	31%	83%	54%

- 35% of office trips right at the station entrance
- Office mode share drops about 1% every 100 ft
- ½ mile residential share 200% higher than office

a successful

Principles for TOD



4. Active defined centre

- 18 hours of activity
- Quality public realm /sense of place
- Employment closest to transit
- Compact & dense



Bloomington Central

- Bloomington, Mn
- 43 acre – adaptive reuse
- 1,100 residential units
90 units per acre
- 350 room hotel
- 2m sq ft office
- 1.6 acre park



a successful

Principles for TOD



5. Limited, managed parking

- Always a challenging issue
- Consider: size, location, design & management
- No minimum ratios, maximums
- Disconnect parking from buildings, manage by district



TODs create less traffic

- TOD residents are:
 - Twice as likely not to own a car as US Households
 - 5 times more likely to commute by transit than others in region
- Self-selection:
 - Responsible for up to 40% of TOD ridership bonus



TODs behave Differently

Daily car trips for 50 dwellings

- | | |
|----------|-----|
| • SF | 500 |
| • MF | 333 |
| • TOD MF | 177 |



3.55 Trips

Multifamily
TOD



6.67 Trips

Multifamily



10 Trips

Single
Family

a successful

Principles for TOD



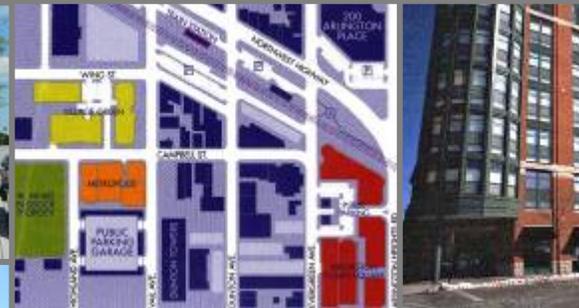
6. Public leadership

- Generally critical for success
- Align “political will” & TOD objectives
- TOD plans + capital budget aligned
- Focus on implementation
- Nurture progressive developers



Arlington Heights IL.

- Revitalized Downtown
- New Metra Station
- Performing Arts Ctr
- Structured Parking
- Main street retail
- High Density Condo's
 - Retail below





Development Oriented Transit

MetroCities TOD
Dubai UAE

Stations

Defining Value

- Station helps define the most important place
- Civic architecture & place making
- Catalyst for community objectives
- A place to come back to



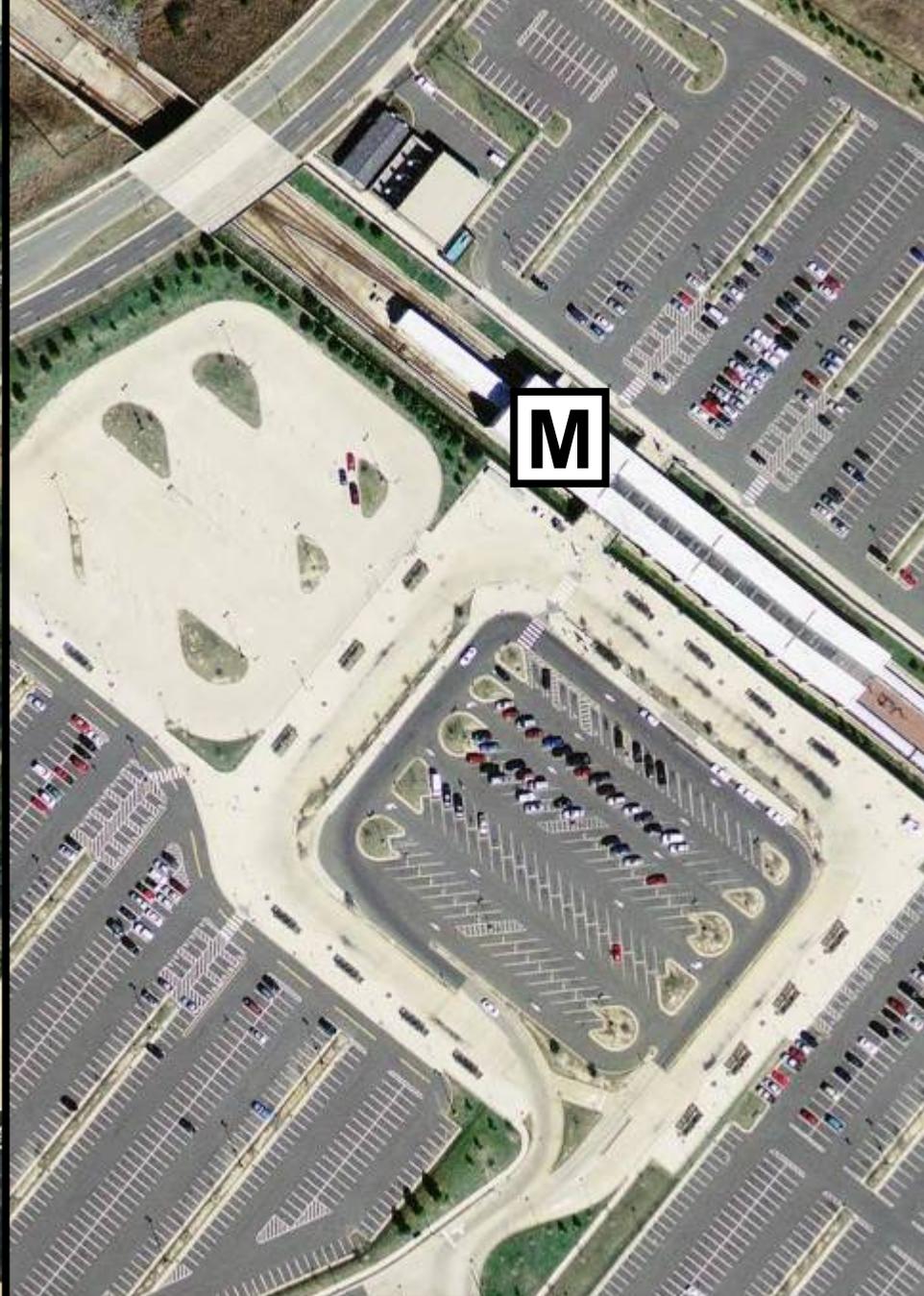
Portland, San Francisco, Strasbourg

Beyond Auto-oriented transit





DuPont Circle, Washington, D.C.



Branch Ave, suburban Washington

Development-Oriented Transit



Auto-Oriented Transit

Make a Place

1

Connect to Community

2

Make Transit Work

3

Make Transit Work

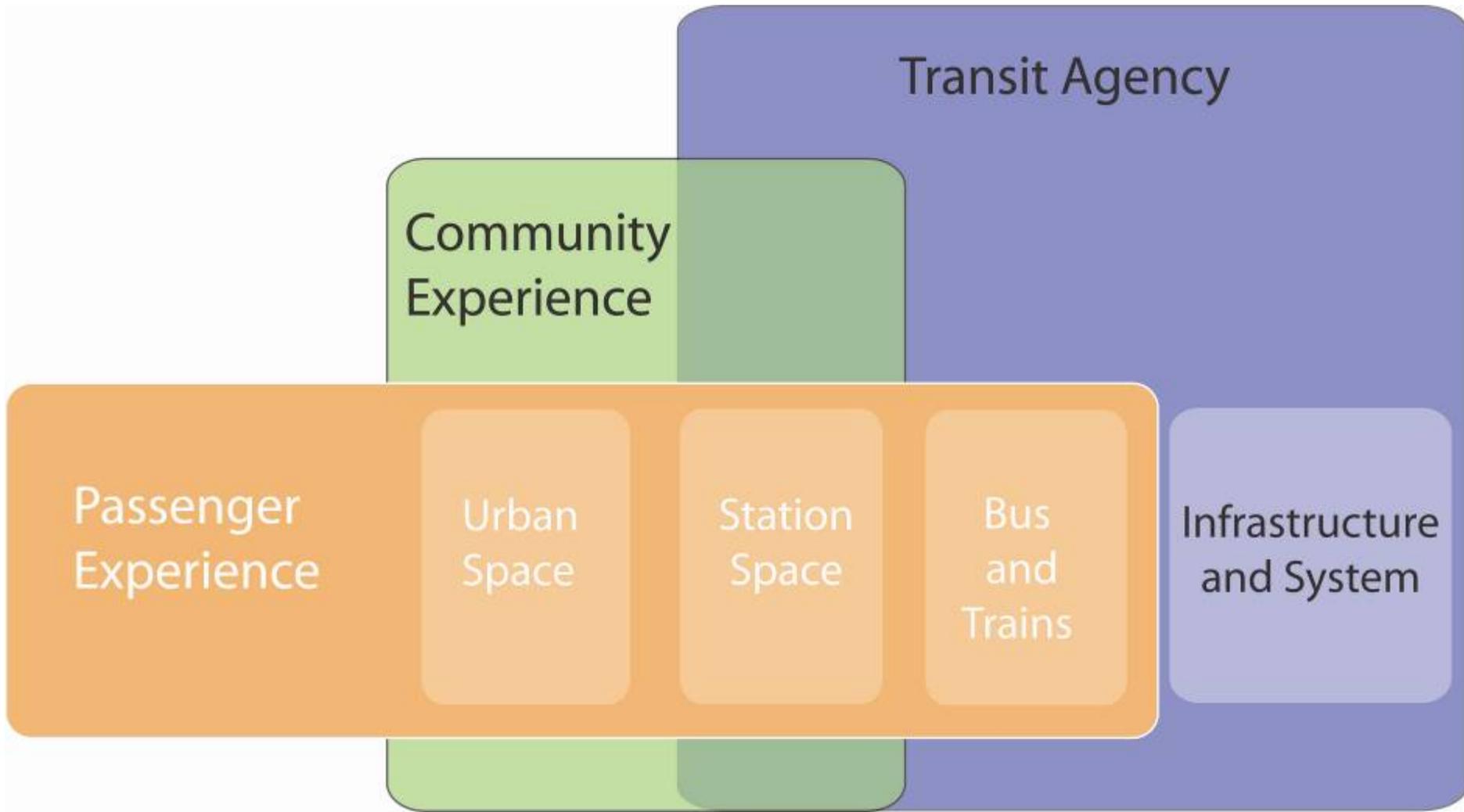
Make a Place

Connect to Community

Connect to Community

Make Transit Work

Make a Place





Community

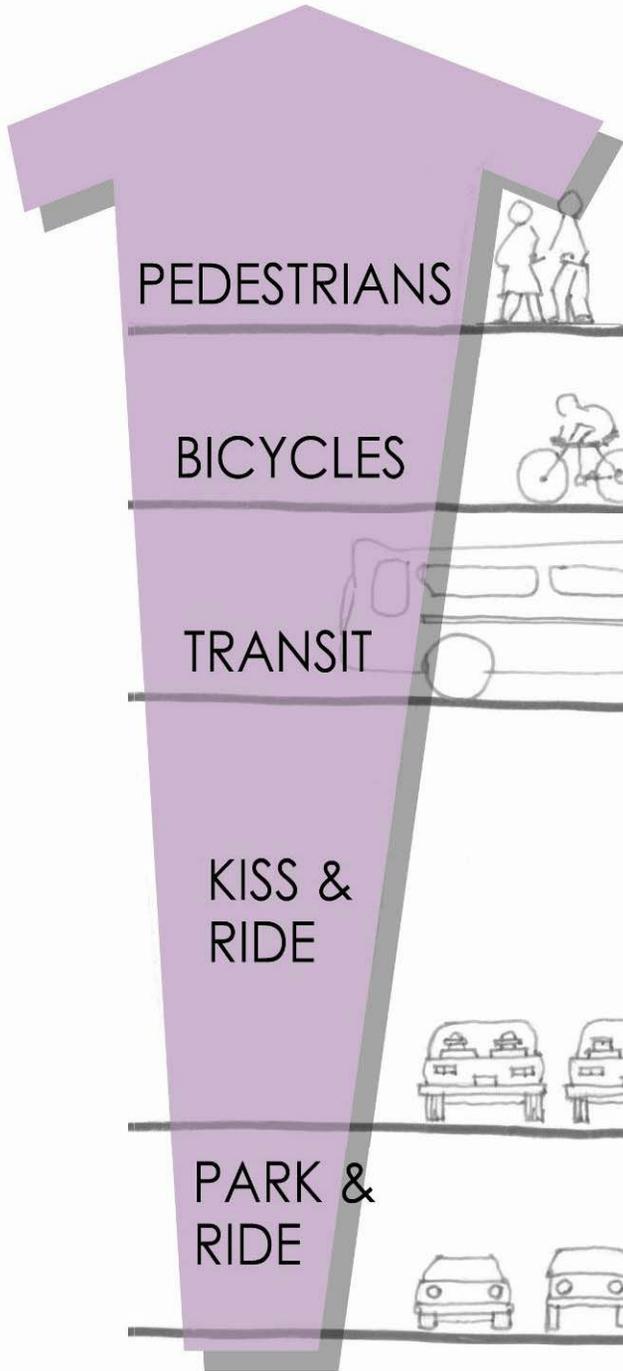
Arrival Place

Arrival Place

Community

Transit

New Carrollton TOD Master Plan



PEDESTRIANS



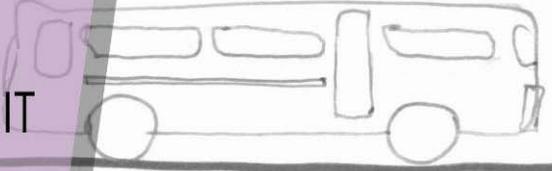
Pedestrians

BICYCLES



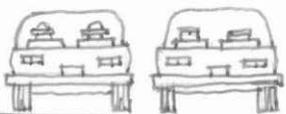
Bicyclists

TRANSIT



Bus Rapid Transit
Other Bus service
Connecting Rail

KISS &
RIDE

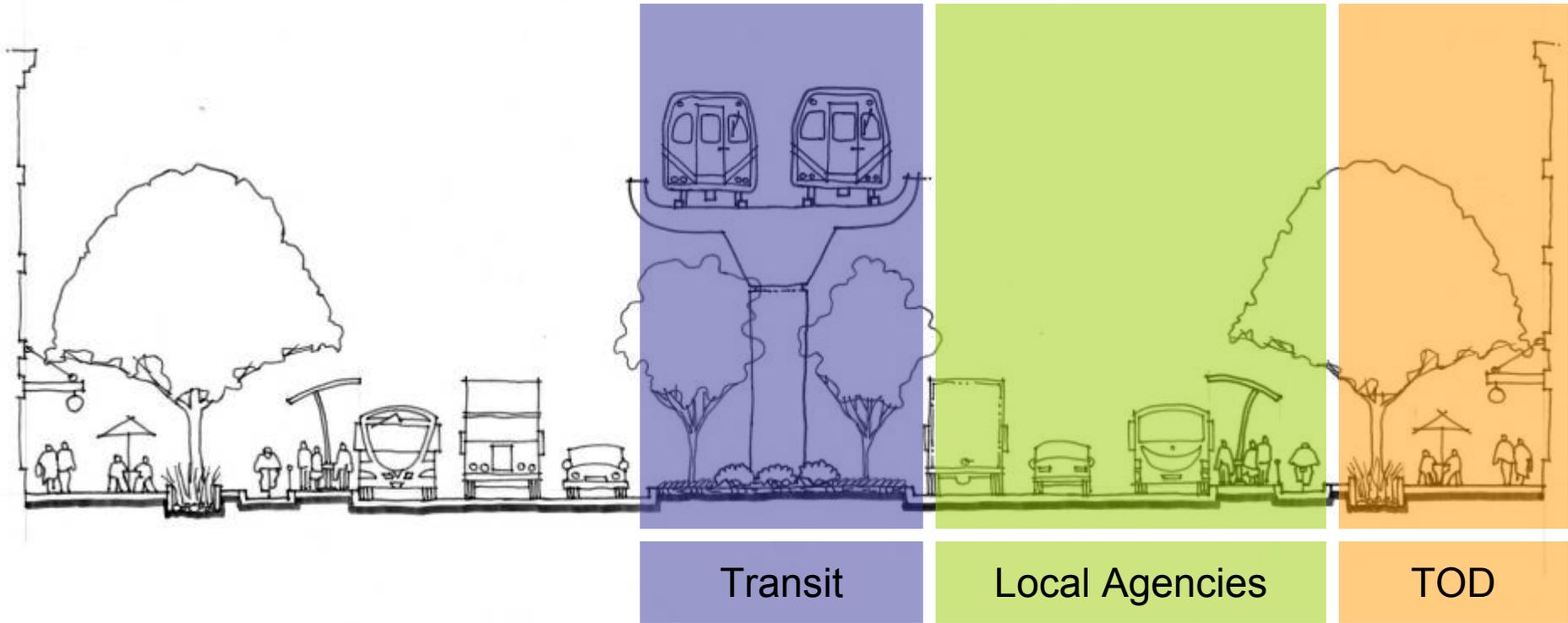


Pick-up/Drop-off Lane
Para-transit & Shuttle Bus
Accessible Parking
Taxi Queue
Driver-Attended Parking
Motorcycle Parking
Short Term Parking/
Car Sharing

PARK &
RIDE



Accessible Parking
Single Occupant
Vehicles



Transit

Local Agencies

TOD

**make it
happen**

pb's placemaking group

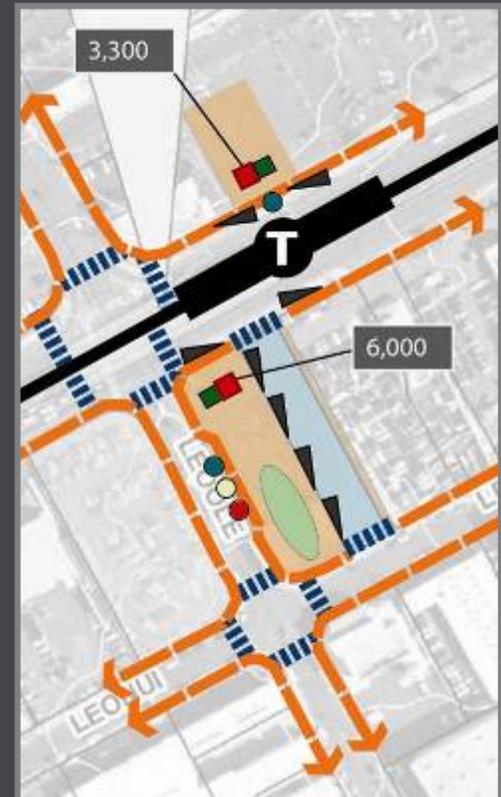
Making transit behave

- Design great transit & great places
 - Keep vision in mind, not the automobile
 - Break the mold
 - Look outside the ROW
- Balance “place” and speed
 - Create a great destination
 - Going nowhere fast has little value



The DOT Process

- 3 to 5-day design charrette:
 - Address transit design, community fit and TOD
- The participants:
 - Transit agency, design team, local land use & public works
- Ground rules:
 - Transit design can change
 - Budget & schedule can't change



Addressing process & culture

- Schedule & financial pressures
 - Part of every project
- Engineers want to decide
 - They run the project
- Planners want to contemplate
 - Late to the game
- Accelerate design & improve decisions



DOT Process Results:

- Identify TOD implications of
 - alignment
 - corridor
 - station locations
- Recommend changes to design
 - Document logic
- Identify next steps for TOD
- Develop DOT framework to guide future design



Highway Median Access



Mezzanine Access

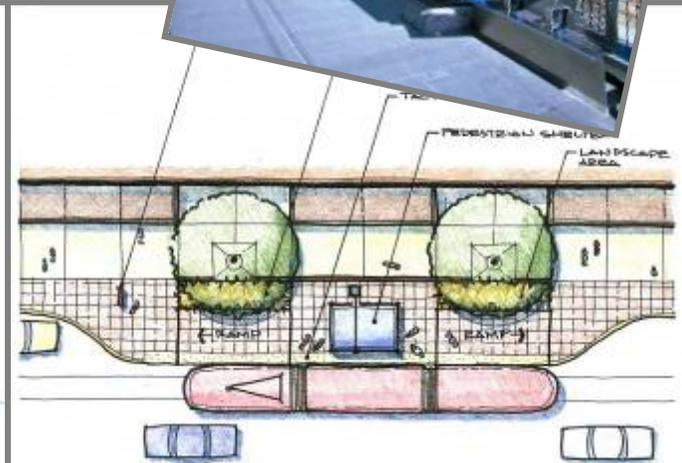
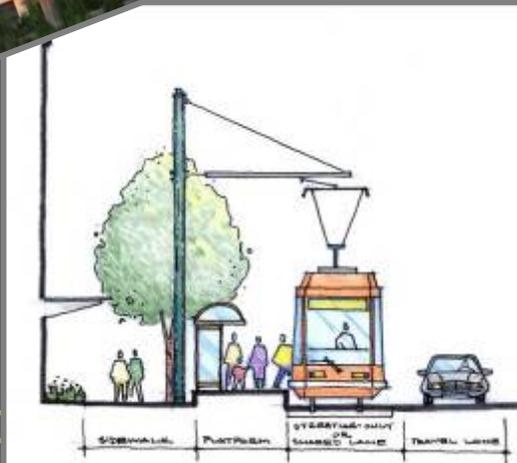
Thinking about stations



What is a Station?

Minimum building blocks of a station:

- 12'+ Platform
- Shelter
- Bench
- Lighting
- Information
- Trash can



Two ways to view station design

- Engineering Scope
 - Transit facility focus
 - View from the station out to edge of ROW
- DOT Scope
 - Community focus
 - View from the community in



Station Location Considerations

- Proximity to uses that generate ridership
- Direct accessibility
- Safety and security
- Visibility to users
- System connections



Dubai, UAE



Valencienne, France

Place Making at Stations

Places to come back to,
not just to leave from

- Four different strategies:
 - Station as a place
 - Station invisible to complement place
 - TOD defines place
 - TOD serves as place



Designed for Development



Fruitvale Transit Village

- Joint Development of BART parking
- Transit center one side, development other
- Revitalized low-income community
- Calmed major arterial

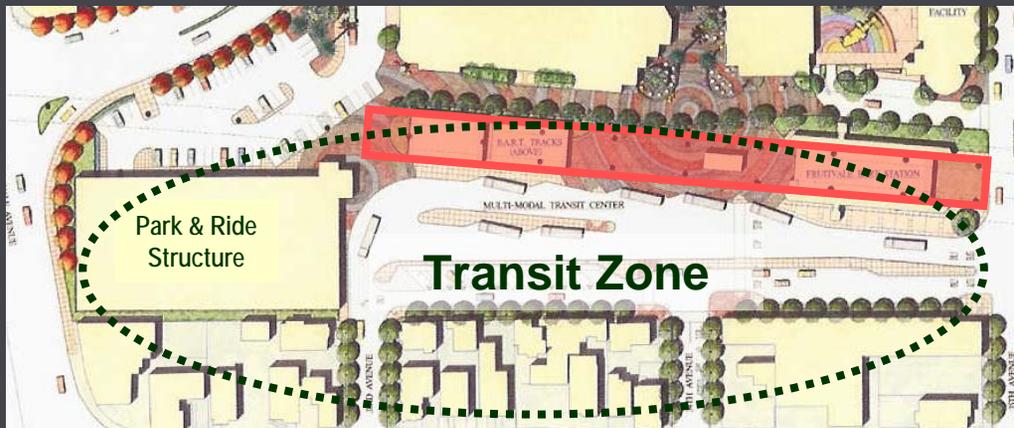


Fruitvale BART



Fruitvale Transit Village

- Full service transit
 - Rail Station
 - Bus transfer
 - Park & ride
 - Kiss & ride



Fruitvale Transit Village

Community developed TOD

- Community Center
- Affordable housing
- Senior Housing
- Medical Clinic
- Retail



Baltimore DOT Principles

1

Shape the Future



Design Red Line facilities to shape and enhance the community and to efficiently move people.

18 Red Line Development/General Transit Principles

2

Locate Your Identity



Locate each station in an identifiable clean and friendly place; stations should define the most important places in each neighborhood.

18 Red Line Development/General Transit Principles

3

Transit Stations as Landmarks



Design memorable transit stations that can serve as local landmarks and provide a sense of civic identity.

28 Red Line Development/General Transit Principles

4

Connect Communities with Transit



Adjacent transit districts along the line should be linked to create complimentary communities benefiting one-another.

22 Red Line Development/General Transit Principles

5

Be a Good Neighbor



Site and design stations to be good neighbors as well as providing safe and efficient transit service.

28 Red Line Development/General Transit Principles

6

Compliment Community Objectives



Help realize the vision and economic vitality of each community with quality development providing a mix of uses close to transit.

28 Red Line Development/General Transit Principles

7

Connect Places with Walking



Provide lively, safe and convenient sidewalks and paths between Red Line stations and the destinations of transit patrons, with buildings facing towards those connections.

28 Red Line Development/General Transit Principles

8

Pass the Test of Time



Make the permanence of transit facilities evident from their appearance.

28 Red Line Development/General Transit Principles

9

Attract New Riders



Invest in quality station and system design that will attract new riders and benefit those who ride out of necessity.

22 Red Line Development/General Transit Principles

10

Create Partnerships



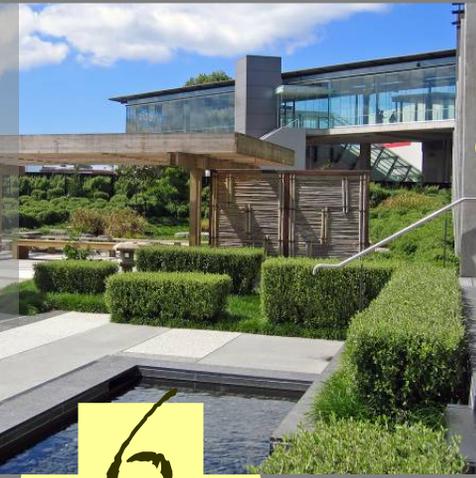
Secure partnerships that will maintain the success of the Red Line and the communities it serves in return for the public investment made in transit improvements.

24 Red Line Development/General Transit Principles

Making the station to communit y



Making the connection
: Downtown,
Station,
City Hall



Henderson Civic Centre, Waitakere, NZ

Henderson, NZ

Downtown separated by tracks

Station + pedestrian bridge + Civic Center

Connecting the community



Case Study: Transforming Tysons Corner

America's Largest
New TOD



“... a plan is in the works for a major transformation of Tysons Corner ... into a high-density, pedestrian-friendly, transit-oriented mini-city.”



Urban Land 7.09

Tysons Corner

- The original “edge city”
- Sprawl on steroids
 - Office equivalent of #12 US downtown
 - Massive congestion
- 4 Metro stations: 2013
- Assignment: transform Tysons into walkable mixed-use downtown

From suburban apocalypse to an active vital place?





jiùde bùqù
xīnde bùlái
Chinese saying

*If the old
doesn't go,
the new won't come*

Bold Transformation

- New plan & tools
- New land use plan
- New standards for streets
- New design guidelines
- New implementing authority
- New financial tools
- TOD demonstration projects



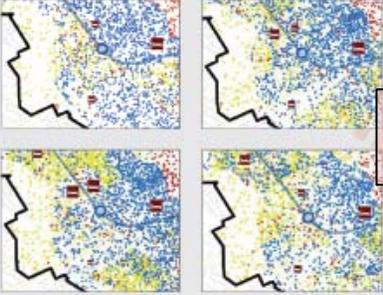
Tysons Today



Tysons Transformed

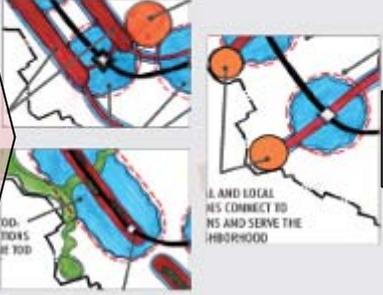
Transforming Tysons

Where to put growth?



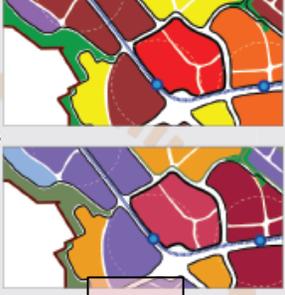
Four maps showing different growth patterns in a region, likely Tysons, illustrating various land use and transportation scenarios.

How to grow?



Diagrams illustrating transportation corridors and land use connections. One diagram shows a road network with a central corridor, and another shows a circular pattern with a central hub. Text: "LAND LOCALITIES CONNECT TO US AND SERVE THE NEIGHBORHOOD".

Making TOD work



Two maps showing transit-oriented development (TOD) patterns, illustrating how land use is concentrated around transit stations.

Refining the Vision



Two maps showing refined land use and transportation plans, illustrating the integration of different elements into a cohesive vision.

Developer Plans



An aerial view of a detailed urban development plan, showing building footprints, streets, and green spaces.

Rigorous Testing



Two aerial maps showing the testing of different development scenarios, illustrating how the plan is evaluated against real-world conditions.

Urban Design Site Plans



An architectural site plan showing building forms, landscaping, and street layouts, providing a detailed view of the urban design.

What will it look like?



A 3D architectural rendering of the proposed development, showing the building forms and their relationship to the surrounding environment.

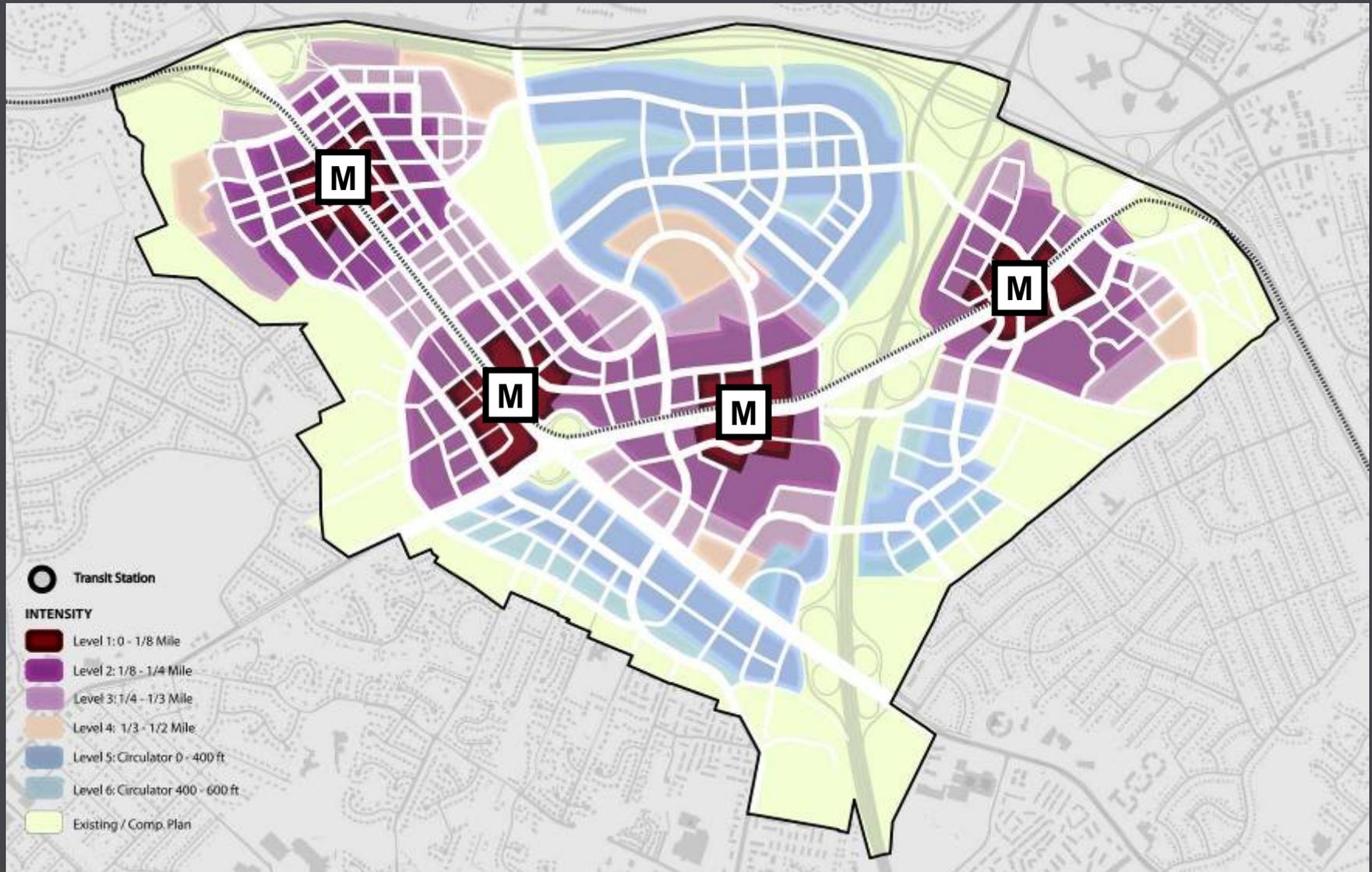
Refinement/Consensus



A final refined map showing the consensus development plan, illustrating the integration of all elements into a cohesive and agreed-upon blueprint.

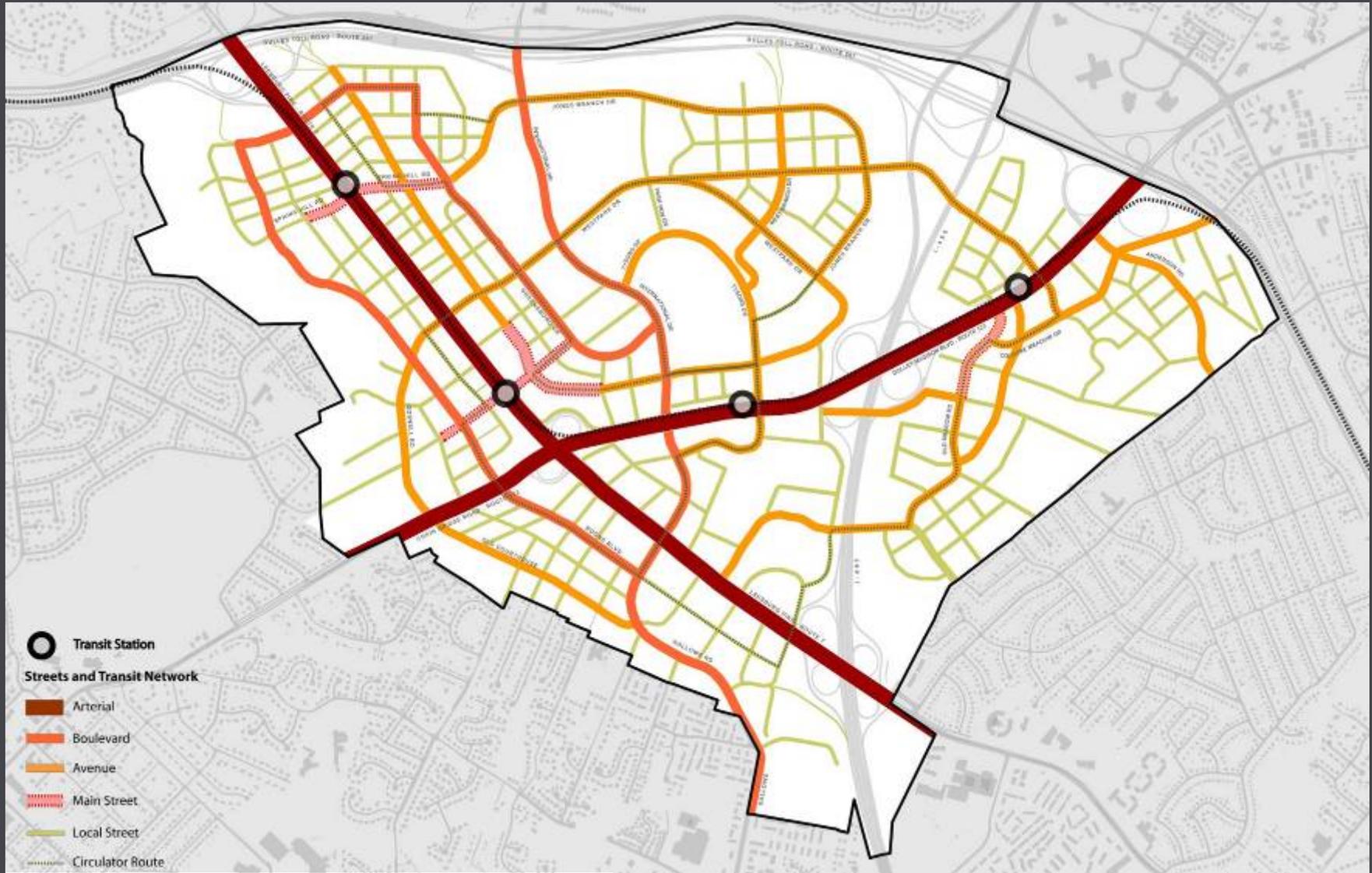
Building the blueprint

1. Intensity Around Transit



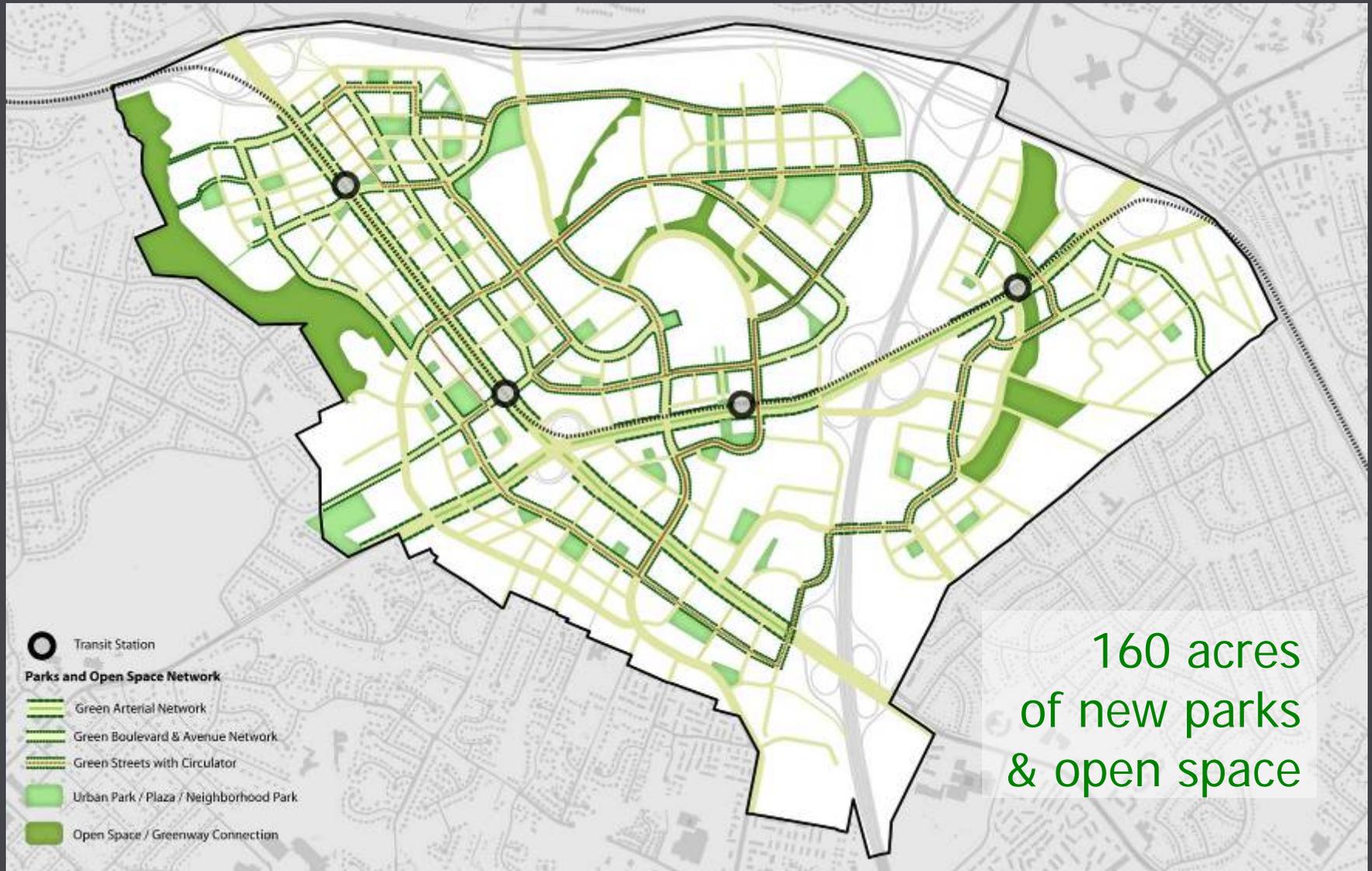
95% of growth within a 3 minute walk of transit

2. Redesign transportation



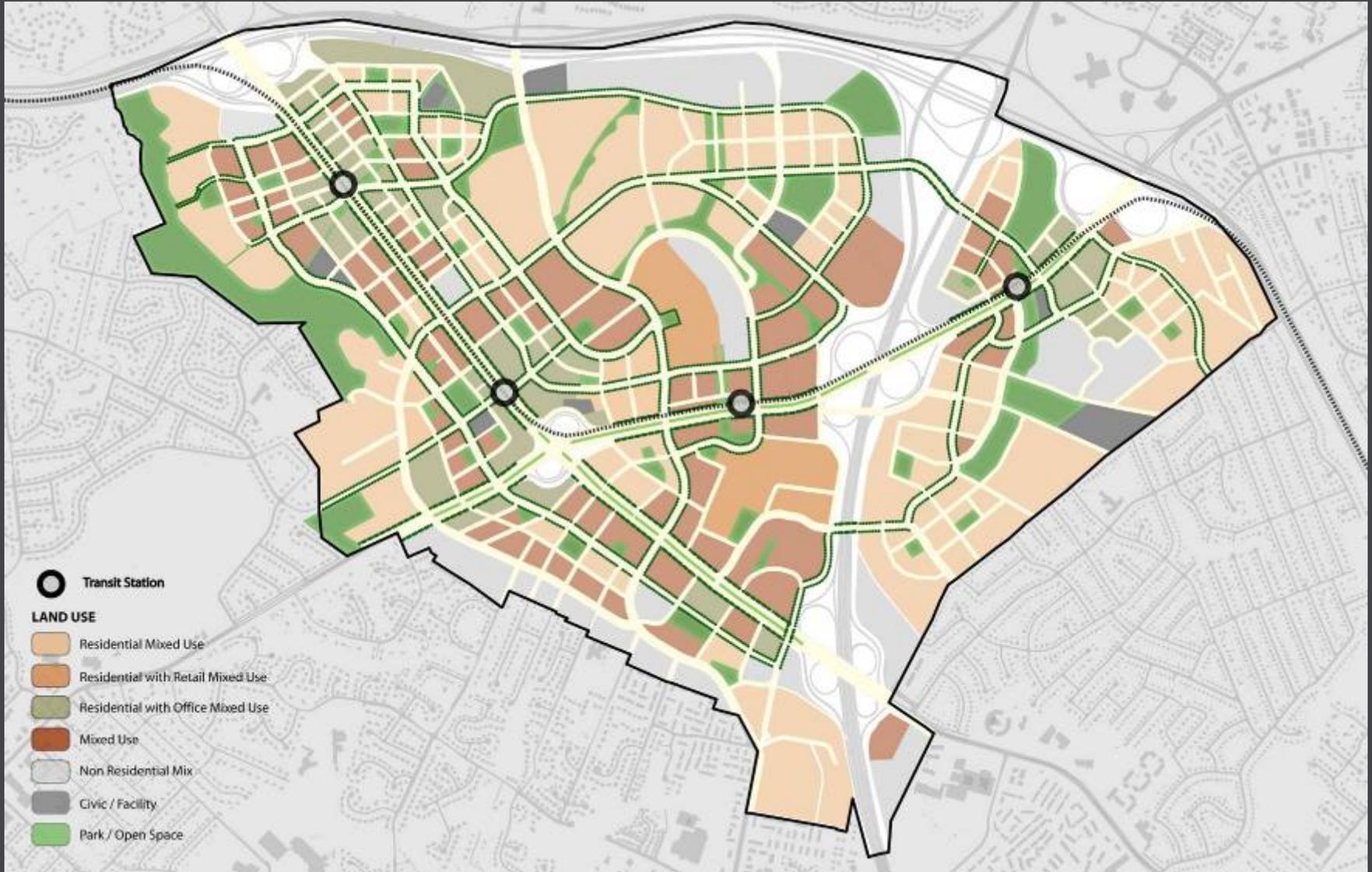
Balancing walking, biking, transit & cars

3. Emphasis on environment



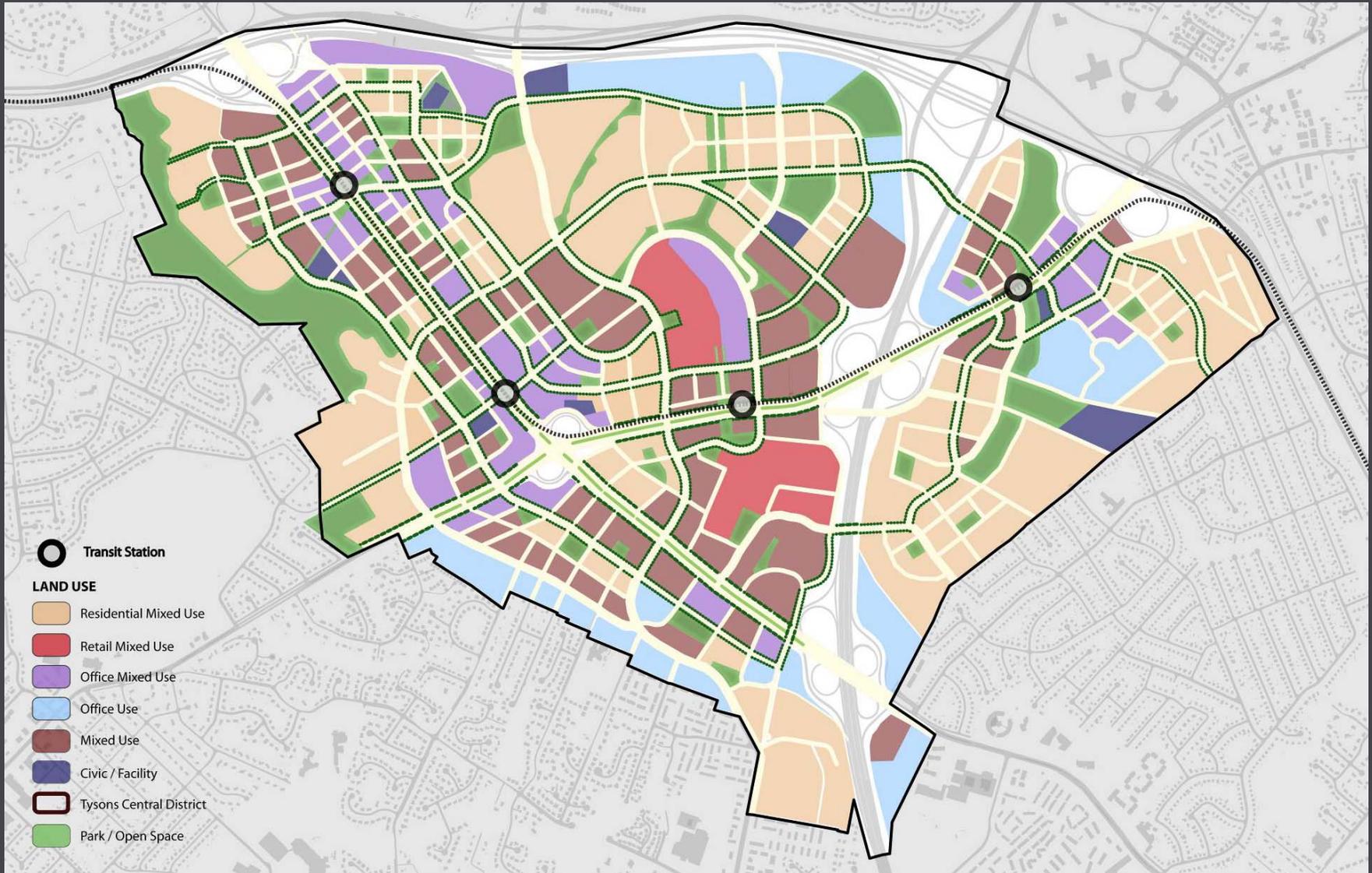
A network of green across Tysons

4. Residential Across Tysons



Virtually all of Tysons would encourage residential

Recommended Plan

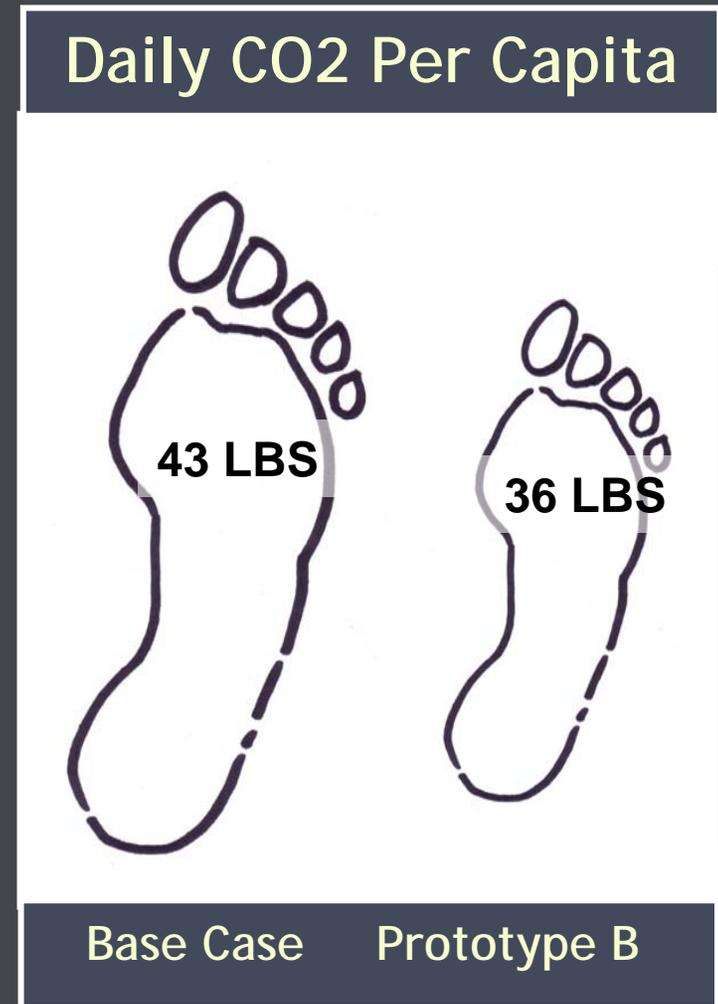


160% more development, 11% more congestion

Lower Carbon Footprint

Preliminary assessment:

- 175% increase in development
- Greenhouse Gas emissions 16% less per capita
- 2.5 billion lb reduction annually
- Results from
 - Compact development
 - Fewer auto trips
 - Greater transit use



Paying for Tysons

- More density + more amenity
 - Transit / open space / civic uses / affordability / walkable streets
- Developer contributions + public finance
 - Exactions / tax increment



Dulles Phase I Special Improvement District

- Encompasses Tysons Corner and Wiehle Avenue
 - More than 6,600 businesses
 - \$200 million in taxes
 - \$100 million in property taxes
- Contribution to the Metrorail
 - Capped at \$400 million



Keys to private funding

- Must be enough private value
- Motivation not transit
- Developers need transit to support impacts of growth
- Need enough development rights to cover the exactions



Tyson's Transformed

- Better, not just bigger
- A top 10 US downtown
- A place people want to live
- Defined by green stewardship
- The civic heart of N. Virginia
- Built around transit & walking



8 Unique Districts



Tyson's Central 7

“This is going to be the model of how we transform King of Prussia, Perimeter Center, Costa Mesa down in Orange County, California. But you’re going first.”

National Public Radio, 12.10.08

8 Unique Districts



Tysons West

“The plan has been widely applauded as a forward-thinking blueprint to convert this ‘edge city’... into the epitome of ‘Smart Growth’ ”

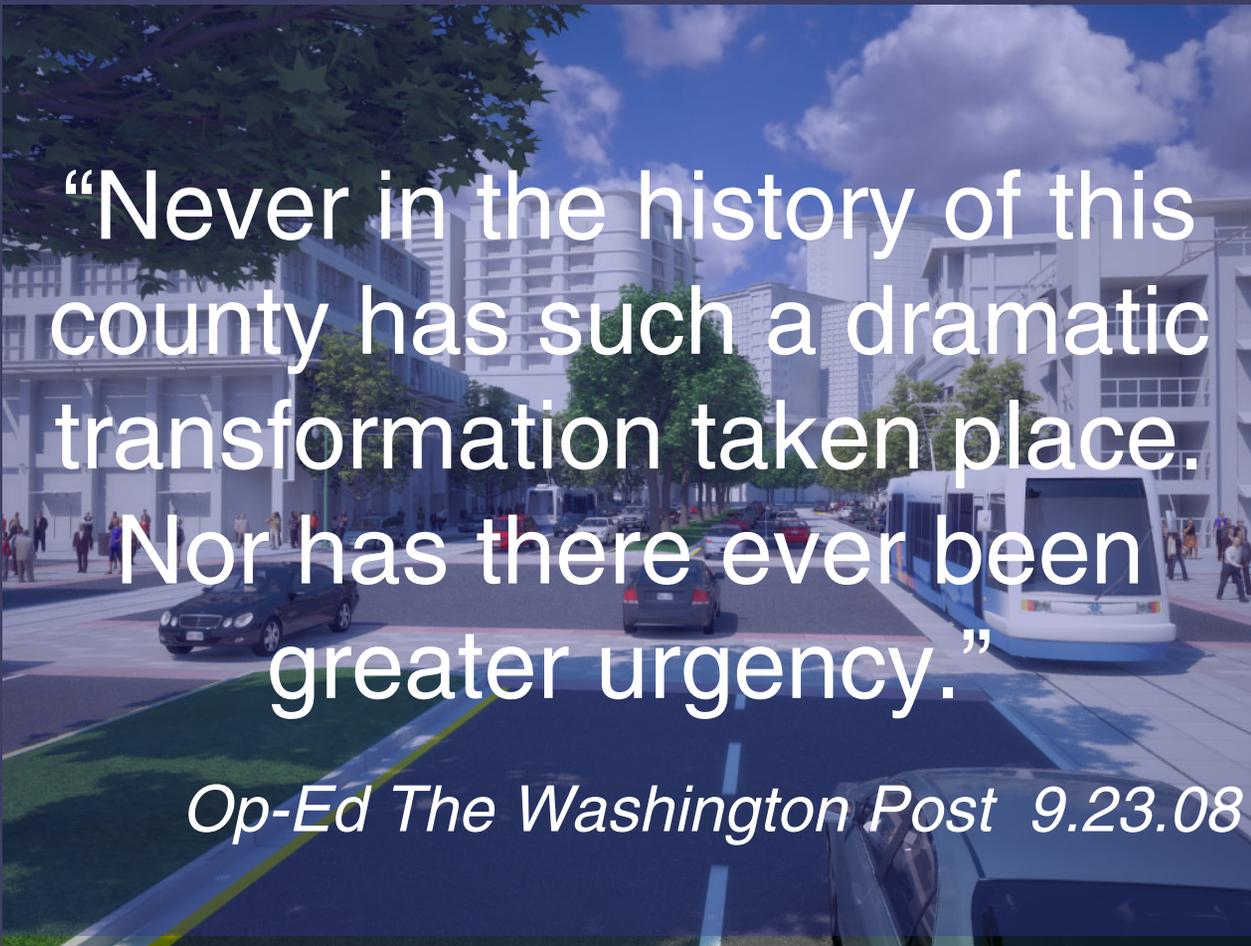
- *New York Times* 12.17.08



8 Unique Districts



Tyson's East



An architectural rendering of a modern urban plaza. The scene is set in a city with several tall, modern buildings in the background. In the foreground, there is a paved plaza with a large, orange, curved sculpture. People are walking and sitting at tables. There are trees and greenery throughout the scene. The overall atmosphere is bright and modern.

The implications of this redevelopment project stretch far beyond Fairfax County, as suburbs and exurbs across the country look for ways to repair the damage from five decades of outward, rather than upward, expansion.

Time Magazine June 11, 2009