

EXISTING TRANSPORTATION CONDITIONS & TRANSPORTATION PLANNING BEST PRACTICES

Potomac Yard Planning Advisory Group
March 26, 2009

Potomac Yard Multimodal Transportation Study



PRESENTED TO:

ALEXANDRIA, VA



PRESENTED BY:





Potomac Yard Multimodal Transportation Study

- Study Overview
- Existing Conditions
- Best Practices





Study Purpose

- **Analysis and recommendations for a future multimodal transportation network in support of Potomac Yard**
- **Concurrent study with the Potomac Yard land use planning**
- **Recommendations to become a part of the Potomac Yard small area plan**
- **Study also serves to meet VDOT traffic study requirements under Chapter 527 of the Virginia Code**



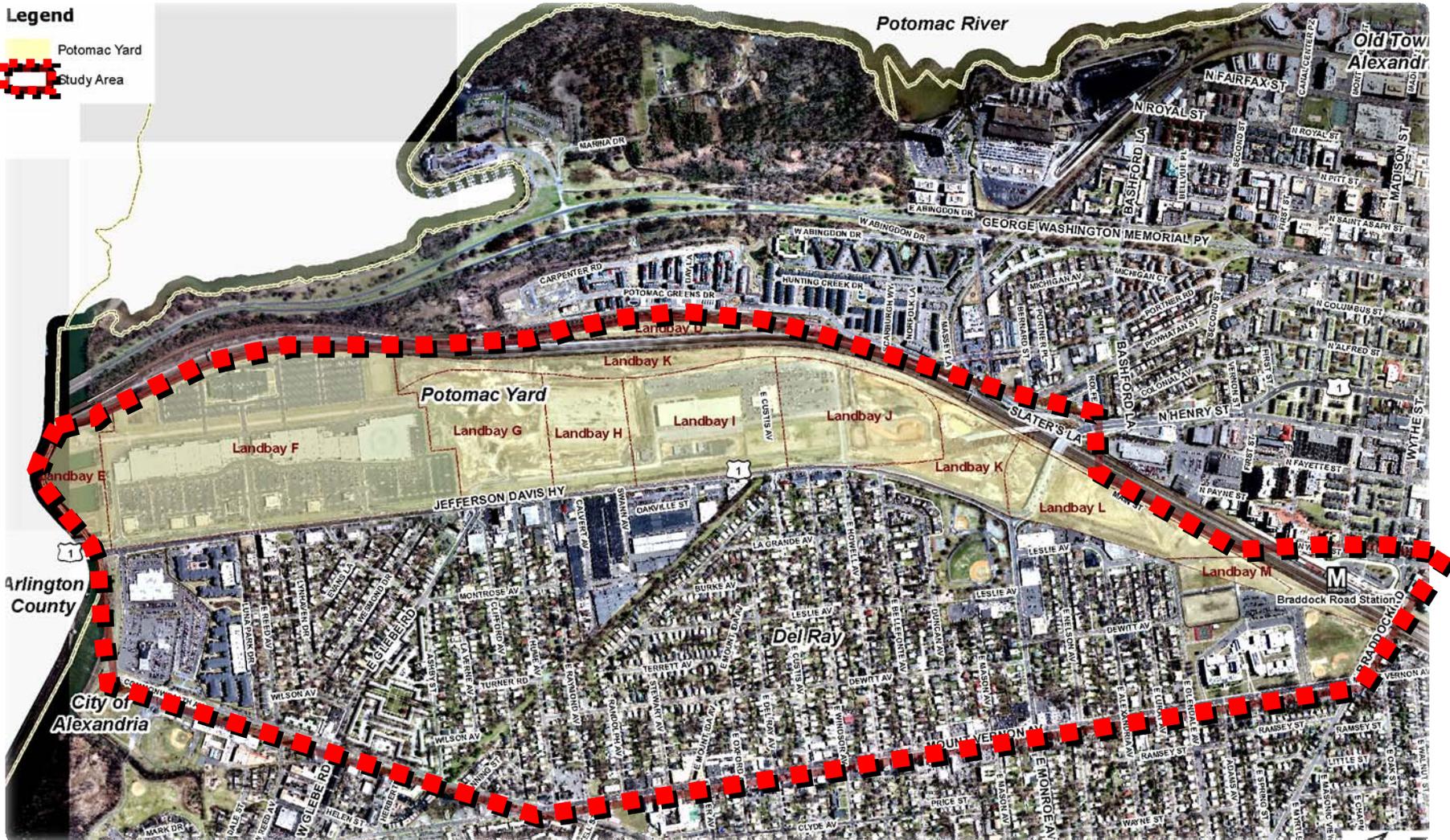
Potomac Yard Multimodal Transportation Study

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Study Area

Legend

-  Potomac Yard
-  Study Area





Study Scope

- **Existing conditions analysis – traffic, transit, pedestrian, bicycle, and parking**
- **Forecasting future horizon year 2030 traffic**
 - Without proposed changes to Land Bays F and L
 - With proposed changes to Land Bays F and L (two scenarios of density) and no new Metro station
 - With proposed changes to Land Bays F and L (two scenarios of density) and new Metro station
- **Assess ability of existing transportation system to accommodate proposed land uses in Land Bays F and L**
- **Identify any necessary transportation capacity improvements**



General Transportation Issues

- **Potomac Yard is not pedestrian or transit friendly in its current form**
 - Auto-oriented development pattern
 - Super-block structure
 - Vast surface parking lots
 - Very long distance between the front doors of buildings and public streets
 - Pedestrian facilities and connections are limited
 - Transit service is comparatively inconvenient





Existing Conditions - Automobile

- Study area intersection level of service for the PM peak hour
- Signal timing on US Route 1 is focuses on progression of through traffic
- Side streets have long delays





Existing Conditions - Automobile

- Most intersections operate acceptably
- Interconnected street networks in older neighborhoods efficiently disperse traffic
- Failing LOS at US 1/Monroe Avenue prior to new US Route 1 bridge





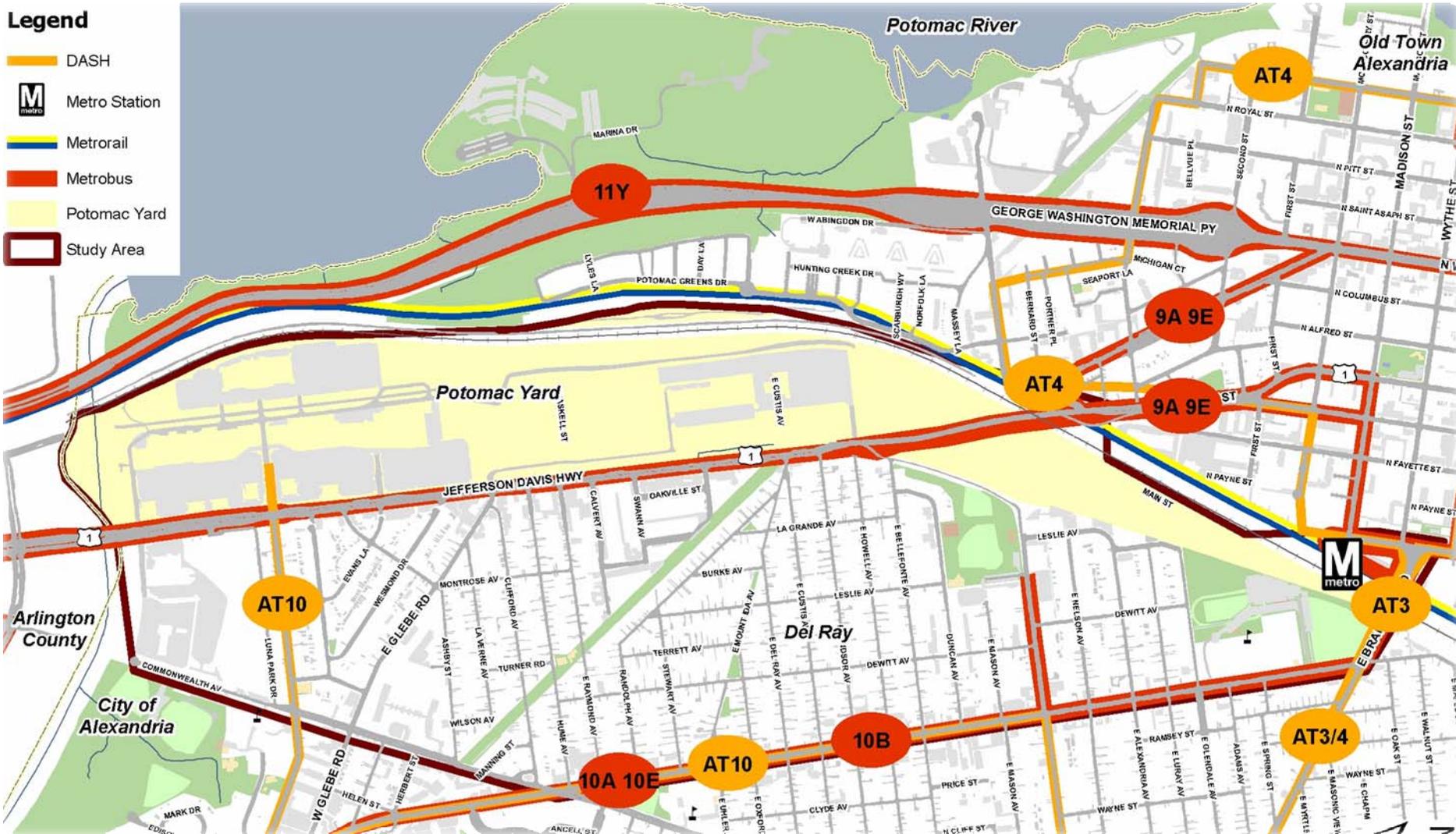
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Existing Conditions - Transit

Legend

-  DASH
-  Metro Station
-  Metrorail
-  Metrobus
-  Potomac Yard
-  Study Area





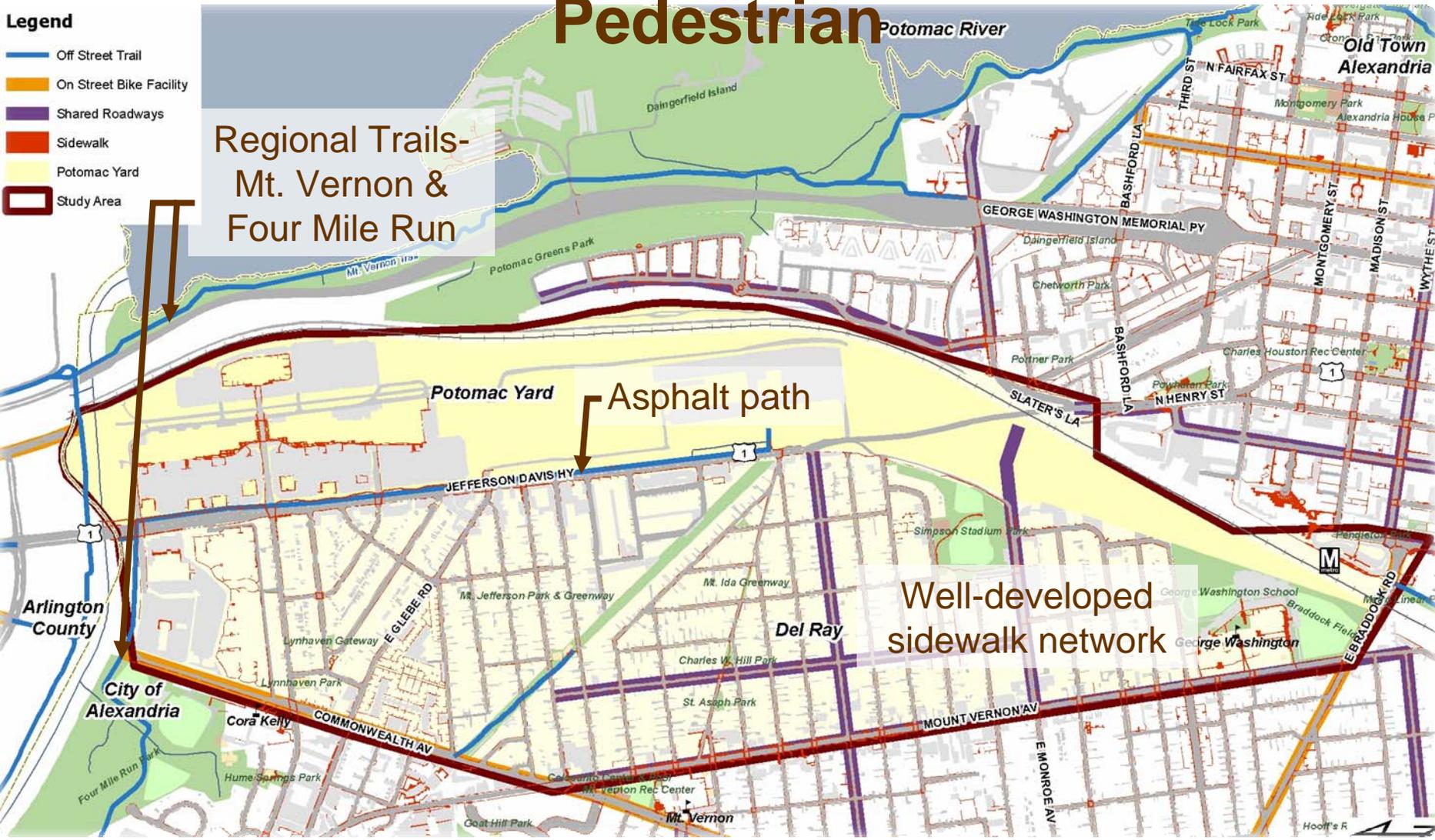
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Existing Conditions – Bicycle and Pedestrian

- Legend**
- Off Street Trail
 - On Street Bike Facility
 - Shared Roadways
 - Sidewalk
 - Potomac Yard
 - Study Area

Regional Trails-
Mt. Vernon &
Four Mile Run



Well-developed
sidewalk network

Asphalt path



Summary and Next Steps

Progress to date...

- Documented current transportation challenges so that everyone involved better understands the challenges in redeveloping of Potomac Yard

What's next...

- Traffic analysis
- Identify multimodal transportation solutions
- Accommodate the redevelopment of Potomac Yard
- Realize vision defined by PYPAG and City of Alexandria
- Build on best practices in transportation design for



PYPAG Vision and Principle

Vision

- An environmentally and economically sustainable and diverse 21st century urban, transit-oriented, mixed-use community, compatible with adjacent neighborhoods
- A regional destination with diverse built and natural spaces where people want to spend time in a wide variety of pursuits

Planning Principle – Transportation

- Comprehensive multimodal approach to transportation based on a highly walkable urban environment, minimal automobile impact, and maximum use of existing and new Metro stations



City of Alexandria

Comprehensive Transportation Master Plan



March 21, 2008

Alexandria Transportation Master Plan Ideals

- Transportation innovation – policy and physical measures
- Quality bicycle and pedestrian accommodation
- Accessibility, reliability, and mobility for all users
- Enhance quality of life
- Support livable, urban places
- Preserve neighborhoods
- Maximum use of Metro
- Minimize auto impacts
- Use technology to manage transportation
- Lead the region





Best Practices

- **Transportation networks**
- **Elements**
 - **Physical**
 - **Management**
- **Who is employing them?**

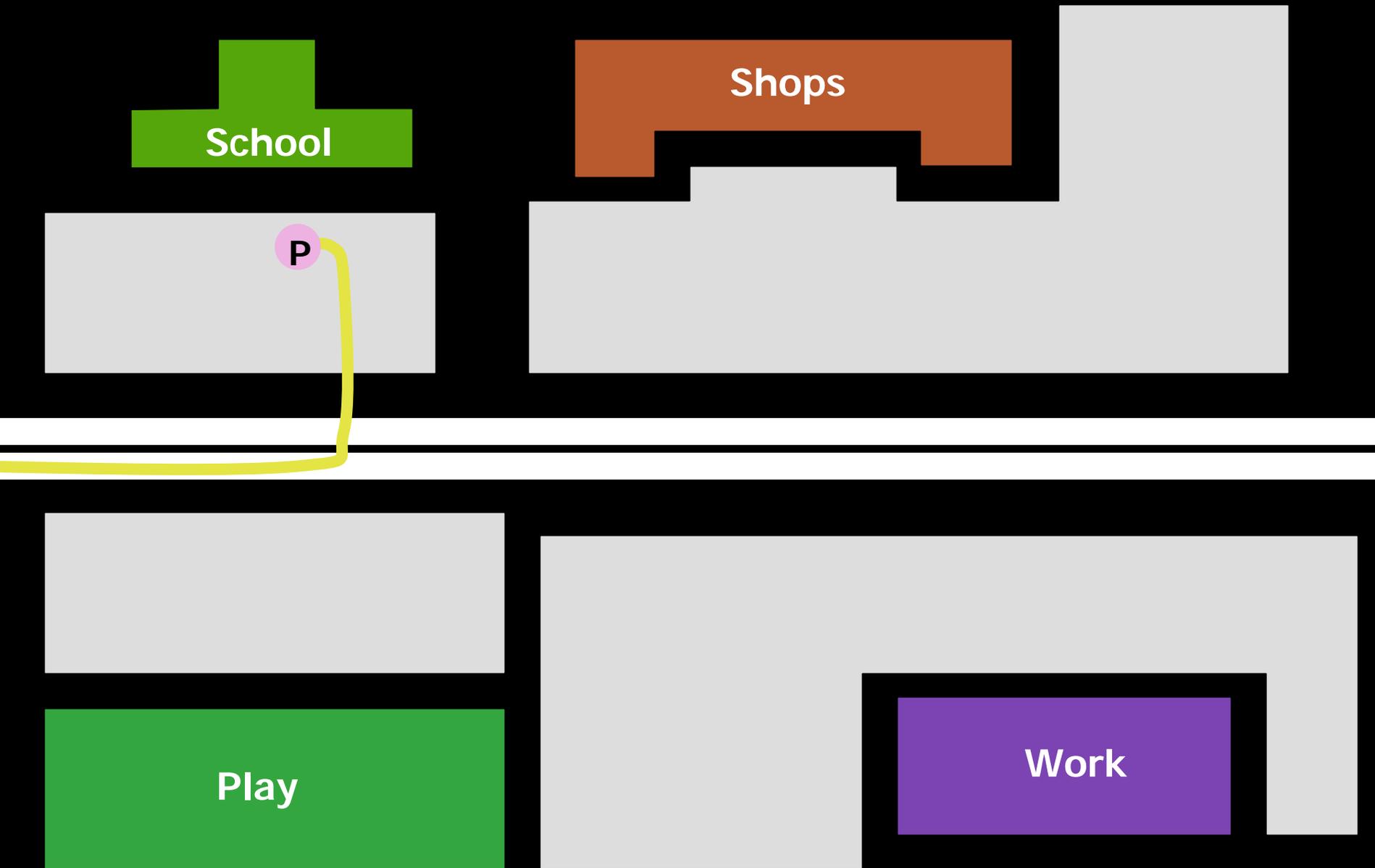


Best Practices - Networks

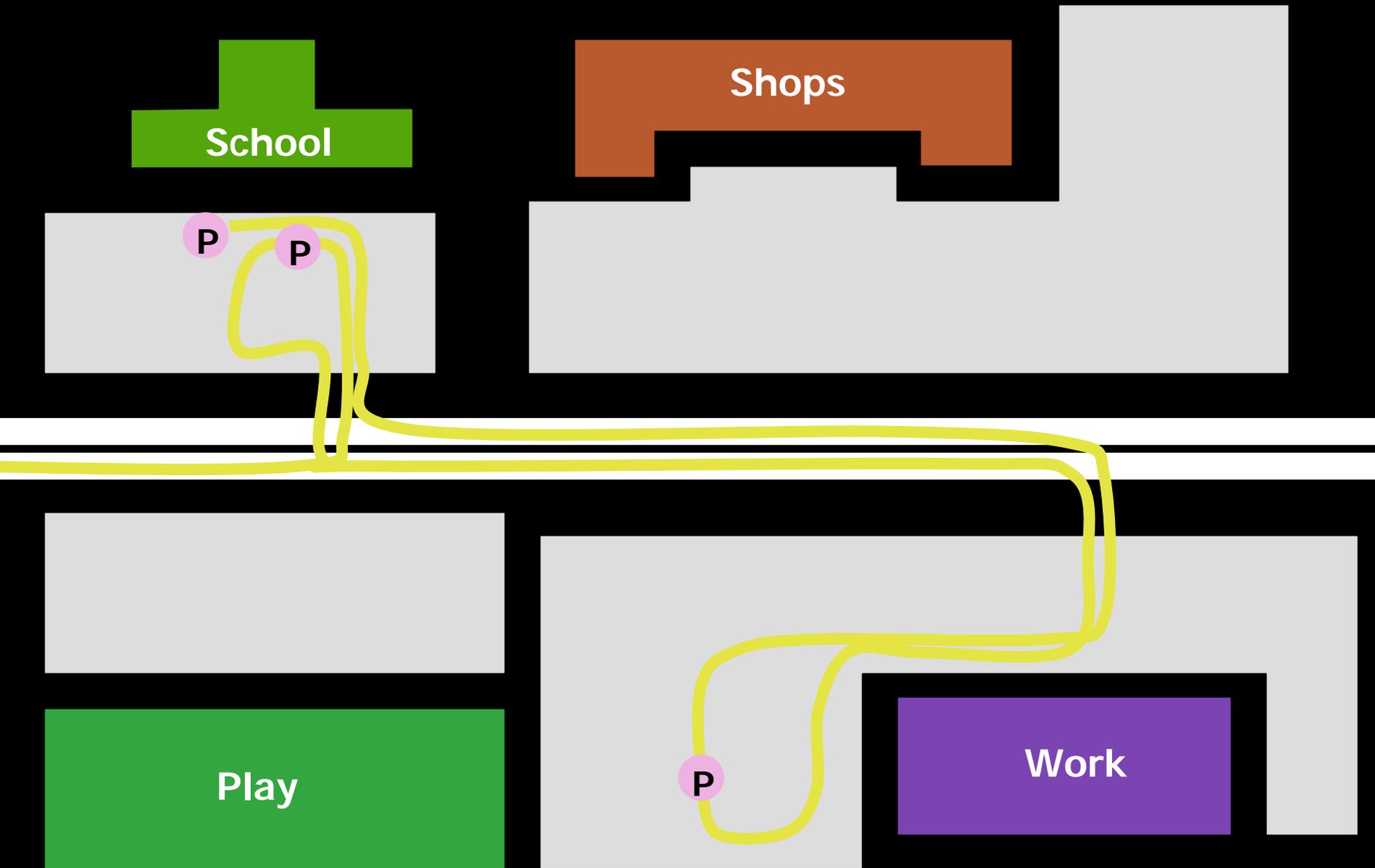
- **Fine grained**
- **Interconnected**
- **Redundant**

Why have a network...?

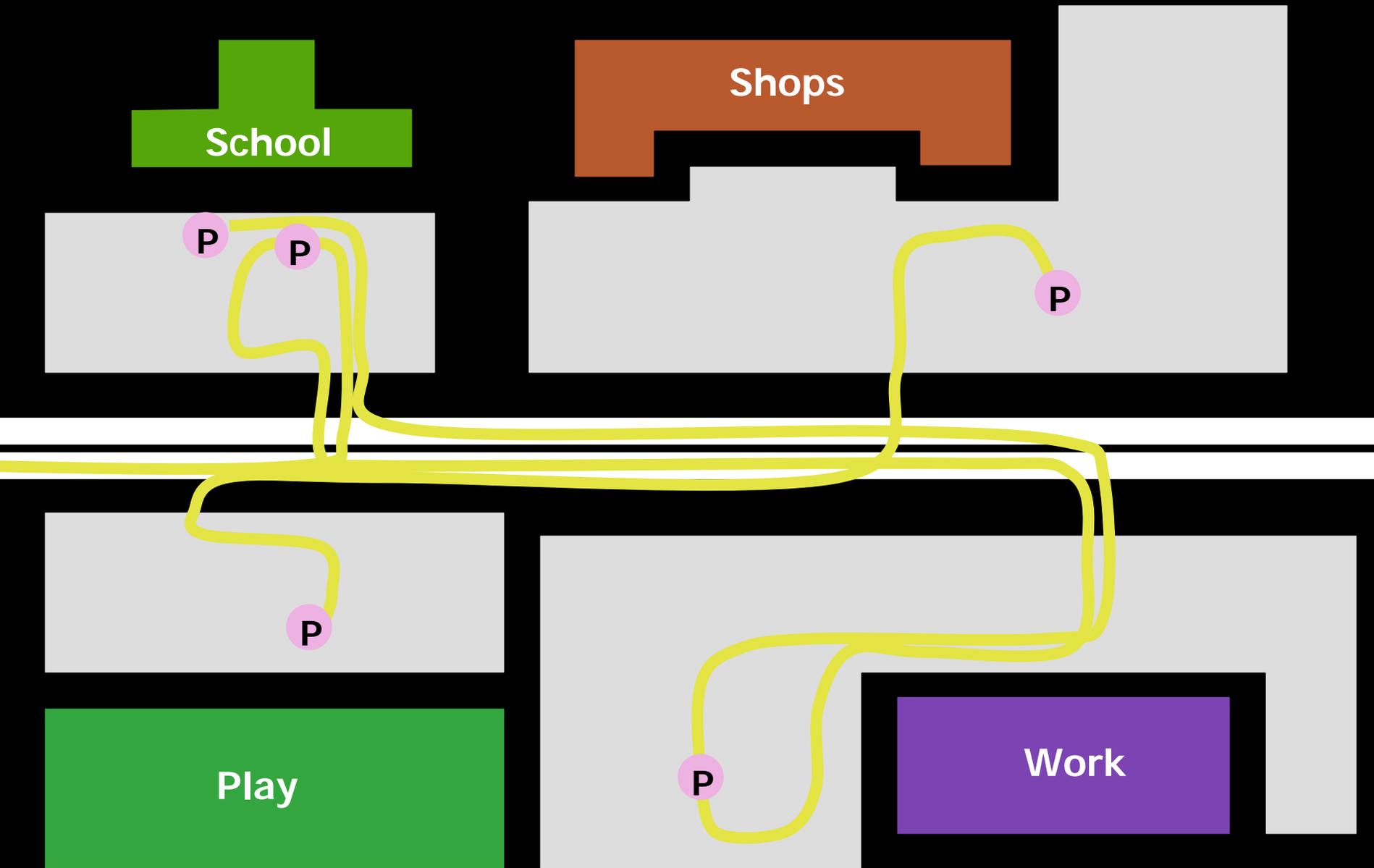
Access and Mobility in a Conventional Development Pattern



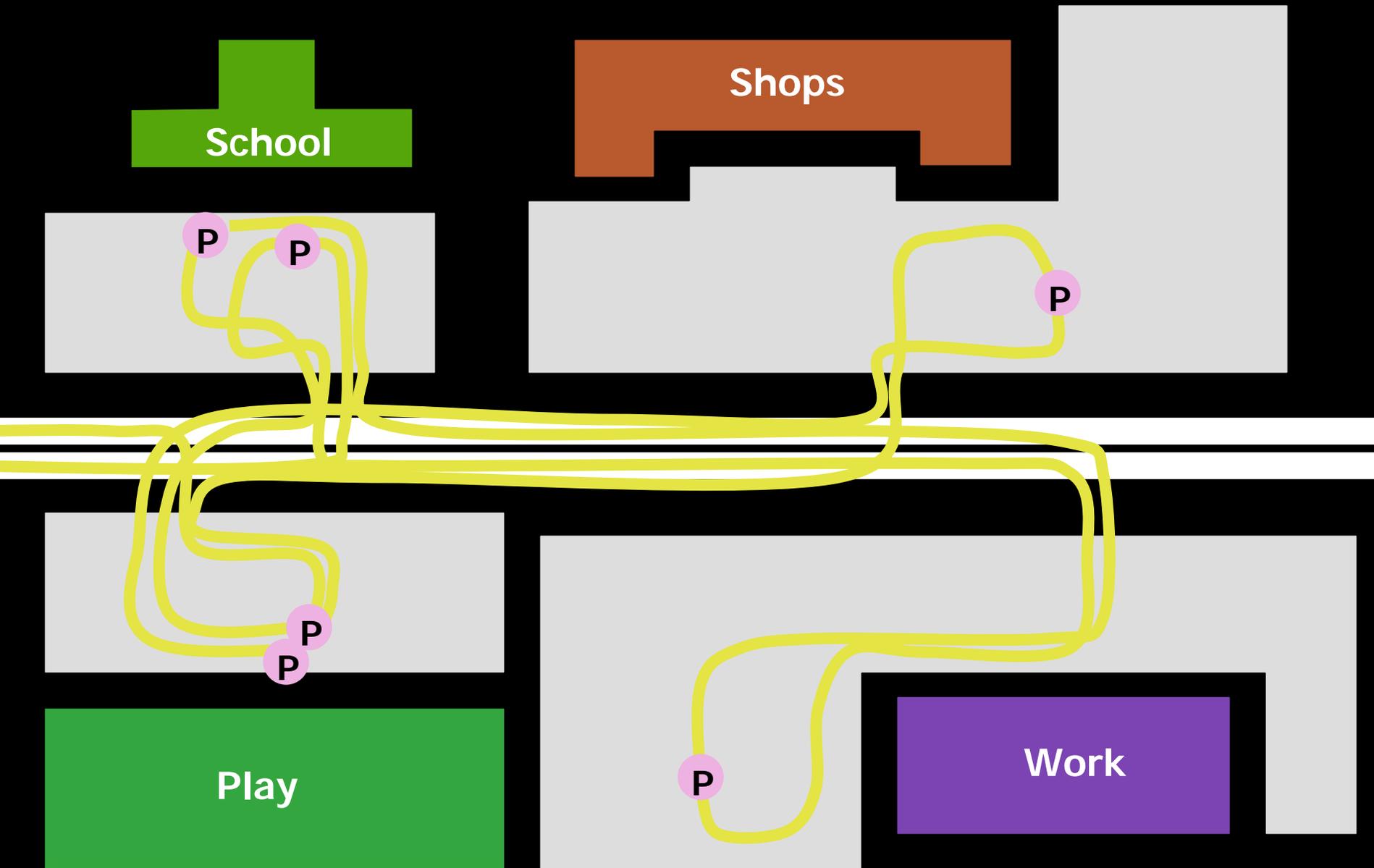
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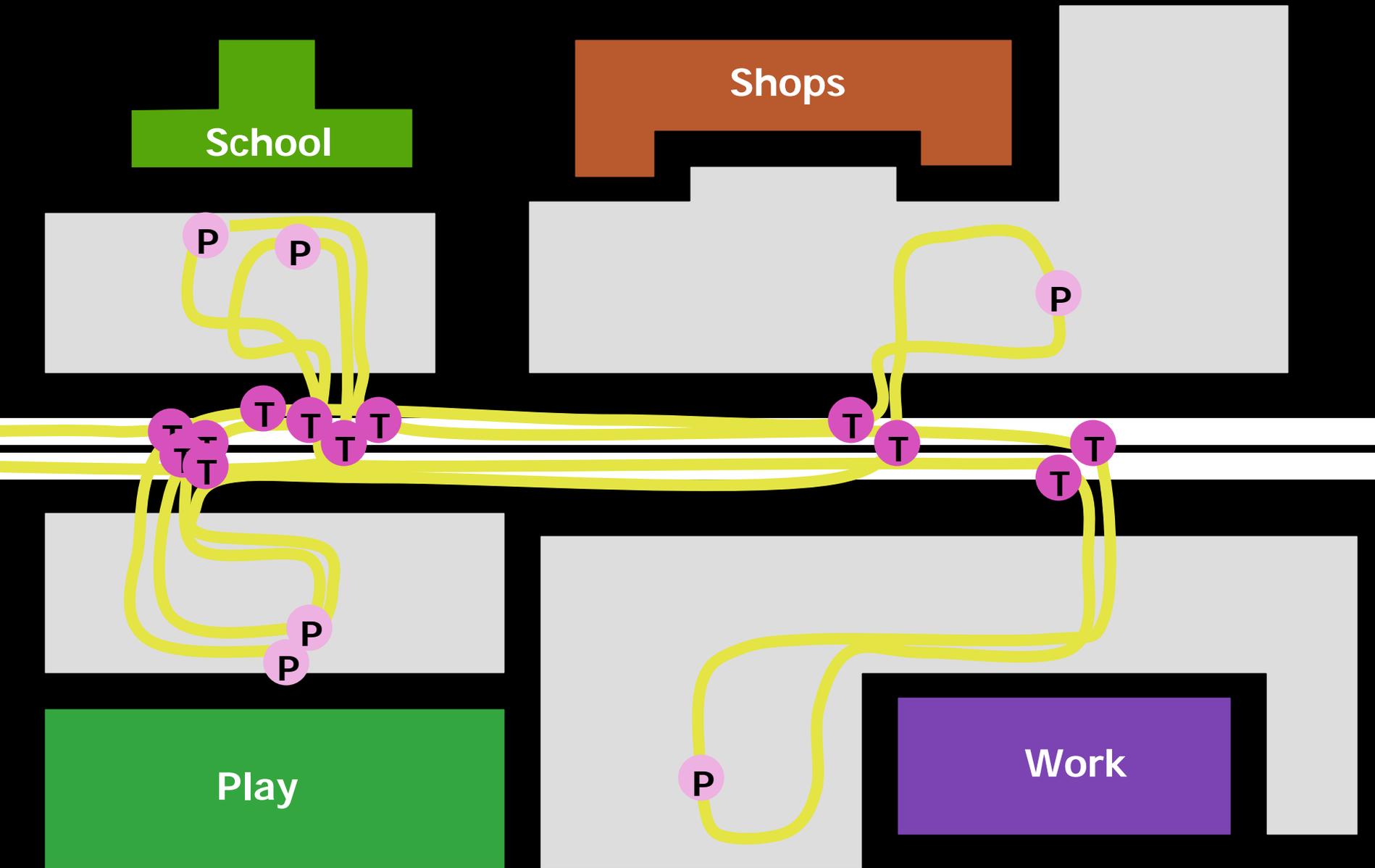
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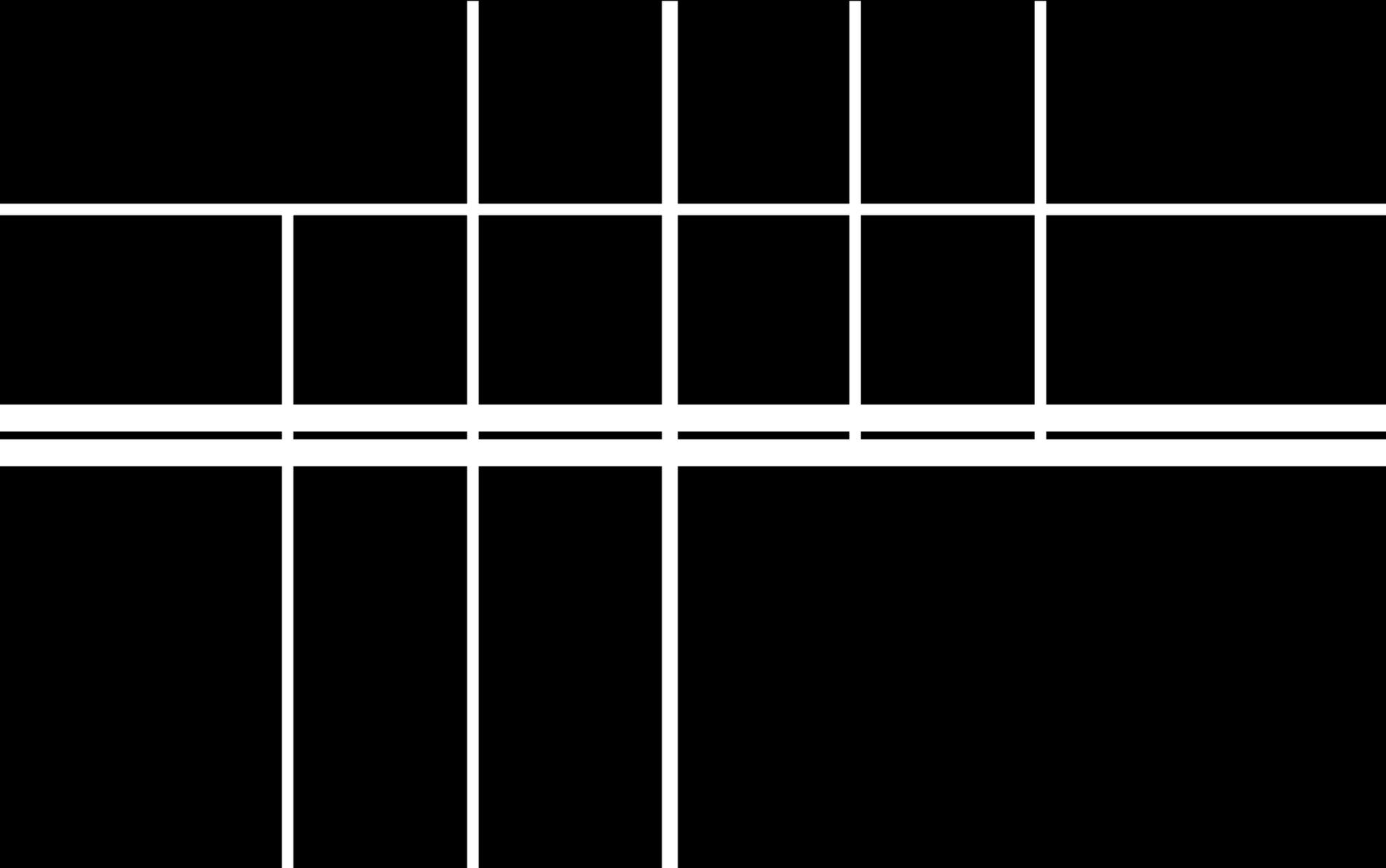
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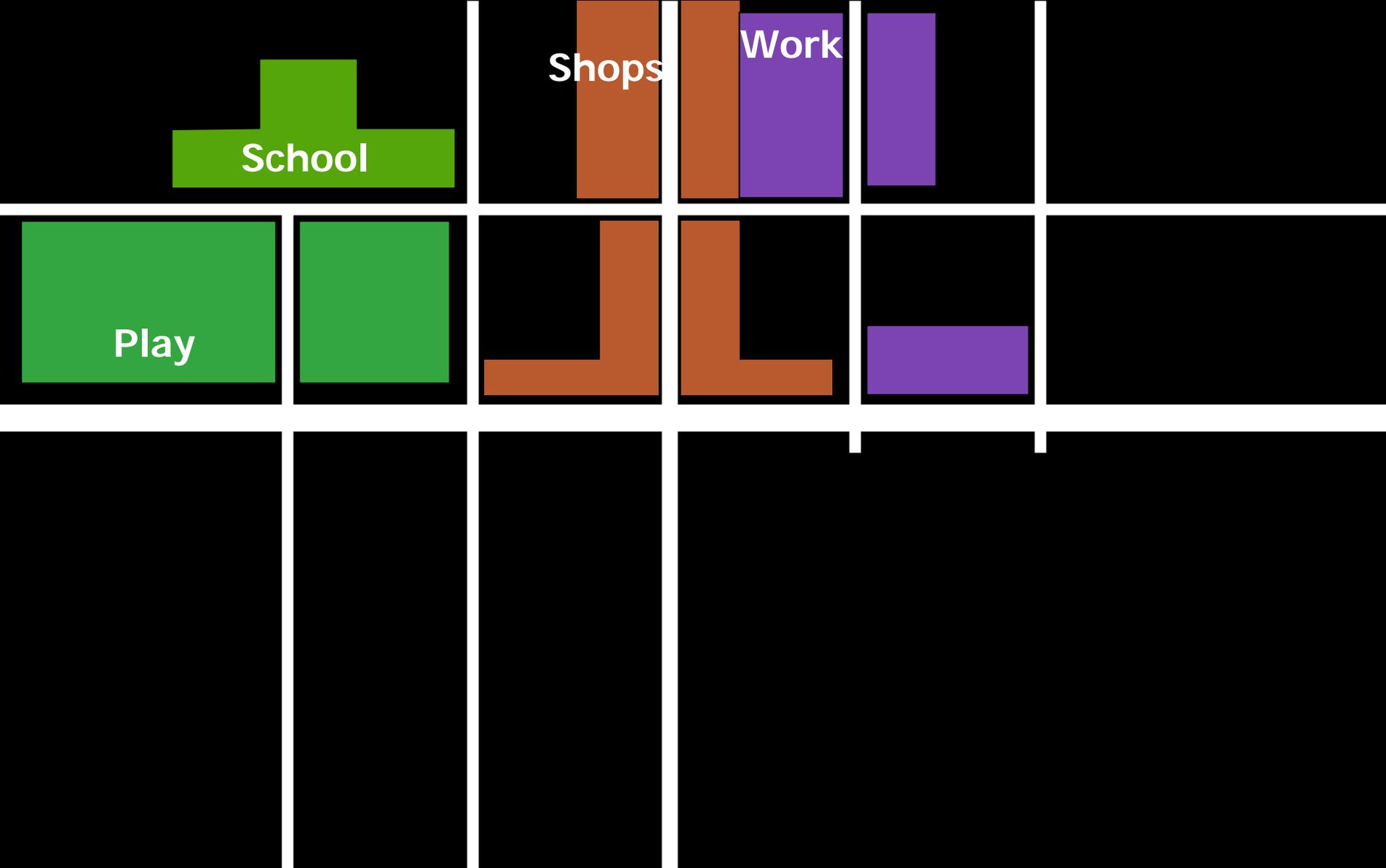
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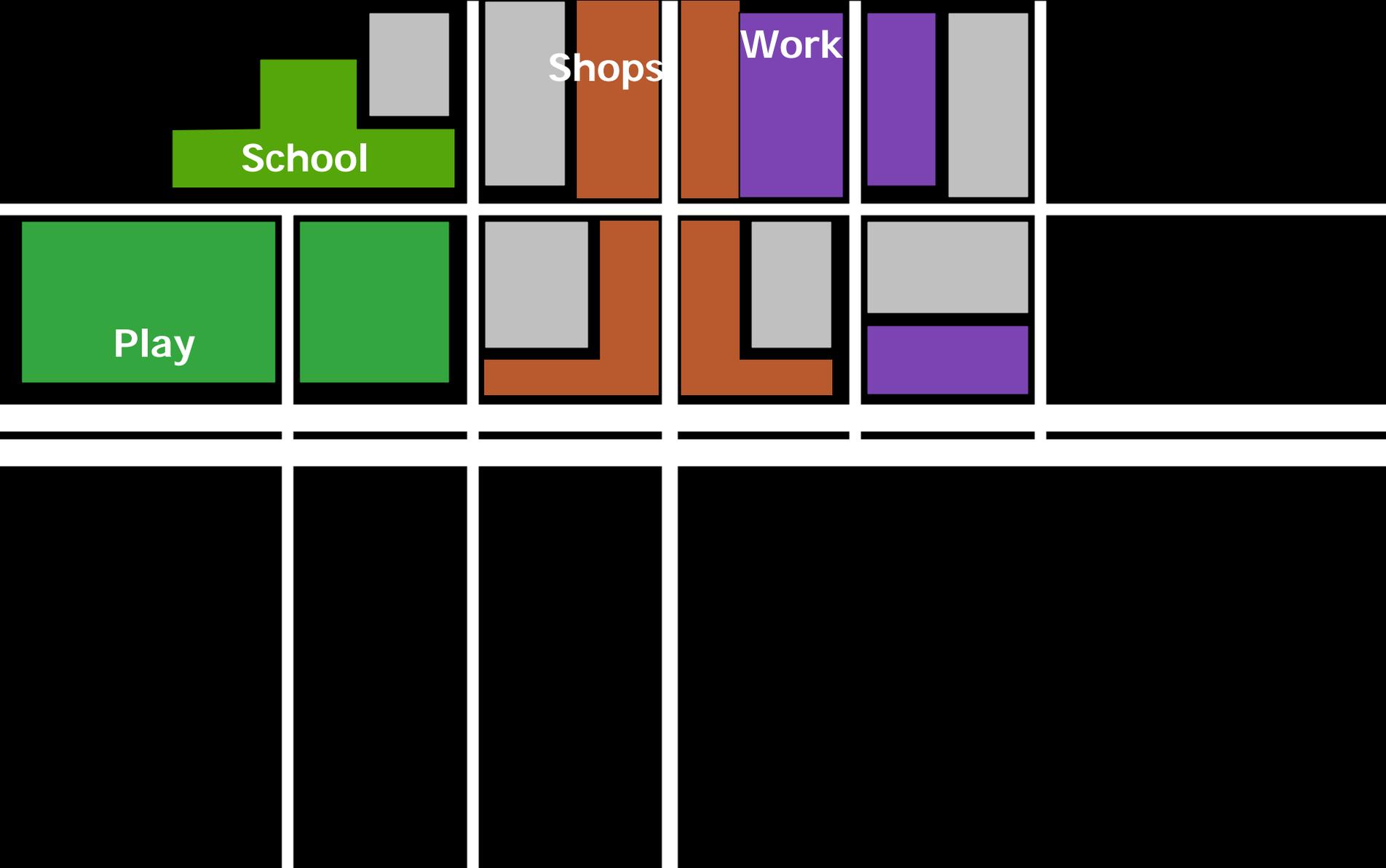
Interconnected Street Pattern with Mixed-Use Development



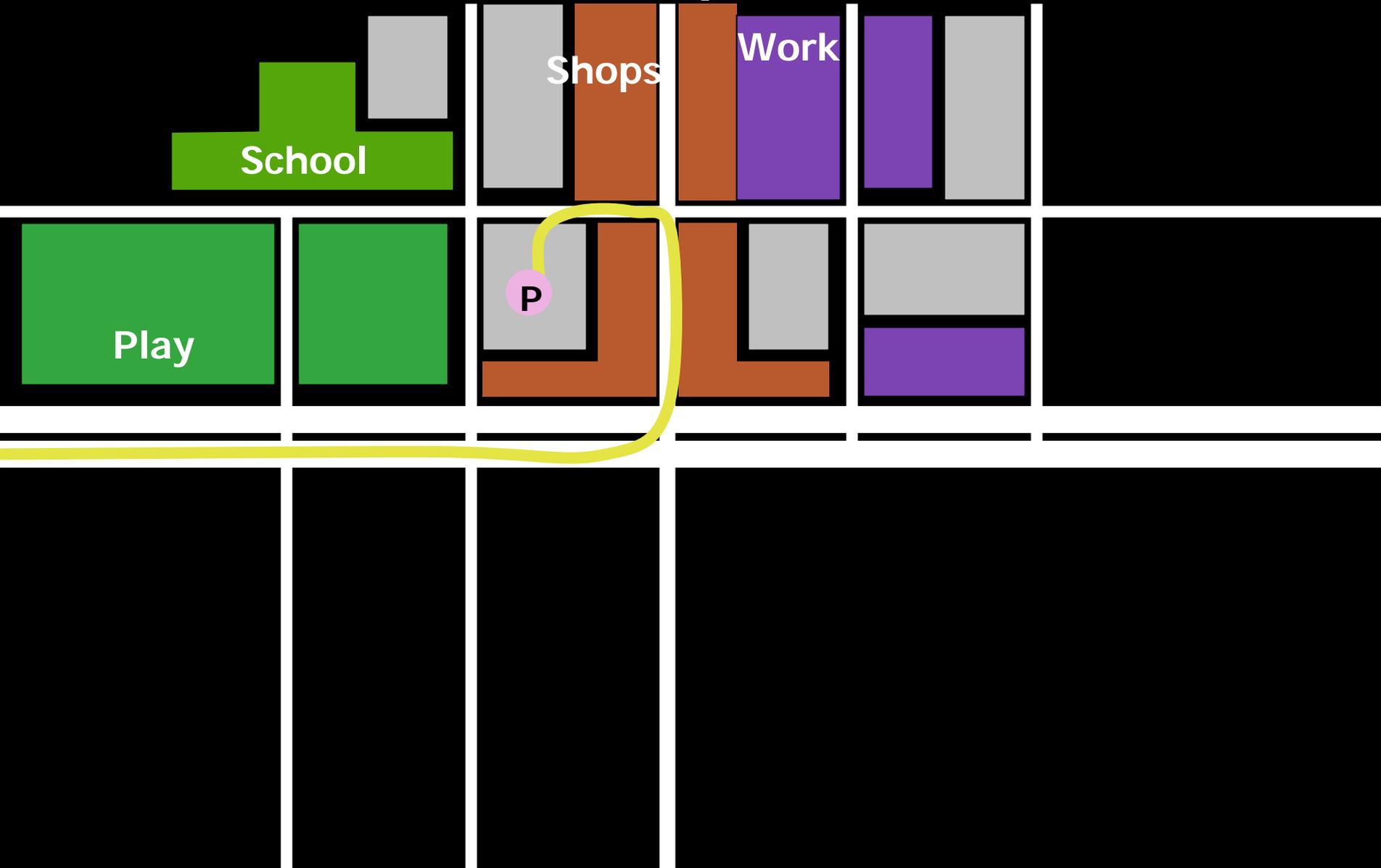
Interconnected Street Pattern with Mixed-Use Development



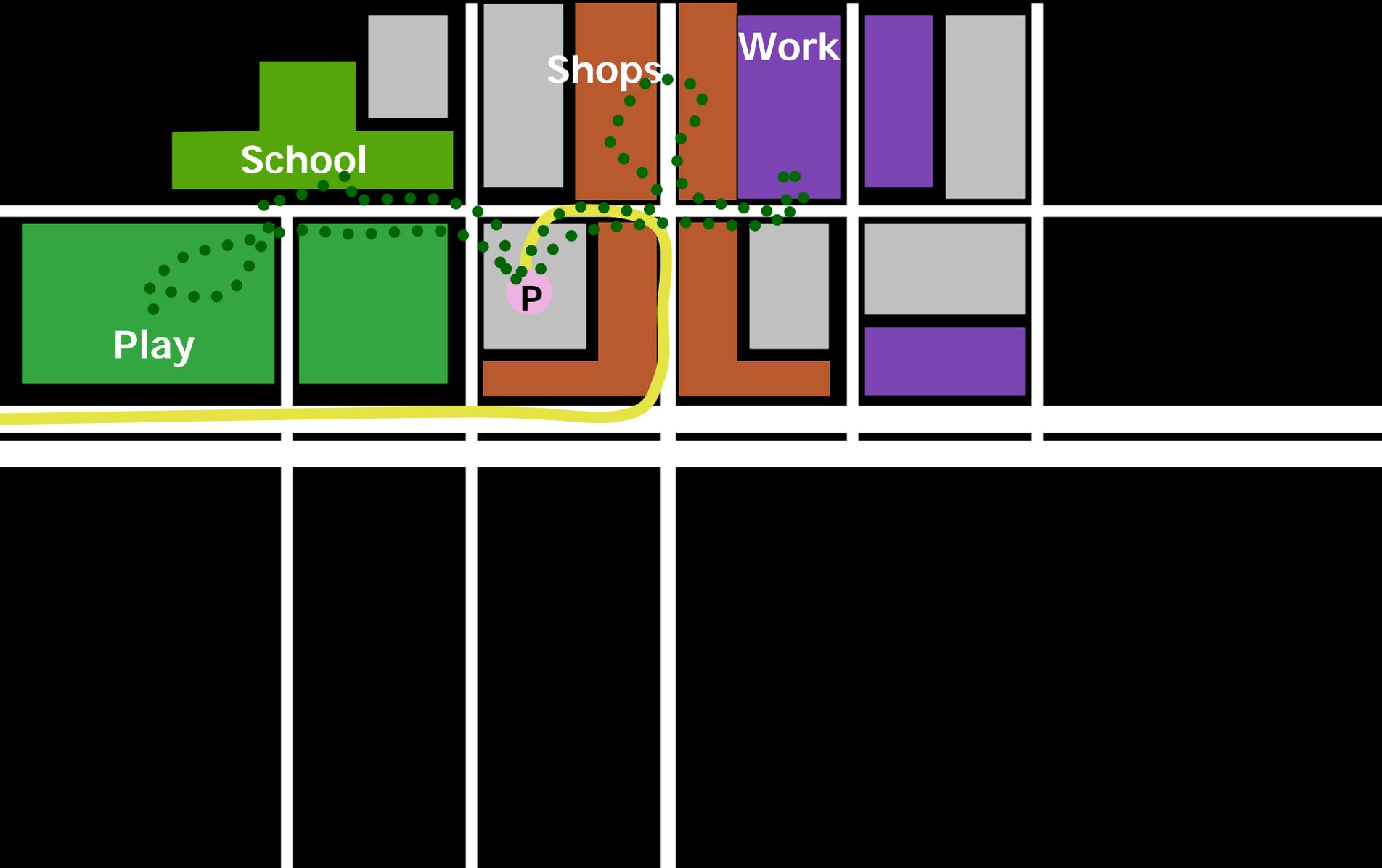
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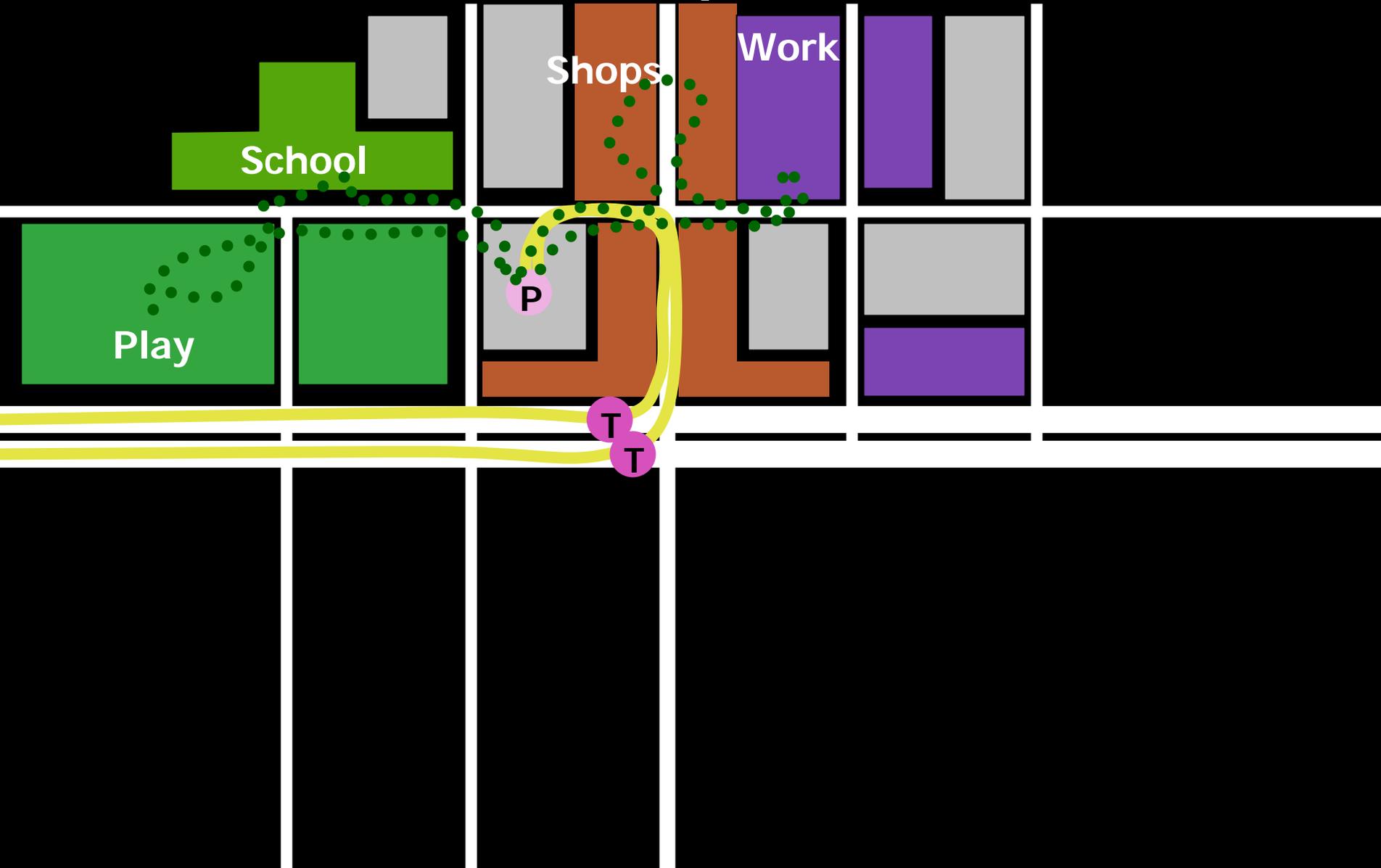
Interconnected Street Pattern with Mixed-Use Development



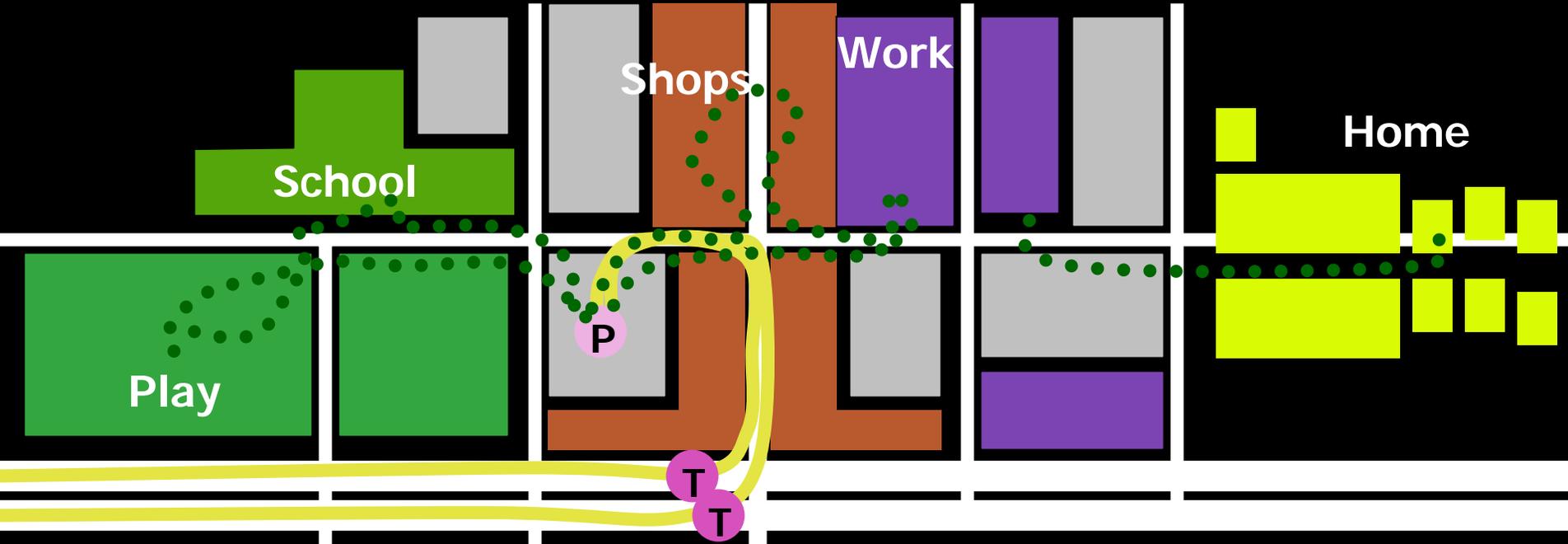
Interconnected Street Pattern with Mixed-Use Development



Interconnected Street Pattern with Mixed-Use Development



Interconnected Street Pattern with Mixed-Use Development



Results:

- Less parking needed
- Fewer arterial trips
- Less traffic impact
- Fewer vehicle miles traveled
- Less congestion
- More travel choice



The Value of the Network

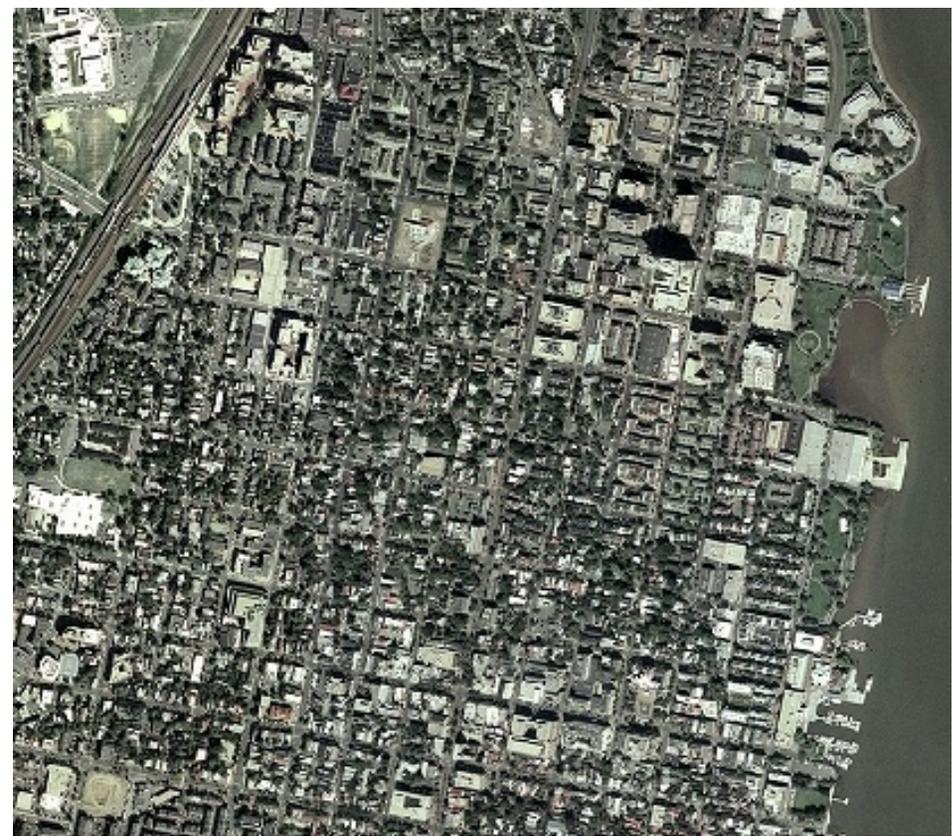


Old Town Alexandria

Fairfax County, Fair Lakes Area

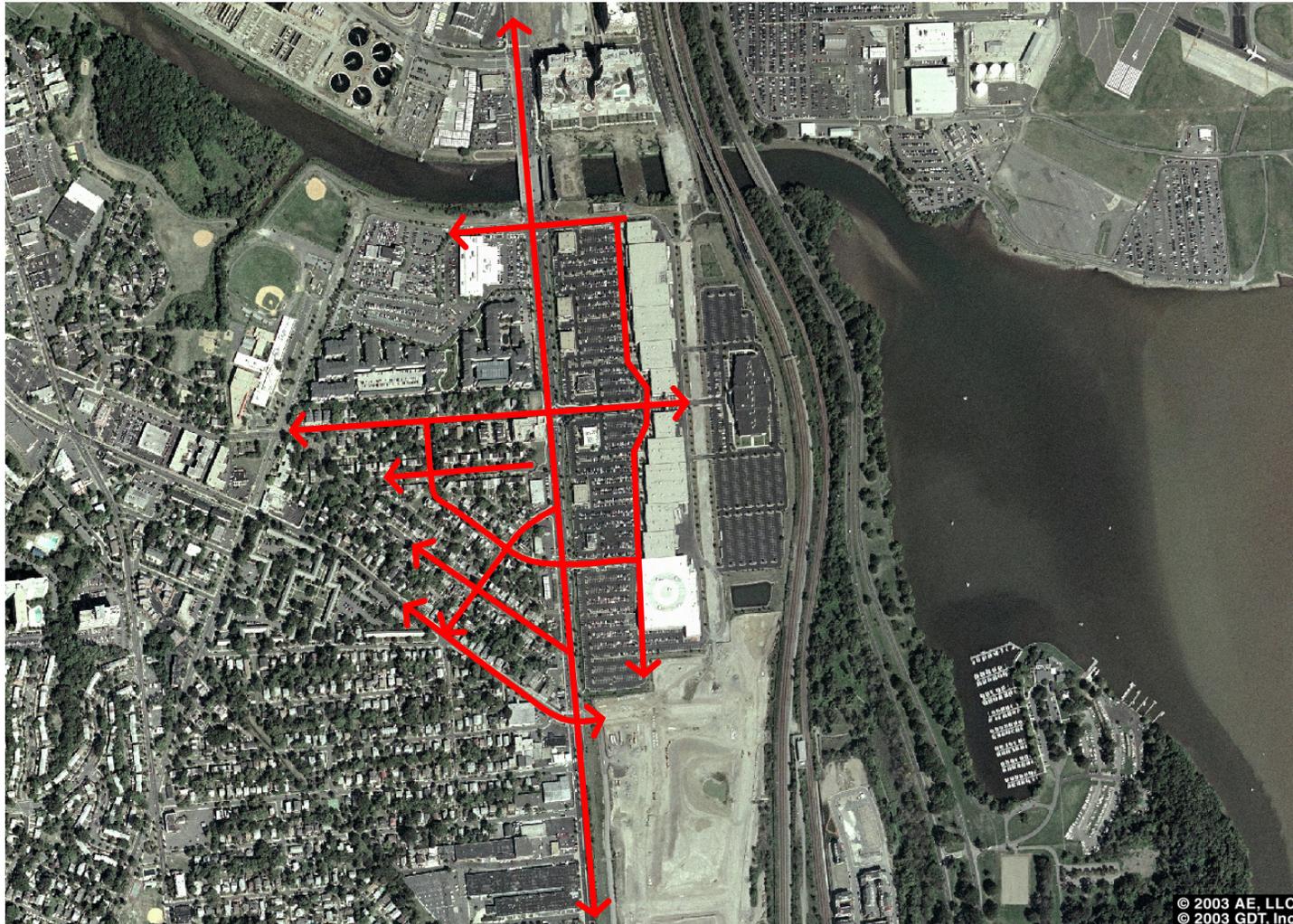


Networks Inform the Creation of Place





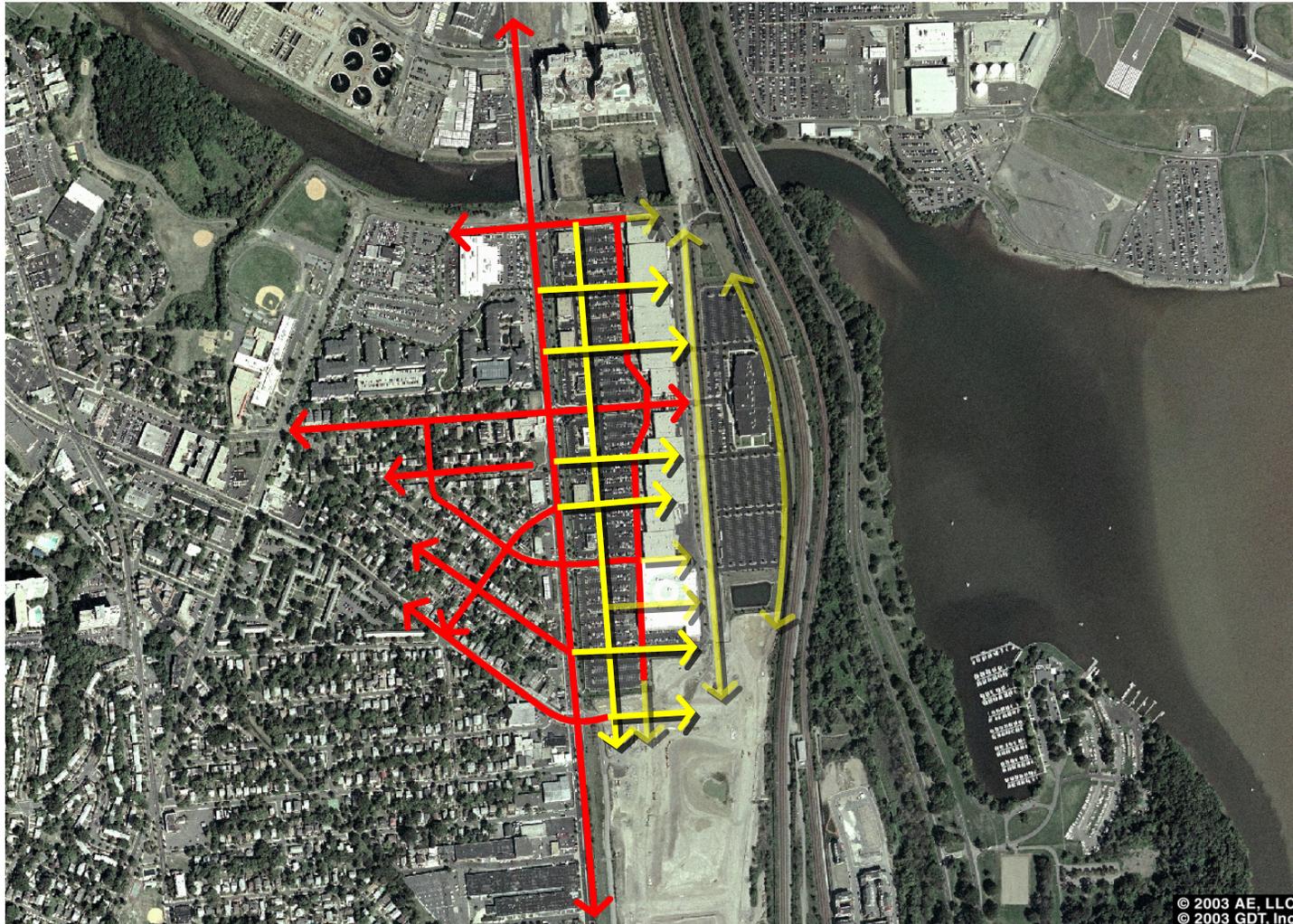
Potomac Yard Network Today



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Future Potomac Yard Network?



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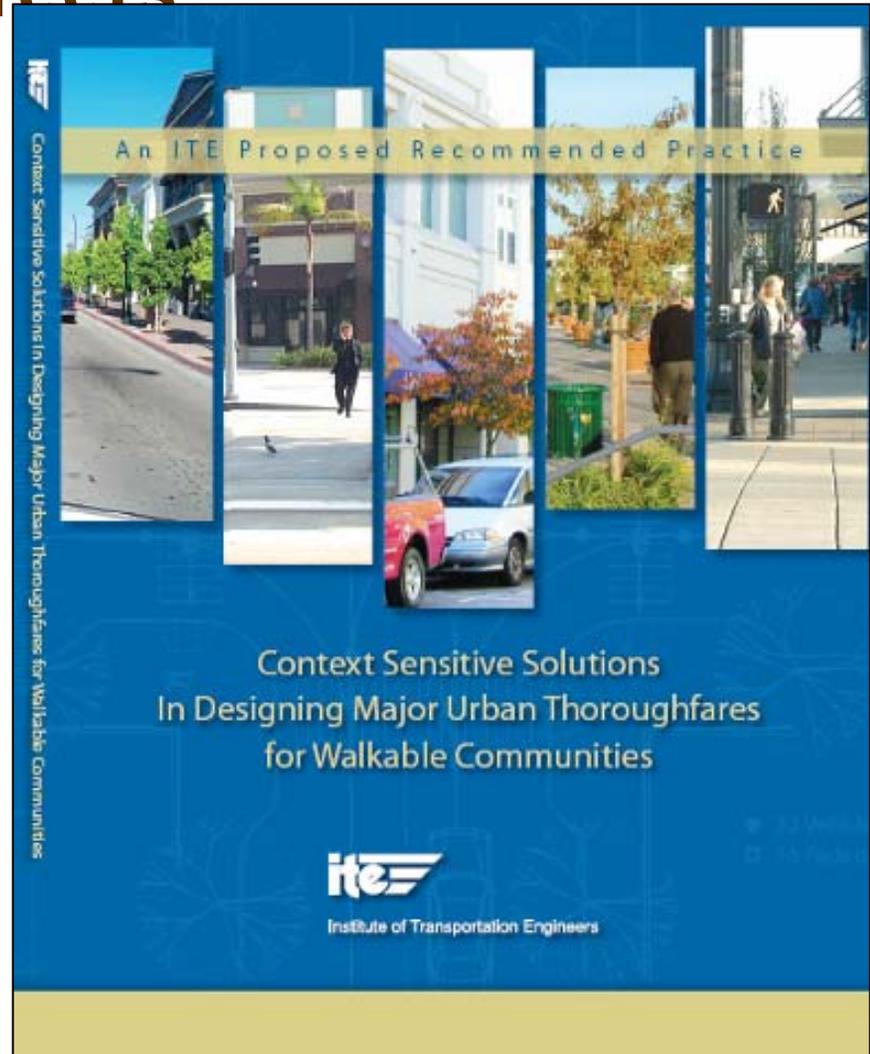
Best Practices - Transportation Elements

- **Physical**
 - Streets
 - Pedestrian facilities
 - Bike facilities
 - Transit facilities
- **Operations and Management**
 - Transportation demand management
 - Parking



Context-Sensitive Solutions and Complete Streets

- **Striking the right balance for users**
 - Different streets/different functions
 - Need for trade-offs
- **Safe and attractive access**
- **Shifting focus from ...**
 - Streets defined curb-to-curb to streets defined building face to building face
 - Vehicle capacity to people-carrying capacity
 - Vehicle access and safety to multimodal access and safety



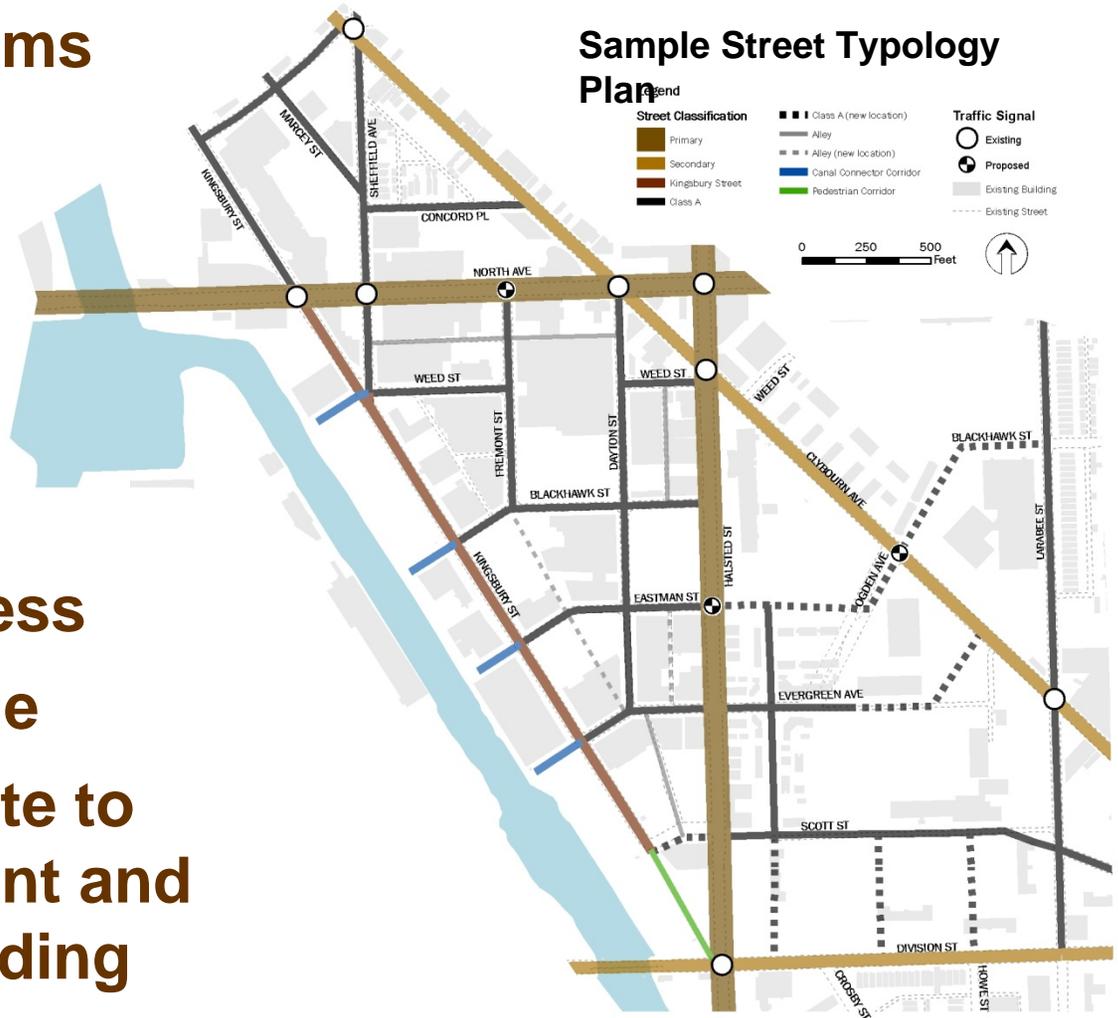


Street Function and Type

Street function informs design

- Lane width
- Streetscape
- Bike facilities
- Parking
- Driveways and access
- Target traffic volume
- Streets need to relate to adjacent development and are bounded by building

Sample Street Typology Plan





Primary Streets

- Higher vehicular orientation
- Quality pedestrian accommodation
- May or may not have bike facilities
- Could have on-street parking
- Few individual driveways
- Higher vehicle carrying capacity
- Longer trip purpose
- Local examples:



Connecticut Avenue,
Washington Street



Type "A" Streets

- **Balanced street**
- **Accommodates bikes**
- **Very high level of pedestrian accommodation**
- **Has on-street parking**
- **Few individual driveways**
- **Moderate vehicle carrying capacity**
- **Little on-street loading/service**
- **Local Examples: King Street, Mount Vernon Avenue (Del Ray), 18th Street**





Type “B” Streets

- **Balanced street**
- **Accommodates bikes**
- **Quality pedestrian accommodation**
- **Has on-street parking**
- **Some individual driveways**
- **Lower vehicle carrying capacity**
- **Some on-street loading/service**
- **Local Example: Cameron Street**





Type “C” Streets

- Use-focused street
- No specific accommodation for bikes
- Varying level of pedestrian accommodation
- May have on-street parking
- Many individual driveways
- Serves an access function
- Low vehicle carrying capacity
- Likely to have loading/service function
- Still a great and important





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What happens when...place and street design meet?





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The street...





Potomac Yard Multimodal Transportation Study ALEXANDRIA, VA



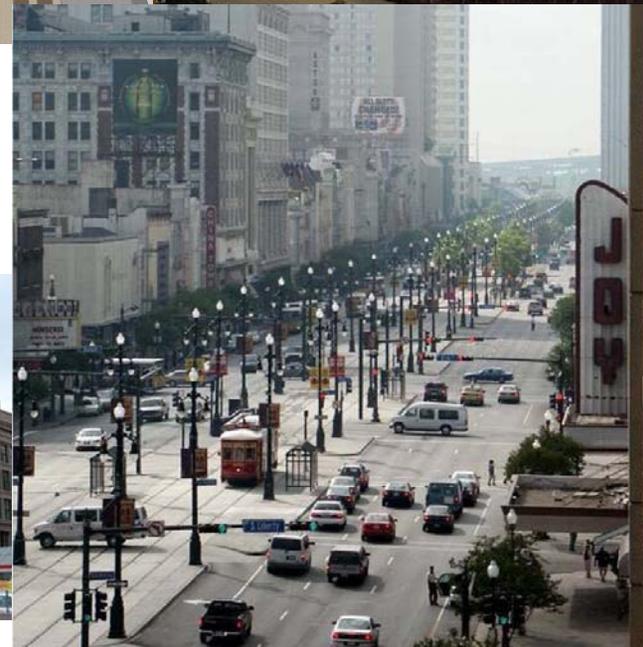
Place and Street Design Together





Transit and Intermodal Accommodation

- **Change the way we think about transit**
- **Use transit to catalyze change**
- **Consider many transit types and their benefits**
- **Shelters and benches are not optional**
- **Deliberately plan space and facilities for transit**
- **Make transit as convenient as any other modes of transportation**





So Many Tools Available...

- Traffic calming pavement markings
- Ladder style crosswalks
- Add school zones
- “Rest on red” signal control (main travel way has red light until cars approach)
- Pedestrian only phase
- Pedestrian signals with countdown heads
- Lead pedestrian interval (allow peds to walk first before parallel streets have green light)
- Perpendicular hash-marks at 3’ spacing (rumble strips)
- Channelized pedestrian crosswalks
- Ped facilities designed for persons of all abilities
- Intersections with improved line of sight for vehicles and pedestrians
- **Nubs or bulb-outs at corners of intersections**
- **Reduction in radius of intersection corners**
 - Tree nubs or bulb-outs along roadway
 - Varying pavement texture and color
 - Colored pavement in bike / auto conflict areas
 - Speed activated signal control
 - “Queue jumper” lanes for buses to get ahead of traffic
- **Landscaped median islands**
 - Pedestrian refuge islands
 - Raised intersections (longer, gradual speed tables)
 - Bus stop nubs, with ample intersection clearance
- **Wormed islands in place two-way turn lanes**
 - Roundabouts instead of multilane intersections
- Decrease in posted speed limits
- Modification of traffic signal timing
- Signal prioritization for transit
- **On-street parking**
- **Bike lanes**
 - Reduction in width of travel lanes
 - Median landscaping (aesthetics)
 - Trees along roadway and/or in median
 - Grass/landscaping strips
 - Intelligent transportation systems (ITS) applications
 - Varying pavement texture and color
 - Edge and centerline pavement treatments
 - Medians for pedestrian refuge
 - Street and/or pedestrian lighting
 - Reduction in number of travel lanes
 - Add left-turn lanes
 - Alternative lane configurations
- **Wider sidewalks**
 - Wider planting/landscaped strips along roadway
 - Drainage improvements in combination with ATM measures
 - Transit only lane
- **Manage access (curb cuts/driveways)**
 - Valley gutters with catch basins between parking and travel lanes
 - Relocation of overhead wires to underground, removal of utility poles
 - Regrading/realignment of roadway, sidewalks



Transportation Demand Management

- Set of specific strategies to influence travel behavior by mode, frequency, time, route, or trip length
- The idea is...maximize the efficiency and sustainable use of transportation facilities
- Helps to accomplish other community goals
 - Access for all transportation system users
 - Increased mobility
 - Less traffic congestion, air pollution, and a non auto-dominated physical environment

LOCAL MOTOR
YOUR TRANSPORTATION RESOURCE 703.838.3800

GETTING AROUND

The CHOICE is YOURS! Refuse to pay high fuel prices. Choose to bike, walk, rideshare, and use public transit and choose reduced transportation costs.

- ▶ Holmes Run/Chantilly Crossing study
- ▶ "Catch the Bus" DASH Photo Contest
- ▶ Now available! Local Motion quarterly newsletter...for special business edition
- ▶ DASH Bus Schedules Integrated with Google Maps

FOR YOUR INFORMATION
Subscribe to the RSS Feed

Bus & Rail **Rideshare** **Bike & Walk**

All aboard! The free King Street Trolley is your connection to the Potomac River Waterfront and Metro

The City of Alexandria's free King Street Trolley operates every day 11:30 a.m. to 10:00 p.m., providing access to accommodations, dining, entertainment, and shopping. Every 20 minutes, riders can board on King Street near the Potomac River waterfront, at the King Street Metrolink station, and any of the stops along King Street.

Read more

Travel Tools

Real-Time Information	Commuter Calculators
Travel Information	Maps
Carshare Alexandria	Traffic Calming

Programs

Employer Services	Guaranteed Ride Home
Telework & Telework/VA	Air Quality Action Day
Local Motion Ambassadors	
News & Notices	Old Town Transit Shop

Resources

Local Motion Liveup	Links & Addresses
Transportation Master Plan	





TDM Strategies

- **Manage parking and pricing**
- **Market transit and provide commuter subsidies**
- **Promote walking, bicycling, and ride-sharing**
- **Encourage telework and flexible work strategies**
- **Designate high-occupancy-vehicle (HOV) lanes along congested major roadways**
- **TDM Districts**



Parking and TDM

- **Avoid parking oriented development**
- **Consider maximum, rather than minimum parking requirements**
- **Effectively manage on-street parking**
- **Require shared parking**
- **Provide useful transit services**
- **Strategies to reduce parking demand**
 - Limit supply, pricing, unbundling, car-sharing
- **Strategies to reduce parking impacts**
 - Shared parking, structured parking, parking guidance/wayfinding
- **Strategies that manage transportation demand**
 - Parking cash-out, sharing driving/parking costs, universal transit passes





TDM Works...Quick Facts and Figures

- **High non-auto mode share**
 - Rosslyn-Ballston Corridor: 58% non-auto share
 - Crystal City: 65%
 - Downtown DC: Above 50%
 - Alexandria: Above 60%
- **Car-Sharing...allows people to not own a car**
 - 1 Zip Car takes 15 to 20 cars off the road





Residential Mode Share along Metro

Typology	Metrorail	Other Transit	Auto	Non-Auto
CBD	50%	6%	18%	26%
Inside the Beltway	43%	6%	39%	14%
Outside the Beltway	31%	1%	62%	6%

Information from WMATA, *2005 Development-related Ridership Survey*



Office Mode Share along Metro

Typology	Metrorail	Other Transit	Auto	Non-Auto
CBD	63%	12%	21%	5%
Inside the Beltway	21%	9%	66%	6%
Outside the Beltway	8%	3%	89%	0%

Information from WMATA, *2005 Development-related Ridership Survey*



Significant Transit Use along Metrorail

MODE	Braddock Metro	King Street	Crystal City	Pentagon City	Rosslyn-Ballston Corridor	District of Columbia
Auto	66%	67%	35%	46%	52%	50%
Transit	23%	18%	41%	37%	37%	32%
Non-motorized	11%	15%	24%	17%	11%	18%

*from 2000 US Census Journey to Work data



Significant Transit Use in Alexandria

MODE	Carlyle	Meridian	Average
Drive Alone	18%	29%	24%
Carpool/Vanpool	6%	3%	4%
Metrorail	49%	53%	51%
Bus	2%	4%	3%
Drive to/from Bus	0%	0%	0%
Metrorail to/from Bus	17%	5%	11%
Drive to/from Metrorail	0%	3%	1%
VRE	2%	0%	1%
Walk or Bike	4%	3%	4%
Telecommute	2%	0%	1%

*Data from City of Alexandria



Who is Employing Best Practices?



Chicago, IL – Halsted Triangle/Clybourn Avenue

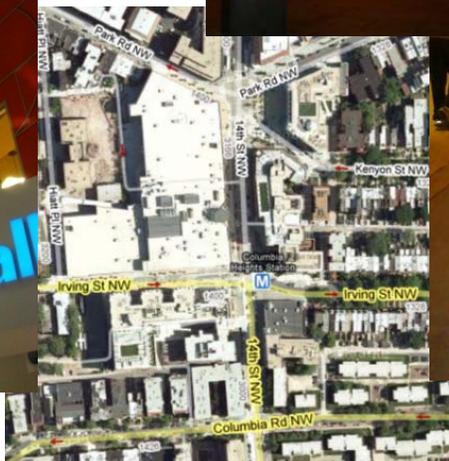
- Very little off-street parking
- High transit and walk mode split
- Very successful bus





Washington, D.C. – Columbia Heights

- Converted the suburban model
- Parking isn't full
- High transit, walk, and bicycle mode share





Arlington – R-B Corridor

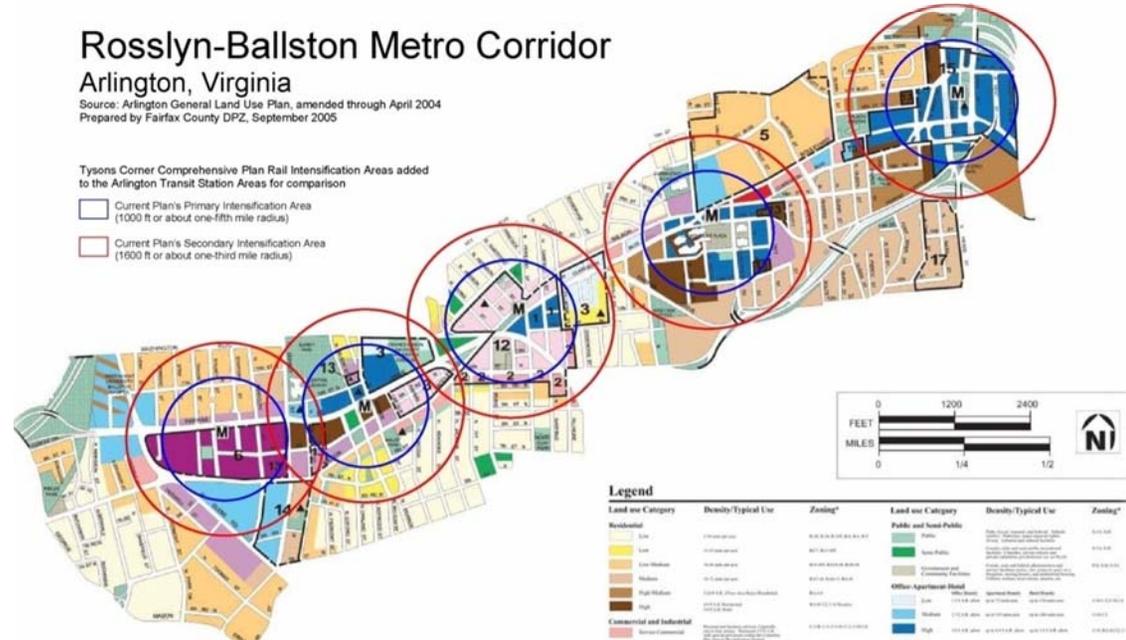
- Tremendous increase in density
- Walkable neighborhoods
- Many scales of development
- Carefully managed parking
- Multimodal streets
- Little to no increase in vehicular traffic on major roadways

Rosslyn-Ballston Metro Corridor Arlington, Virginia

Source: Arlington General Land Use Plan, amended through April 2004
Prepared by Fairfax County DPZ, September 2005

Tysons Corner Comprehensive Plan Rail Intensification Areas added to the Arlington Transit Station Areas for comparison

- Current Plan's Primary Intensification Area (1000 ft or about one-fifth mile radius)
- Current Plan's Secondary Intensification Area (1600 ft or about one-third mile radius)



Road	Location	Year						AVG	2000 vs. AVG
		1980	1983	1985	1991	1996	2000		
Primary Arterials									
Old Dominion Dr	North of Glebe Rd	18,165	17,180	15,895	28,000	29,000	15,193	20,572	0.74
Westmoreland St	South of 30th St	6,804	8,276	7,405	7,935	8,168	8,287	7,813	1.06
N. Roosevelt St	South of 11th Rd	12,258	13,388	15,023	19,280	19,813	22,431	17,032	1.32
Wilson Blvd	West of N. Madison St	19,785	19,322	18,844	18,203	18,016	18,873	18,841	1.00
S. Carlin Springs Rd	South of 8th Place	13,720	15,557	16,704	22,795	23,640	22,612	19,171	1.18
Columbia Pike	West of Glebe Rd	24,065	25,510	26,660	30,000	32,000	22,612	26,808	0.84
S. George Mason Dr	West of Dinwiddie St	8,324	10,042	11,601	12,928	12,350	14,451	11,616	1.24
S. Walter Reed Dr	East of Route 7	8,168	12,237	14,321	14,581	15,152	16,336	13,466	1.21
Quaker Lane	North of 36th St	16,660	18,272	16,788	22,172	20,578	20,582	19,175	1.07
W. Glebe Rd	South of S. Glebe Rd	15,849	18,445	20,394	20,474	20,628	20,450	19,373	1.06
Arlington Ridge Rd	South of Glebe Rd	18,300	18,590	19,312	18,850	17,693	20,646	18,899	1.09
Lee Hwy.	West of Washington Bl	23,260	26,060	27,630	28,000	30,000	28,000	27,158	1.03
Minor Arterials									
Chesterbrook Rd	North of Glebe Rd	3,605	3,500	3,676	3,901	3,726	3,534	3,657	0.97
Williamsburg Blvd	West of Wyoming St	4,970	4,469	4,123	4,240	4,351	4,776	4,488	1.06
McKinley Rd	North of Wilson Blvd	3,993	3,910	3,777	3,999	3,769	3,816	3,877	0.98
S. Manchester St	South of Arlington Blvd	na	6,870	7,351	8,417	7,980	9,215	7,967	1.16
5th Road S.	East of Carlin Springs Rd	8,065	6,150	6,072	6,208	5,158	5,586	6,207	0.90
S. Jefferson St	South of Columbia Pike	6,822	7,715	8,970	9,930	9,818	9,630	8,814	1.09

Source: Arlington County Department of Environmental Services



Arlington - Crystal City Master Plan

- Future plan focused on placemaking
- Tremendous increase in density planned
- Focus on shifting car trips to other modes
- Focus on moving people
- Many enhancements planned





Alexandria

- **Eisenhower East**
- **Braddock Metro Neighborhood**
- **Carlyle Place Apartments**
- **Patent and Trade Office (PTO)**
- **Successful developments**
- **Took full-advantage of transit, walk, and bicycle opportunities**
- **High density developments with very high (>50%)**

Braddock Metro

