



# Market-to-Market

Market influences on Transportation  
and Development

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January 2015

# “To Market, To Market”

## Discussion Contents

### Part 1: Land Use & Infrastructure

- **Internal Capture & Pass By Traffic**
  - Urban Calculations
  - Rural Realities
  - Case Study 1: Rural Pass-By
- **Community Capture**
  - Case Study 1: Red River Model
  - Case Study 2: Anthem External Trips
  - Case Study 3: Capture is Reduced
- **Issues With Predicting Capture**
- **Transportation Benefits**



# PART I: LAND USE & INFRASTRUCTURE

## HOW COMPATIBLE LAND USES REDUCE THE NEED FOR INFRASTRUCTURE

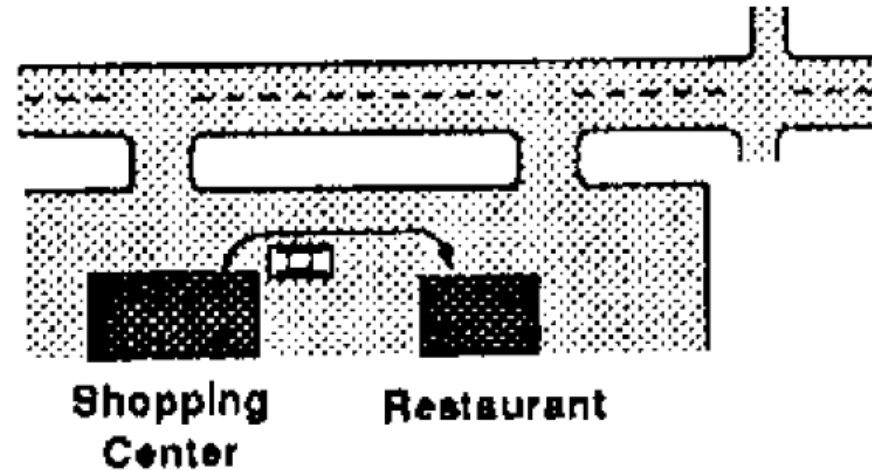
### Internal Capture

#### Definition

*Internal trip capture is the portion of trips generated by a mixed-use development that both begin and end within the development.*

#### Benefits

Those trips satisfy a portion of the total development's trip generation and do so without using the external road system.



*Source: Evaluating Traffic Impact Studies - A Recommended Practice for Michigan Communities*

# PART I: LAND USE & INFRASTRUCTURE

## HOW COMPATIBLE LAND USES REDUCE THE NEED FOR INFRASTRUCTURE

### Internal Capture – The Urban Condition

#### Why is Rural Capture Different?

- Calculations developed with urban data
- Urban residential densities are higher
- Many retail opportunities for urban residents
- Residential uses are not typically combined with retail and office

#### How to Enhance Internal Capture

- Proximity to other development areas
- Development phasing
- Work live income compatibility
- Competing opportunities
- Internal circulation



Mixed Use Entertainment District in Peoria, AZ

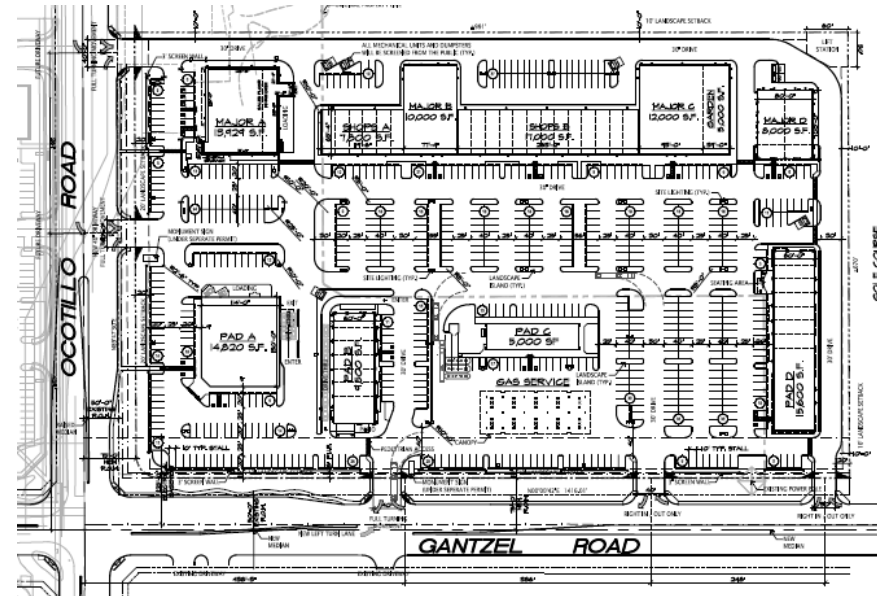
# PART I: LAND USE & INFRASTRUCTURE

## HOW COMPATIBLE LAND USES REDUCE THE NEED FOR INFRASTRUCTURE

### Internal Capture – The Rural Reality

#### The Realities of Rural Capture

- Trip length is typically longer
- Fewer developed roadway corridors to distribute traffic
- Centers cannot immediately support the diversity of uses needed to obtain the highest capture (i.e. office space)
- Development is typically unplanned and can be along State Highway
- But the upside, residents don't typically have as many choices
- The infrastructure to support an interim condition may be greater than the ultimate condition when all uses are not present



# PART I: LAND USE & INFRASTRUCTURE

## HOW COMPATIBLE LAND USES REDUCE THE NEED FOR INFRASTRUCTURE

### Rural Benefits – Pass-By Traffic

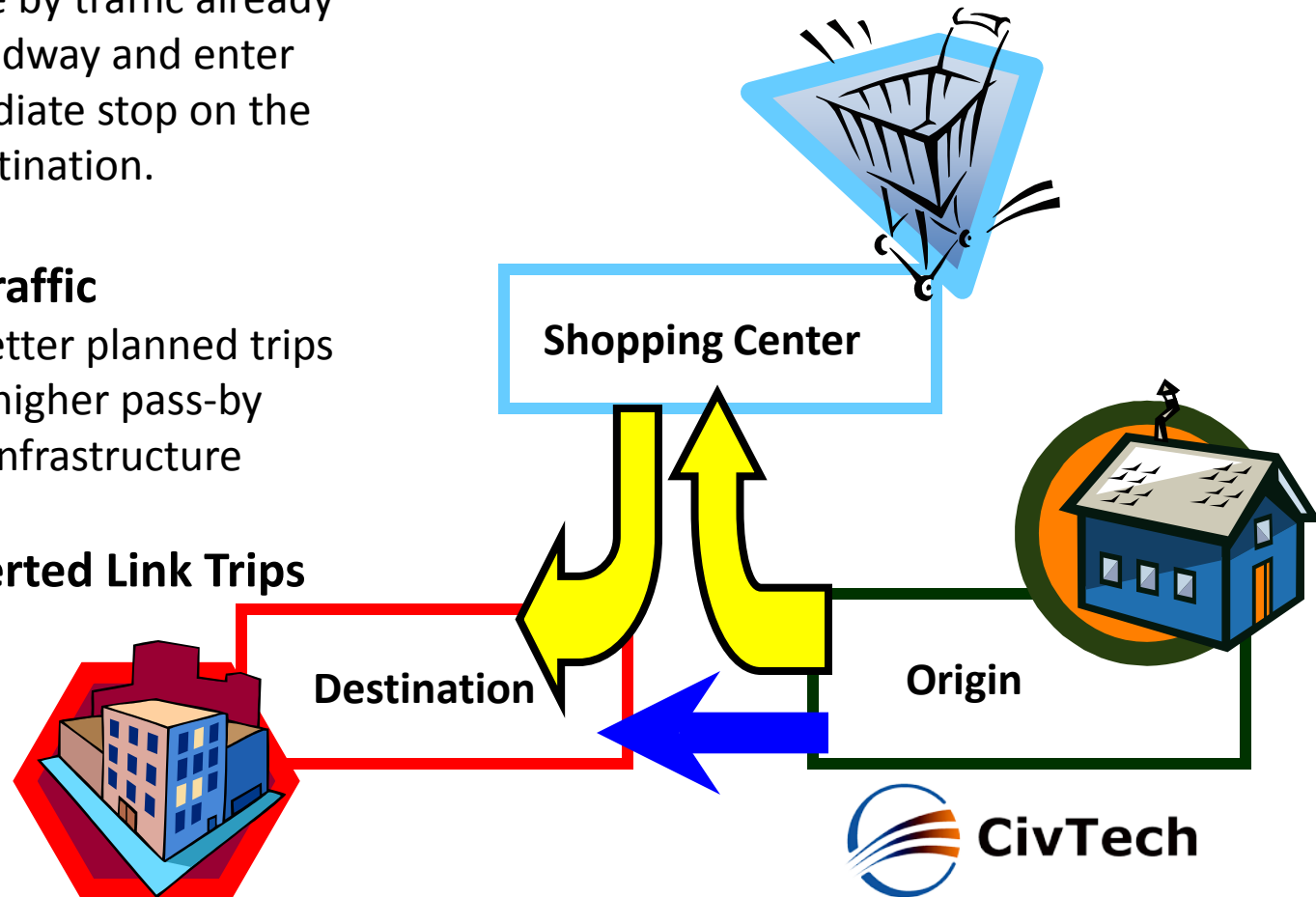
#### Definition of Pass-By Traffic

- Pass-by trips are made by traffic already using the adjacent roadway and enter the site as an intermediate stop on the way from another destination.

#### Benefits of Pass-By Traffic

- longer trip length = better planned trips
- better planned trip = higher pass-by
- higher pass-by = less infrastructure

#### Other Benefits – Diverted Link Trips



# PART I: LAND USE & INFRASTRUCTURE

## HOW COMPATIBLE LAND USES REDUCE THE NEED FOR INFRASTRUCTURE

### Case Study for Rural Pass-By Traffic – Medical Office

#### Setup

- Located on Pinal County/Town of Queen Creek Border
- Service area is seen as a 10-mile radius from the medical offices
- ITE has no pass-by data for Medical Office

#### Trip Generation, Purpose and Length

- 7 locations identified for observation
- 188 Origin-Destination interviews

#### Findings

- Trips were better planned due to length
- 17% of trips were Pass-By
- 26% of trips were Diverted Link
- 57% of trips were new to road network



# PART I: LAND USE & INFRASTRUCTURE

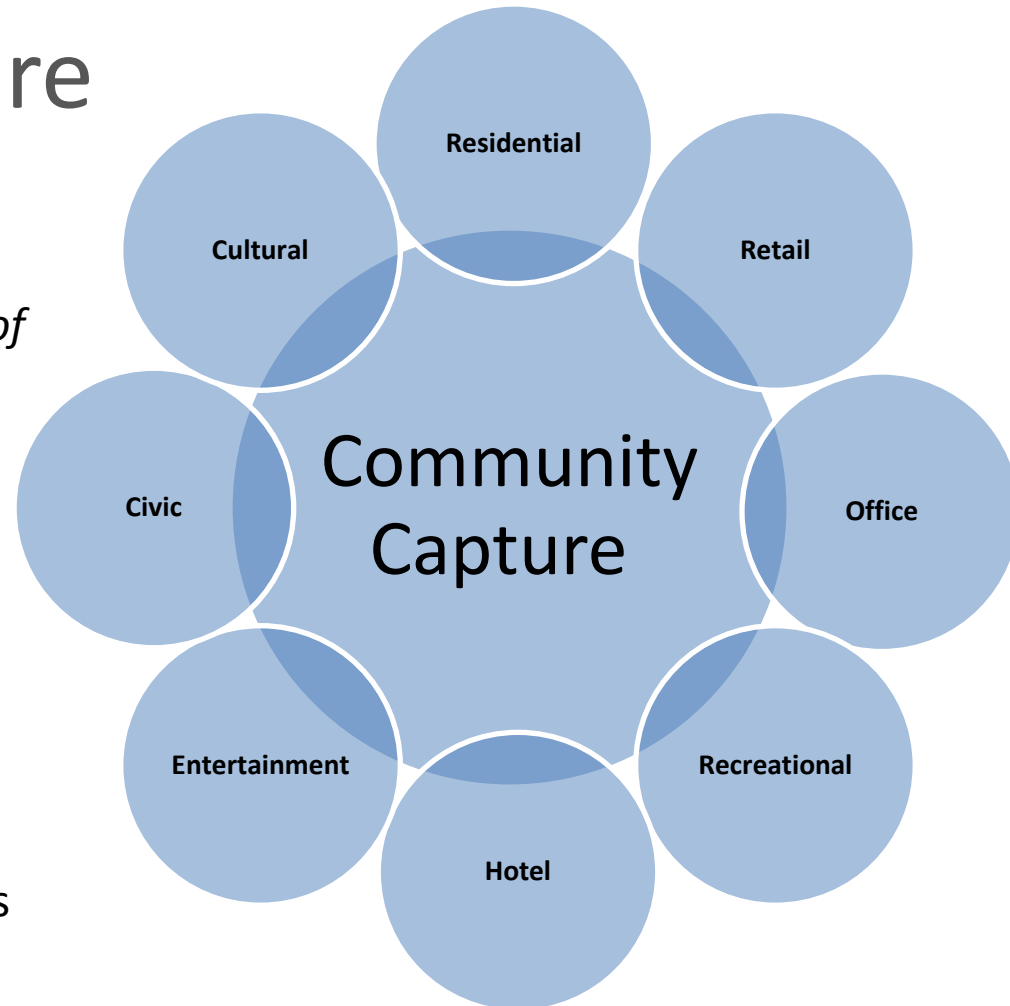
## HOW COMPATIBLE LAND USES REDUCE THE NEED FOR INFRASTRUCTURE

### Community Capture

#### Definition

*Community Capture has been used to describe the unique trip internalization of new communities, separated from existing urban areas.*

- TRB Record 1780, Paper No. 01-3524, *Internalizing Travel by Mixing Land Uses, Study of Master Planned Communities in South Florida.*
- Depending on the mix of uses and the size of the development, external trips were reduced by up to 58 percent.



# PART I: LAND USE & INFRASTRUCTURE

## HOW COMPATIBLE LAND USES REDUCE THE NEED FOR INFRASTRUCTURE

### Case Study – Red River

#### Traffic Generation

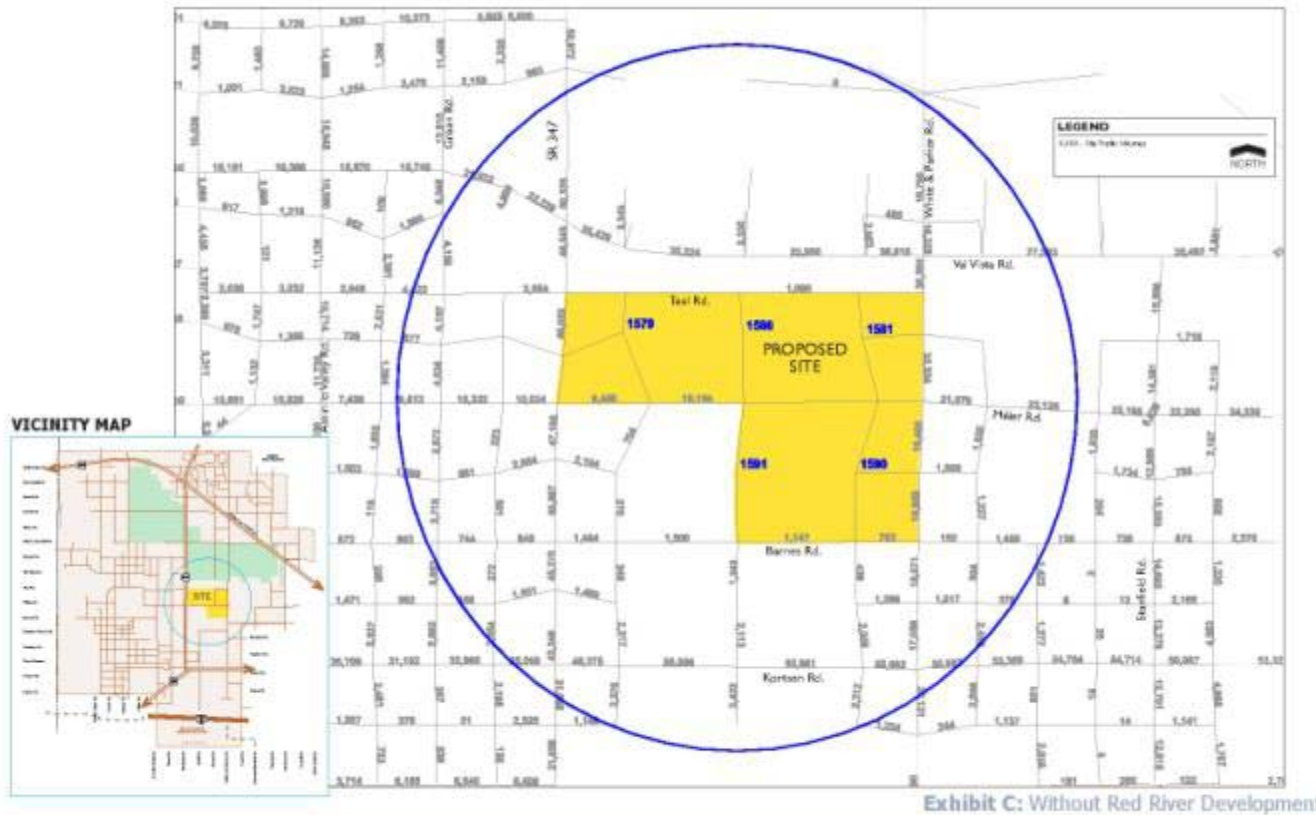
- projected using Pinal County traffic modeling
- Also projected using standard trip generation
  - All traffic
  - Site generated traffic

Land Use	Acreage	DU	SF of Building
Industrial Park	10	-	108,900
Single Family Homes	3,207	12,827	-
Apartments	101	2,020	-
Business Park	133		2,324,362
Commercial	200		2,172,555
Elementary School	12		130,680
Open Space	286	-	-
<b>TOTAL</b>	<b>3,949</b>	<b>14,847</b>	<b>4,736,497</b>

# PART I: LAND USE & INFRASTRUCTURE

HOW COMPATIBLE LAND USES REDUCE THE NEED FOR INFRASTRUCTURE

## Case Study – Red River



# PART I: LAND USE & INFRASTRUCTURE

## HOW COMPATIBLE LAND USES REDUCE THE NEED FOR INFRASTRUCTURE

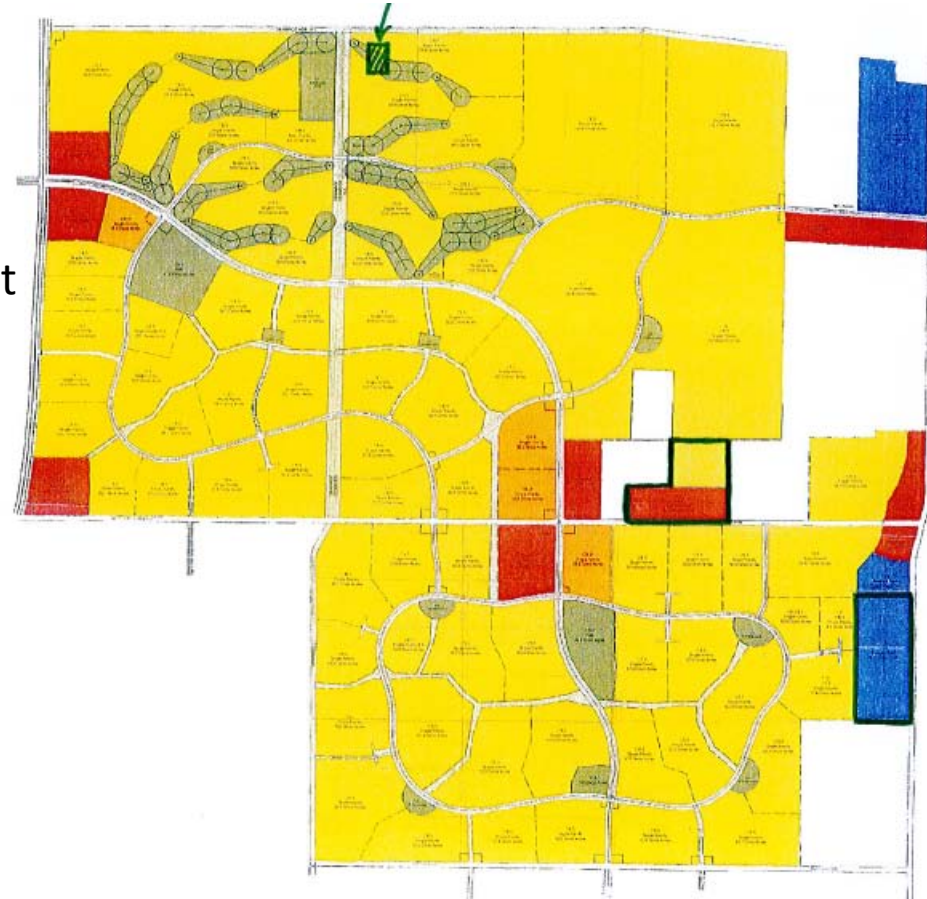
### Case Study – Red River

#### Findings

- Approximately 42 percent of the total trips generated will utilize the Pinal County regional roadway network.
- 10.7 percent of the trips will use the adjacent ADOT highway
- About 48 percent will stay internal to the development

#### Important Notes:

- The vehicles remaining internal to the development still need to be accounted for in the internal street infrastructure
- Regional roadway network connectivity
- Reduces the amount of external infrastructure required saving cost, maintenance



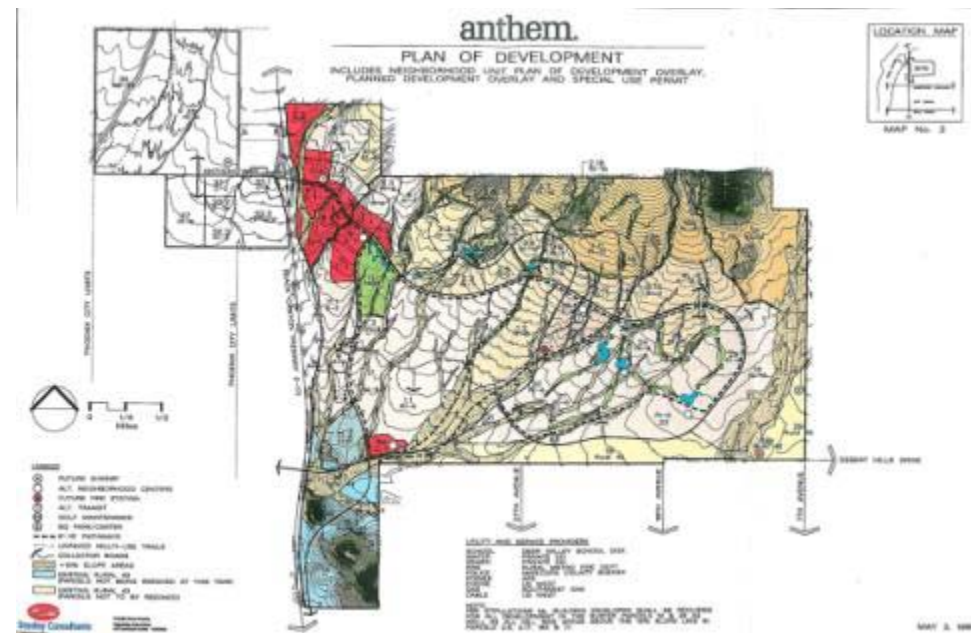
# PART I: LAND USE & INFRASTRUCTURE

## HOW COMPATIBLE LAND USES REDUCE THE NEED FOR INFRASTRUCTURE

### Case Study – Anthem

#### Why Anthem?

- Validate the findings of Red River
- No studies had been completed in Arizona
- Florida has published many studies
- Difficult since point of entry and exit of the development must be clearly defined



#### Methodology

- 24-hour daily traffic counts for 7 days at all points of entry and exit
- Review of census data for actual homes occupied
- Review of assessors data for total constructed square footage of non-residential
- Field review of each non-residential land use for operation and occupancy

# PART I: LAND USE & INFRASTRUCTURE

HOW COMPATIBLE LAND USES REDUCE THE NEED FOR INFRASTRUCTURE

## Case Study – Anthem



# PART I: LAND USE & INFRASTRUCTURE

## HOW COMPATIBLE LAND USES REDUCE THE NEED FOR INFRASTRUCTURE

### Case Study – Anthem

Land Use	DU	Building S.F.	Employees	Students	Trip Generation
Industrial Park	-	351,239	811	-	2,434
Single Family Homes	6,616	-	-	-	36,388
Apartments	435	-	-	-	2,393
Business Park	-	257,471	814	-	7,322
Commercial	-	1,075,292	2,957	-	59,141
Elementary School	-	693,419	-	6,726	6,726
<b>TOTAL</b>	<b>7,051</b>	<b>2,377,421</b>	<b>4,582</b>	<b>6,726</b>	<b>114,404</b>

#### Findings

- Anthem produces a total of 114,404 vehicle trips.
- The existing count data approximated 48,943 total ADT traveling in and out of Anthem.
- A total community capture of **57%** was computed for the community of Anthem.
- The community capture for Anthem exceeds the community capture predicted for Red River.

# PART I: LAND USE & INFRASTRUCTURE

## HOW COMPATIBLE LAND USES REDUCE THE NEED FOR INFRASTRUCTURE

### Issue with Capture

#### Calculation Methodology

- Typical methods of limiting capture can lead to overbuilding infrastructure (i.e. 20%)
- Existing methods of calculating are inconsistent

#### Infrastructure

- The interim condition must be evaluated – capture is at its lowest

#### Mix of Uses

- Market may not have a need for the mix of uses that create the highest capture



# PART I: LAND USE & INFRASTRUCTURE

## HOW COMPATIBLE LAND USES REDUCE THE NEED FOR INFRASTRUCTURE

### Infrastructure Benefits

#### Regional

- Lower per unit infrastructure
- Lower per unit public-service costs

#### Local

- Shared driveway connections increase capture
- Shared driveways reduce friction on main roadway and increase capacity
- Typically increase property values and therefore increase property tax revenue
- Lower per unit improvement cost may help support affordable housing



# Market-to-Market

Market influences on Transportation  
and Development

**PARSONS  
BRINCKERHOFF**

Tom Hester  
January 2015

# Market-Shaped Investments

- » Respond to demographic changes
- » Address development barriers
- » Create flexible places
- » Build long-term value

*Redefine development patterns*

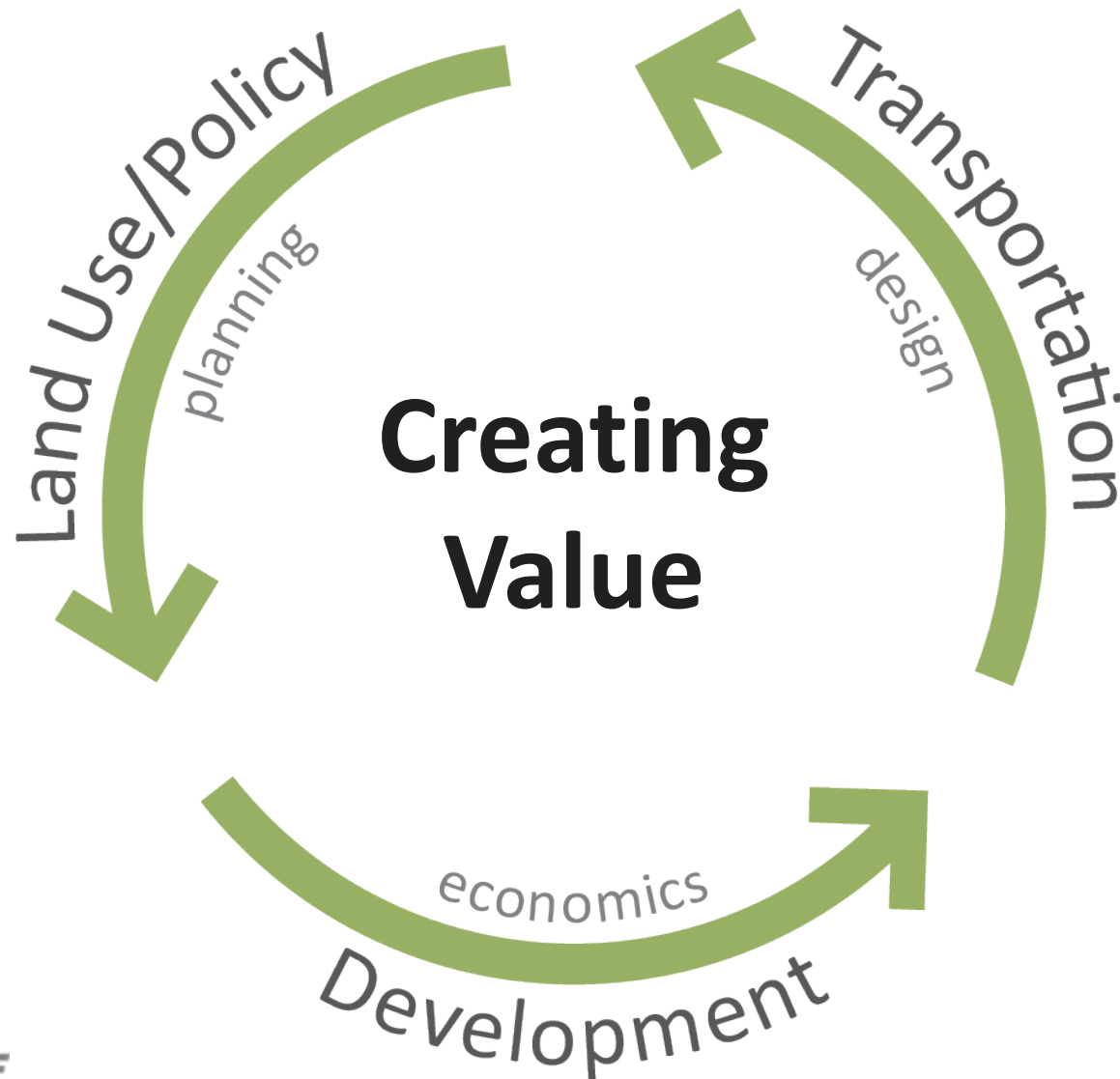


# Redefining Development Patterns

- » Attracting new jobs & residents
- » Accommodating changing lifestyles
- » Capturing unique natural settings
- » Improving underutilized areas

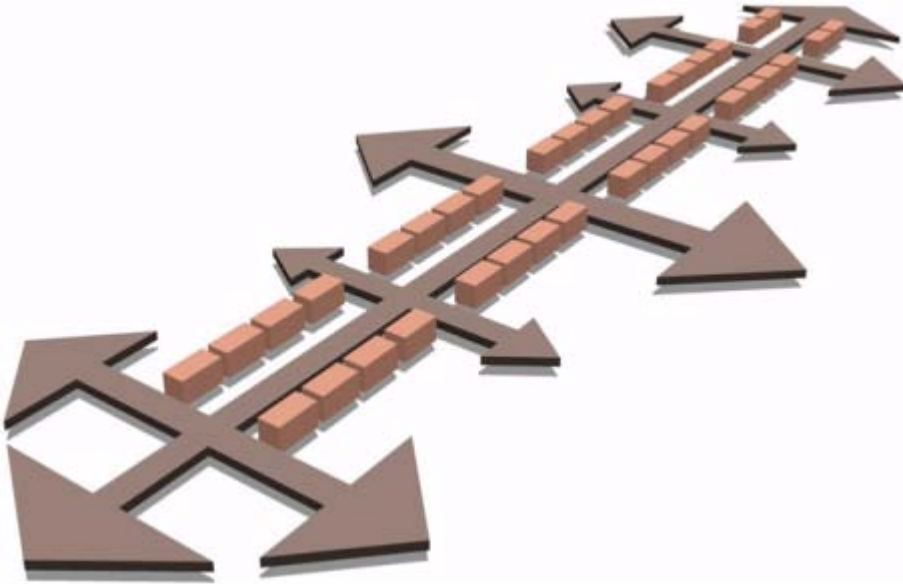


# Market-Based Approach



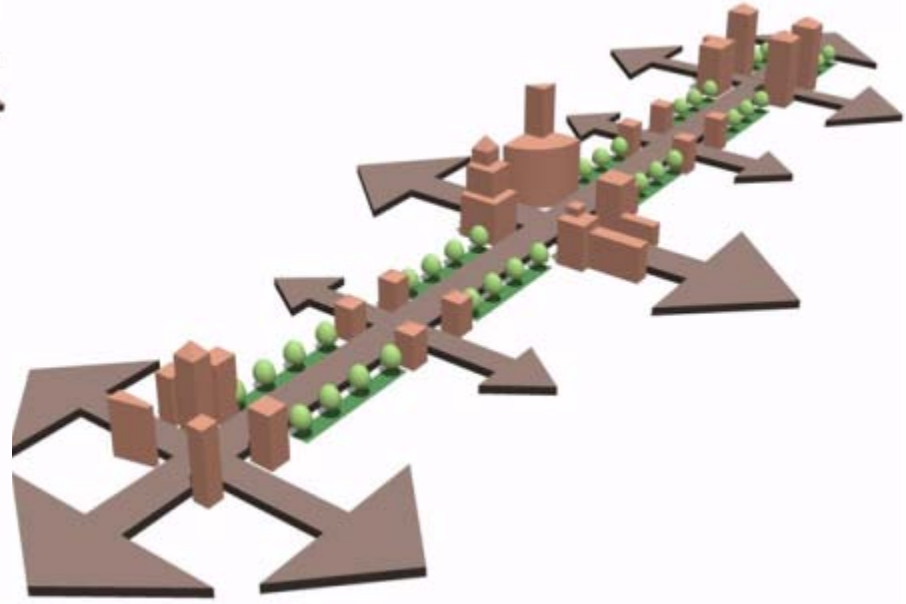
# What are you trying to create?

Mobility Corridor...



- Connecting between two places

Economic Development Corridor...



- Local mobility & access
- Business attraction & expansion
- Places & Destinations
- Community services

# Addressing Market Barriers

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- » Wasatch Front, UT (Salt Lake City area)
- » Assessing development readiness



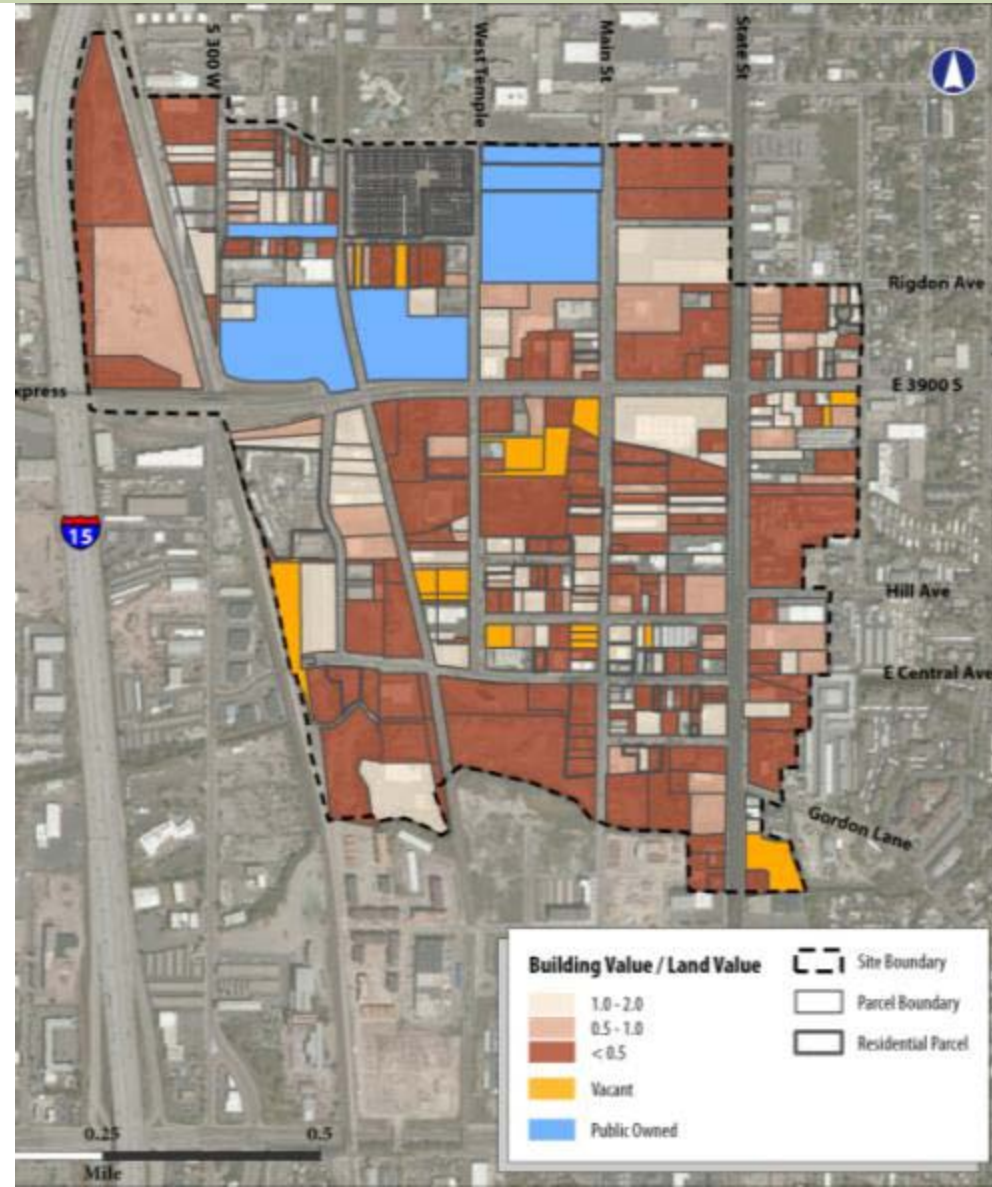
# Barriers Influence Development Form

- » Market Capture for Uses
- » Regulatory
  - Zoning, Overlays & Approvals
- » Environmental
- » Economic Utilization
- » Ownership, Title & Legal Encumbrances
- » Physical
  - Topography, Size & Configuration
- » Transportation
  - Network, connectivity & parking,



# Economic Utilization

- » Ratio of improved value to land value.
- » Used to identify properties with lowest assessed property taxes.
- » Redevelopment can cost comparatively less.



# Developer Interviews

- » Land supply and lack of congestion make ***density a choice, not a necessity.***
- » Enforcing development regulations not supported by the market does not work. Better to ***encourage successive development*** that can evolve over time.
- » Access does not drive the development decisions. ***Land cost is top priority.***
- » High land costs are resulting from unlimited zoning with densities and ***entitlements that do not meet market demand.***
- » Many jurisdictions that are either inflexible, not development-friendly, or make the ***process complicated or difficult.***

# Market-based Strategies

1. Understand the market & development context
2. Leverage development opportunities
3. Engage the community and forming partnerships
4. Identify development barriers
5. Manage the issues, barriers and risks
6. Establish a development-friendly environment
7. Understand the costs and benefits



# Readiness Assessments – 3 Scales

## » Community Based

- *Does zoning, development regulations and approval processes allow for transit-supportive development?*

## » Project Area

- *Has an area been defined that can leverage public improvements and provide catalytic investment?*

## » Parcel Level

- *Are there parcels that are development ready that are being marketed?*





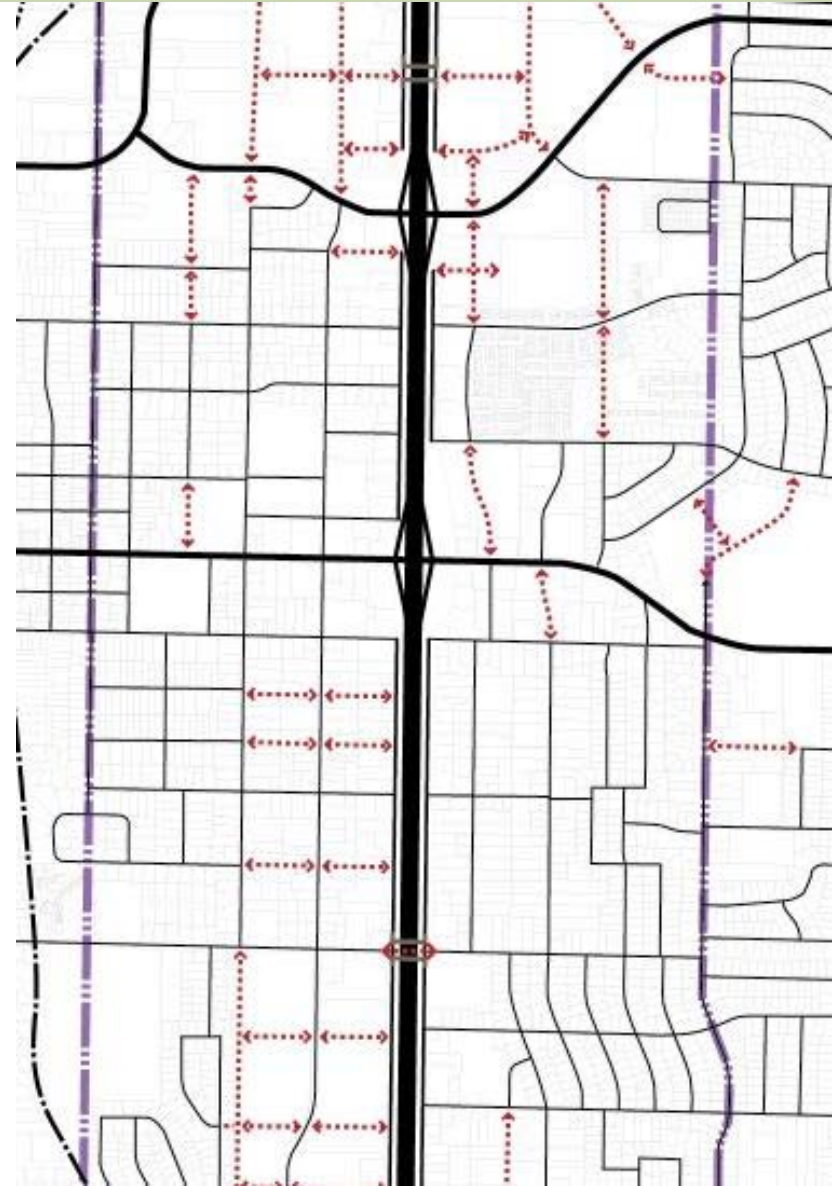
# Redefining the Transportation Network

- » I-49 in Grandview, MO (Kansas City area)
- » Changing transportation patterns to accommodate the market



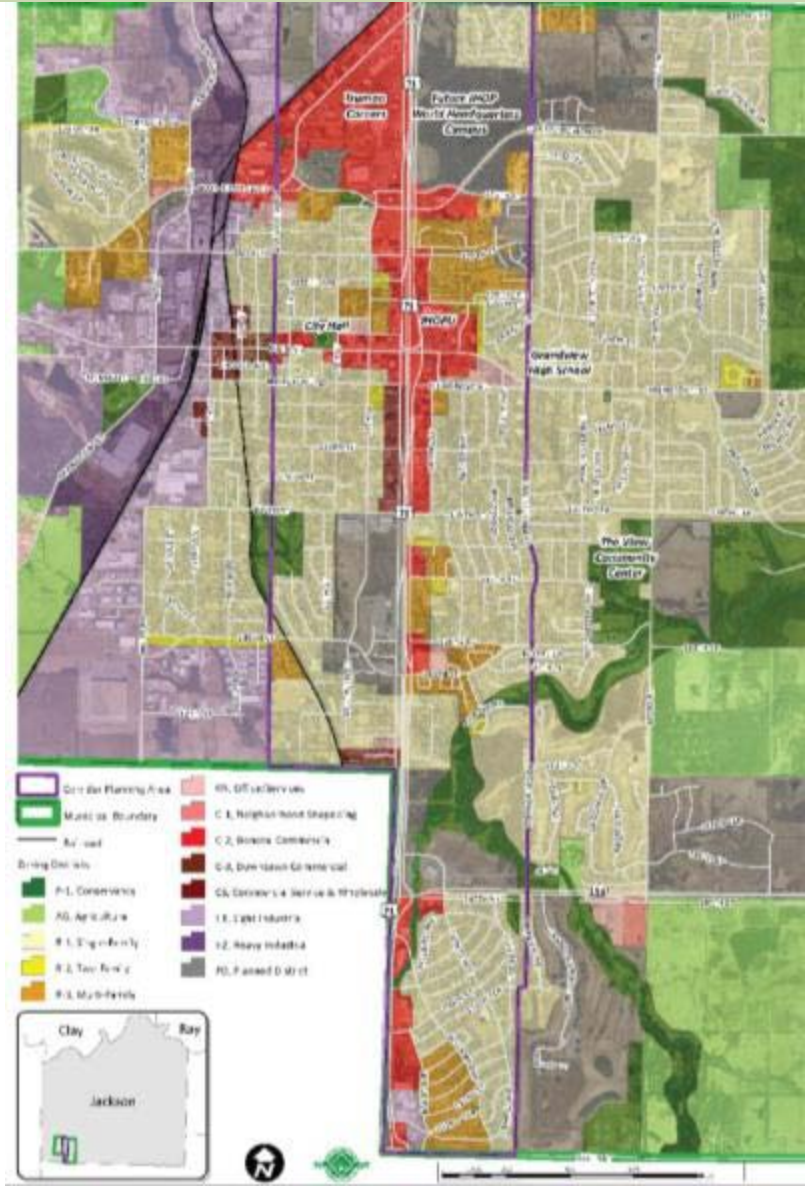
# Transportation Shapes Development

- » Travel Patterns
- » Connectivity & Accessibility
- » Roadway Network Design
- » Access Management Policies
- » Travel Speeds
- » Sight Distance
- » Street Design



# Land Use Responds to Transportation

- » Auto-oriented commercial
  - » Single use parcels
  - » Narrow lot depths
  - » Planning for strip development
- 
- » Impact:
    - Difficult to support mixed-uses with limited access
    - Zoning & Regulations impacted shape of development



# Travel Patterns Shape Development

- » Vehicle miles traveled (VMT) is strongly related to accessibility to destinations.
- » Walking is strongly related to land use diversity, intersection density, and the number of destinations.
- » Bus use related to proximity to transit and street network design, with land use a secondary factor.
- » Population and job densities are only weakly associated with travel behavior.

# Market Uses Not Accommodated

» Existing development patterns restrict opportunities

- Residential
  - Single Family
  - Multi Family –  
Condominium/Townhome
  - Apartments
- Commercial (retail, office)
- Hotel (unique needs)
- Industrial (too much supply)



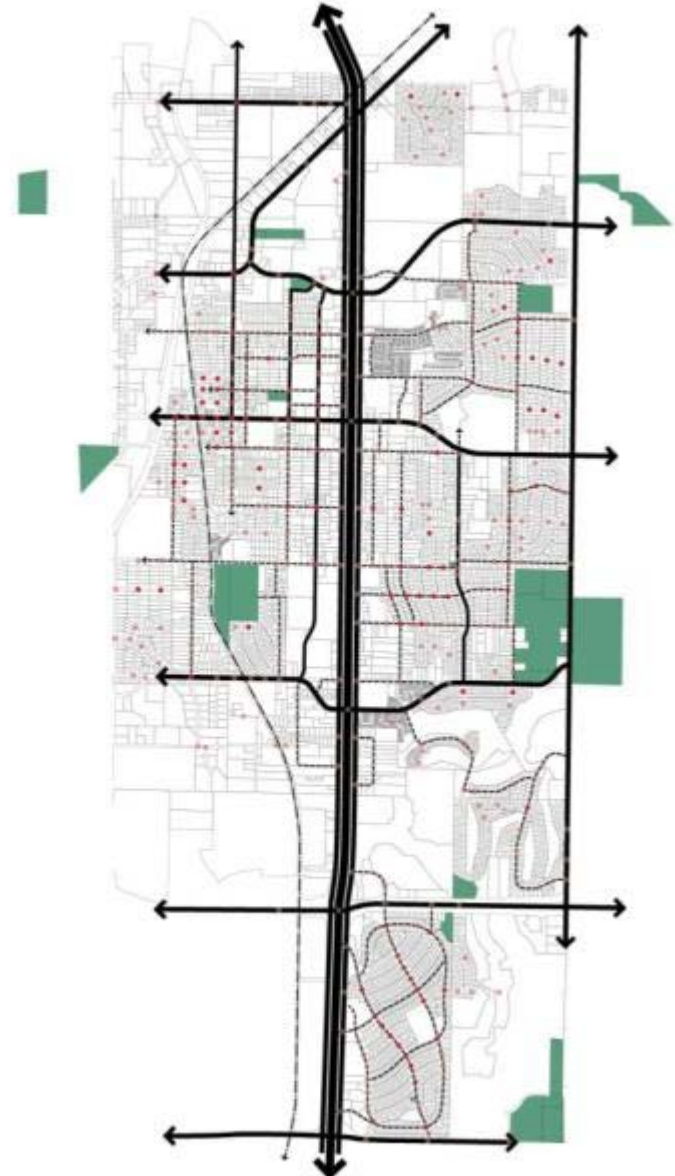
# Access Shapes Development

- » Frontage road access encourages strip development
- » Lack of rear/side access limits development form
- » Number and length of curb cuts promotes conflicts
- » Parcels not internally connected
- » Active modes not accommodated



# Connectivity Shapes Development

- » *Intersection Density* defines comparative connectivity
- » More intersections provide more choices
- » *3-way and 4-way intersections shown in red*



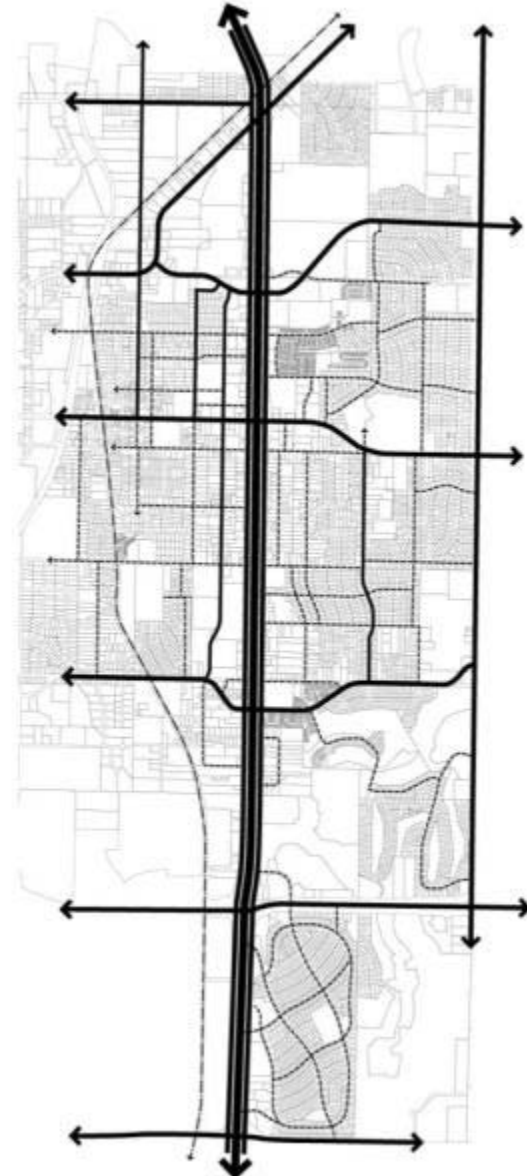
# Roadway Networks Shape Development

» Roadways lack connected network

- Lack of road hierarchy
- Primarily arterials & local roads
- Keeps traffic out of neighborhoods

» Impact:

- Lack of network supports limited single uses (enclaves)
- Lack of efficient network results in congestion
- Limited redundancy to network
- Lack of network increase EMT response time



# Street Character Shapes Development

- » Functional class: defines a thoroughfare's role in the network.
- » Thoroughfare type: used to determine physical character.

**Thoroughfare Types**

Functional Classification	FREEWAY/ EXPRESS- WAY/PARK- WAY	RURAL HIGHWAY	BOULEVARD	AVENUE	STREET	RURAL ROAD	ALLEY/REAR LANE
Principal Arterial							
Minor Arterial							
Collector							
Local							

# Street Design Shapes Development

## » Character & Safety

- Sidewalks provide dedicated pedestrian space.
- Bikeways clarify driver expectancy.
- “Curb zone” provides buffer from street.
- Wide intersections deter pedestrian crossings.
- Crosswalks promote multi-modal activity.

*All of these are safety related issues*



# Travel Speeds Shape Development

## » Travel Speed & Safety

- Street and lane widths designed for large EMT vehicles
- Wider lanes facilitate faster speeds
- On-street parking slows down traffic in outside lanes
- Street amenities slow down travel speeds
- Slower posted speeds reduce noise and encourage pedestrian/bike activity - affects building character and access

*All of these are safety related issues*

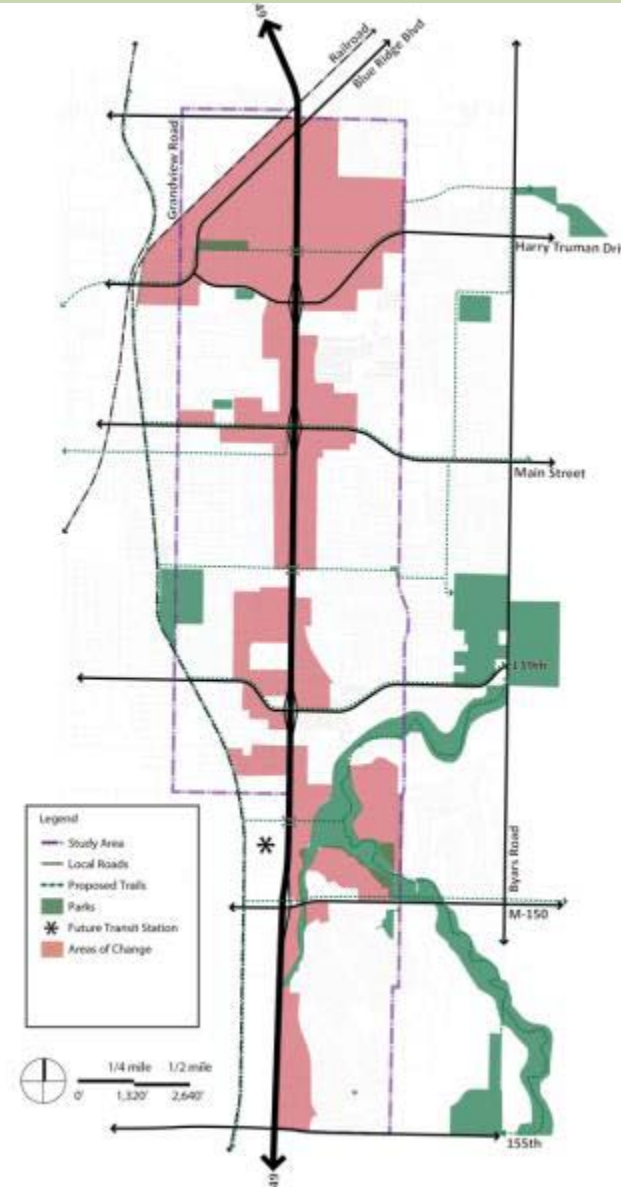
# Character Shapes Development

- » Vehicle/high-speed site design
  - » Buildings setback & orientation
  - » Front-loaded parking
  - » Right-of-way lacks character
  - » Active modes not accommodated
- » Impact:
- Development & transportation policies unintentionally define character.



# Areas of Change

- » Significant areas in a state of change.
- » Determined by:
  - Market Study
  - Economic Utilization
  - Proximity to Transportation
  - Stakeholder Outreach
  - City Guidance



# Place Types/Focus Areas

## » Regional Center

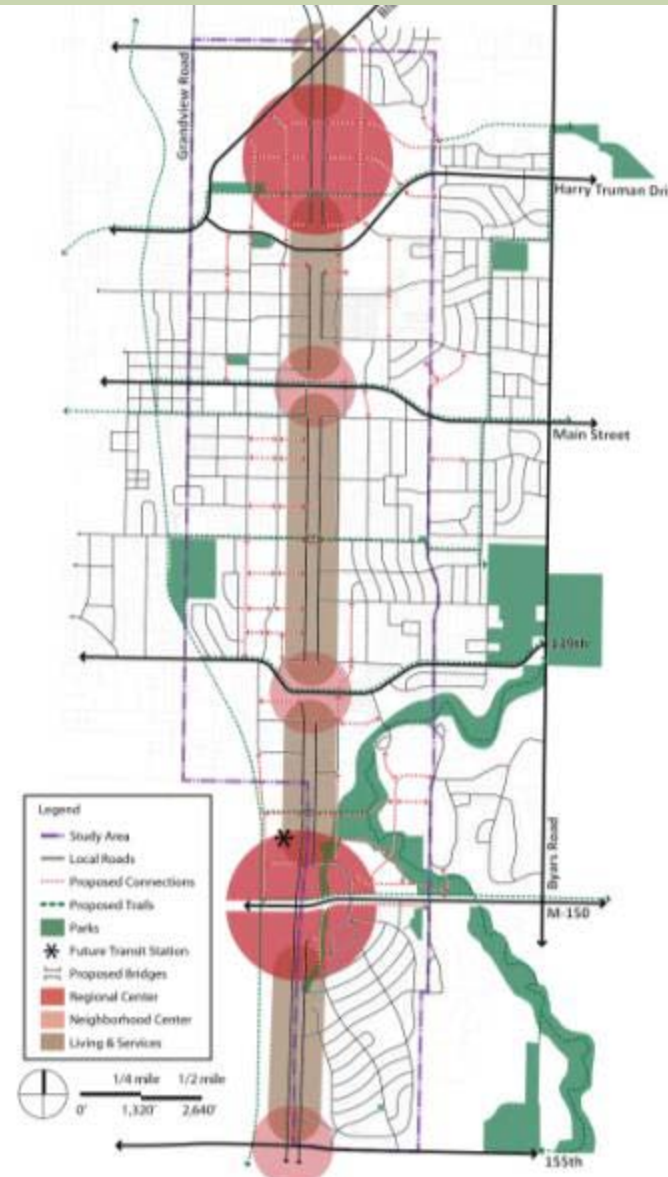
- 900,000K-2M sq.ft.
- Population base over 150,000
- 10-12 mile trade area

## » Community Center

- 300K-500K sq.ft.
- Population base over 50,000
- 4-6 mile trade area

## » Neighborhood Services

- 70K-90K sq.ft.
- 6K-8K households
- 1-2 mile trade area



# Corridor Wide Frameworks

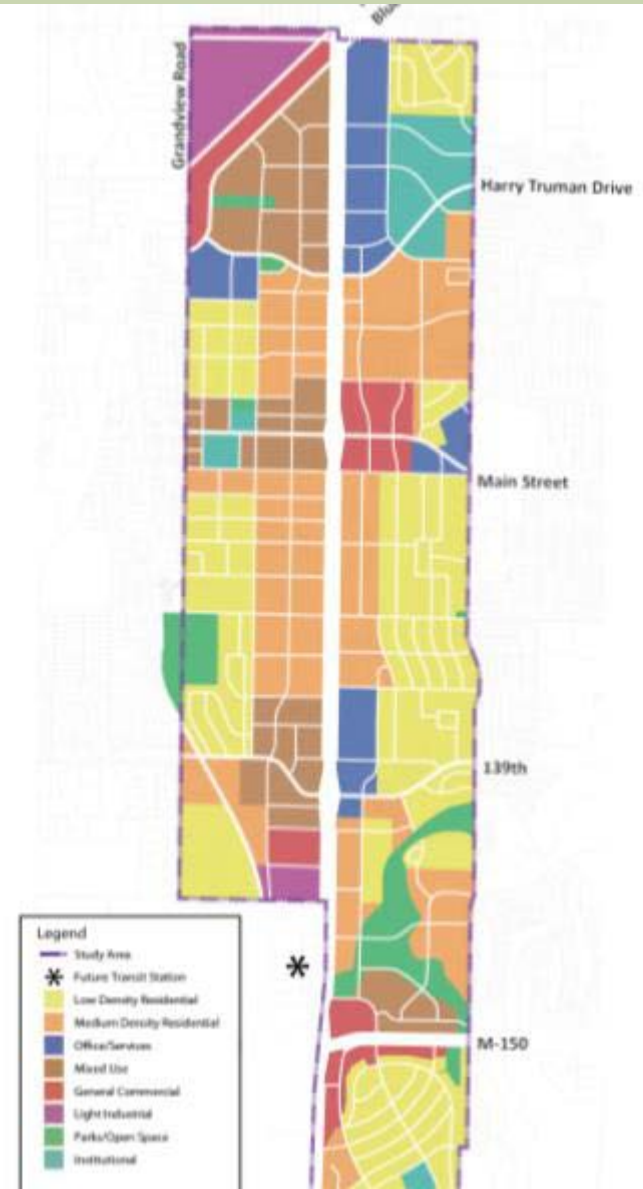
## » Transportation

- Expand & connect the network
- Reclaim land through tight diamond interchanges
- Improve connectivity through two-way frontage roads
- Construct bridges between interchanges
- Develop a street hierarchy



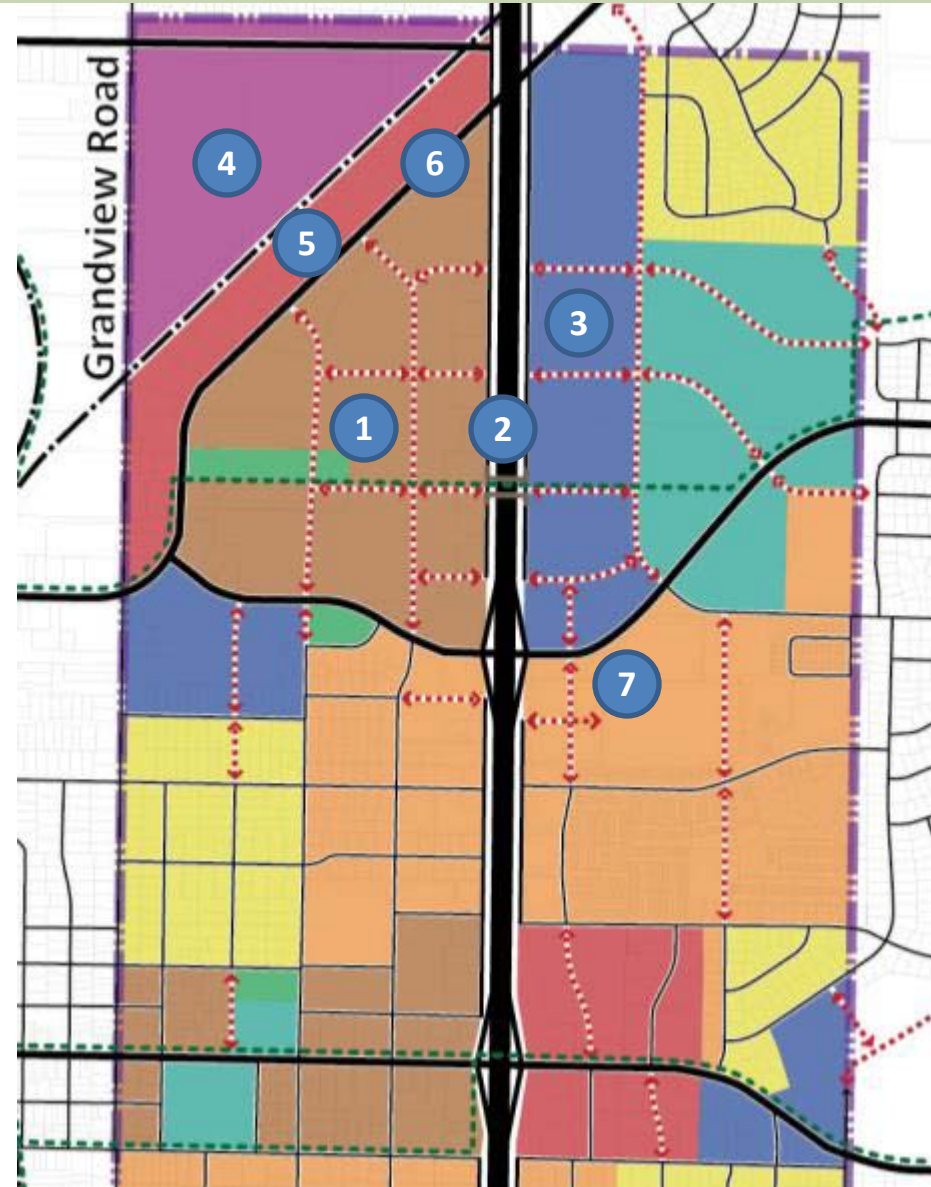
# Land Use

- » Concentrate redevelopment at nodes
- » Increase mix of densities and uses along the corridor
- » Revitalize existing neighborhoods within and between nodes



# North Area – Integrated Subarea Plan

- 1 Interconnected network of streets within Truman Corners
- 2 Pedestrian/bicycle bridge across I-49 to link east-west
- 3 Office development between I-49 and proposed IHOP campus
- 4 Protect industrial west of railroad
- 5 Commercial infill Fronting along Blue Ridge Boulevard.
- 6 Street improvements along Blue Ridge Boulevard.
- 7 Frontage road improvements at Harry Truman.



# Main Street as Destination

- 1 Provide parking behind Main Street retail and mixed use linked to the street by open, active and attractive passageways.
- 2 Reconstruct Main Street/I-49 interchange as a tight diamond with two-way frontage roads
- 3 Formalize 15<sup>th</sup> Street as a supporting, parallel corridor to the interstate
- 4 Construct a pedestrian/bicycle bridge across interstate at High Grove Road
- 5 Install plazas, wide sidewalks and landscaped areas along Main to provide green relief and gathering space



# Development Profiles

## » Priority Recommendations

- Costing
- Funding

## » Design Standards and Guidelines

## » Organizational Capacity Strategies

## » Marketing the Plan

- Target the development community
- Neighborhood Profiles
- Renderings and Graphics

CORRIDOR PROFILE

## Main Street





Main Street Rendering

### Here's WHY

- ▶ Main Street serves as the heart of Grandview, with front doors to City Hall, the post office, restaurants and office space. The public library, schools, businesses and community facilities are located east of I-49 along Main.
- ▶ The City is leading a 6 million dollar reconstruction of Main Street to enhance the business environment, improve street safety and overall aesthetic character.
- ▶ Improvements at Farmer's Market Place along Main Street include \$321,430 in funding to provide a civic gathering space and grand entrance into the City's Farmers market.
- ▶ In 2009, the International House of Prayer (IHP) purchased a former strip center immediately east of I-49 and Main Street and opened a 100,000 square foot campus. The influx of over 1,200 students has increased pedestrian activity and reinforced the need for connections along Main Street east-west.

Grandview has an aggressive portfolio of economic development incentive programs such as:

- ▶ Tax increment financing
- ▶ Chapter 100 Sales Tax Exemption
- ▶ Chapter 353 Tax Abatement
- ▶ Neighborhood Improvement Districts
- ▶ Transportation Development Districts
- ▶ Sales Tax Reimbursement Agreements
- ▶ Enhanced Enterprise Zone (EEZ) Program

**THE CITY OF GRANDVIEW'S I-49/US-71 Sustainable Redevelopment Corridor Plan** envisions a holistic, long-term vision for a 4.5 mile stretch of I-49. The purpose is to develop land use and transportation strategies that will support the redevelopment of auto-oriented, strip commercial development into walkable, livable, interconnected centers. This plan intends to attract new investment and development, improve quality of life for Grandview residents and businesses, and enhance corridor aesthetics and character. In an effort to revitalize Main Street, over 6 million dollars are being invested in five phases to reconstruct the street and intersections, widen sidewalks and install new lighting, landscaping and signage. The project includes improvements to the overpass of Main Street over I-49 to better accommodate pedestrian movements. Sources of funding include City Capital Improvements sales tax, City transportation sales tax, and federal highway grants.

**REAL ESTATE STATISTICS**

With a view east of I-49 on Main Street

<b>Estimable Building Space (SF)</b>	<b>944,771</b>
Retail	772,910
Office	171,861
<b>Expense Ratios (Average: 5.0)</b>	
Retail	16.80
Office	12.35
<b>Occupancy Ratios:</b>	
Retail	79%
Office	92%
Value Code	



Main Street

# Framework for Successive Development

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- » Broadway Marketplace  
(Denver, CO)
- » Building a long-term  
infrastructure program



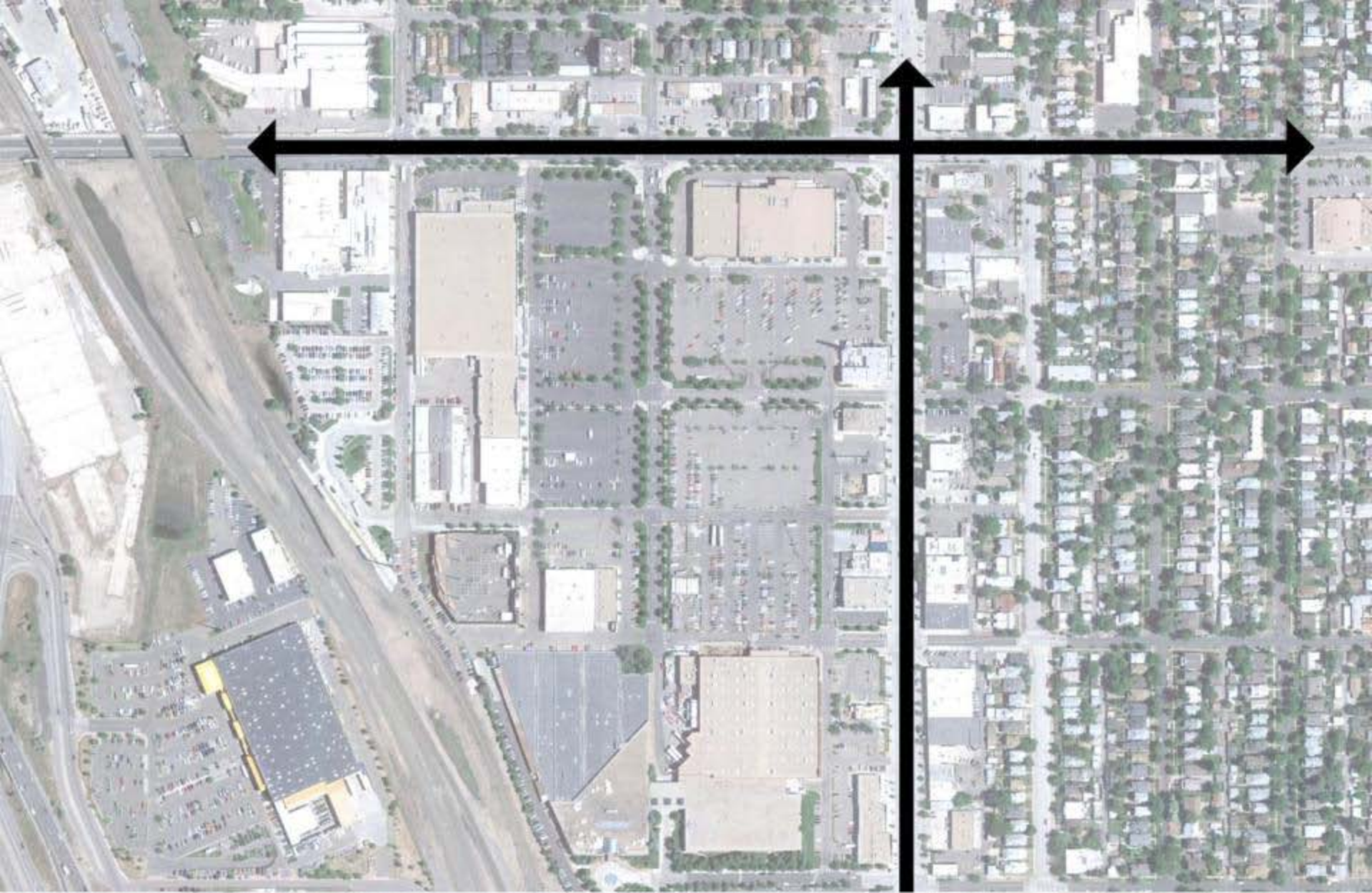


Large commercial development site

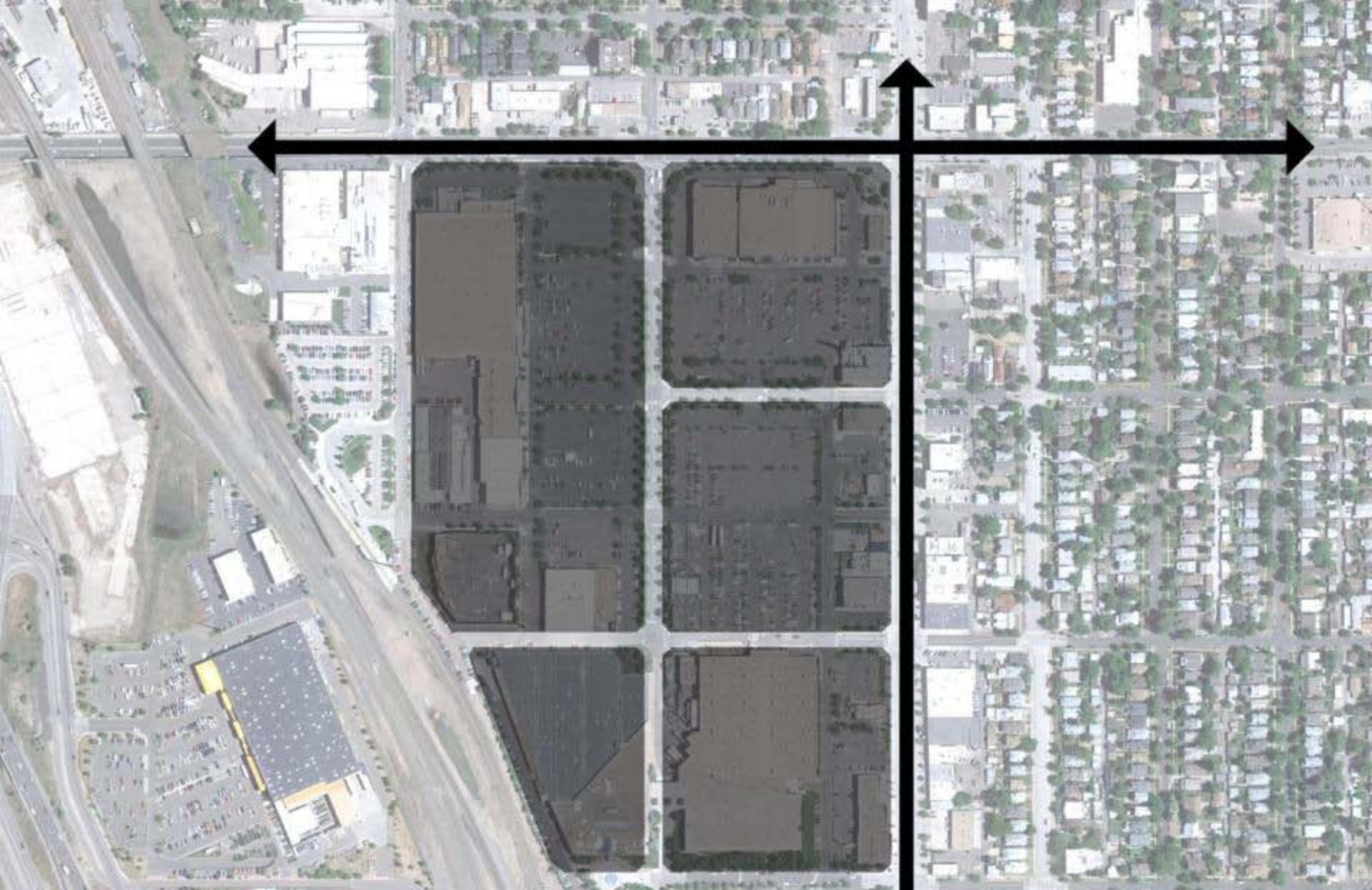


Typical monument signs on the street

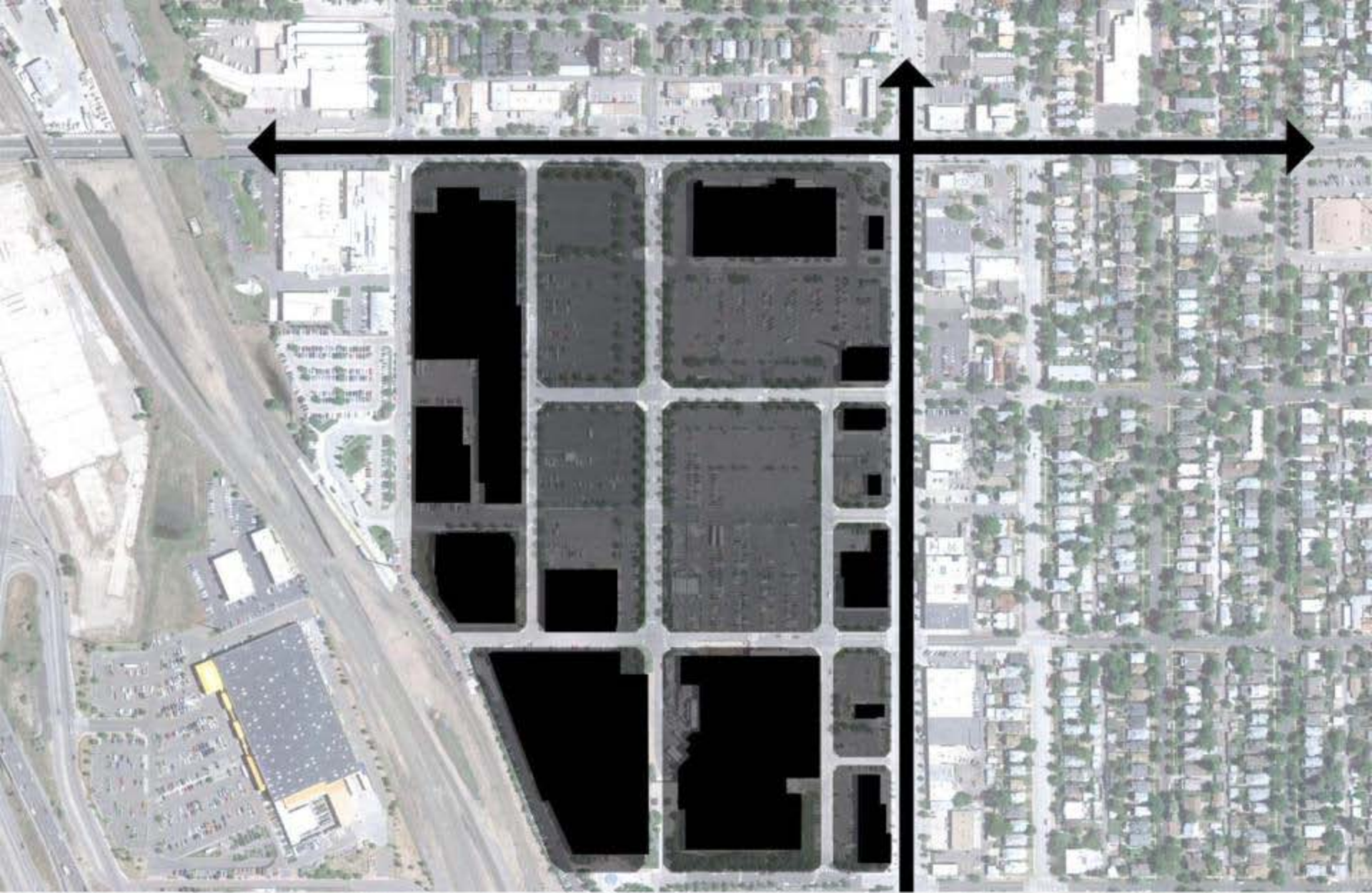
2010/09/28



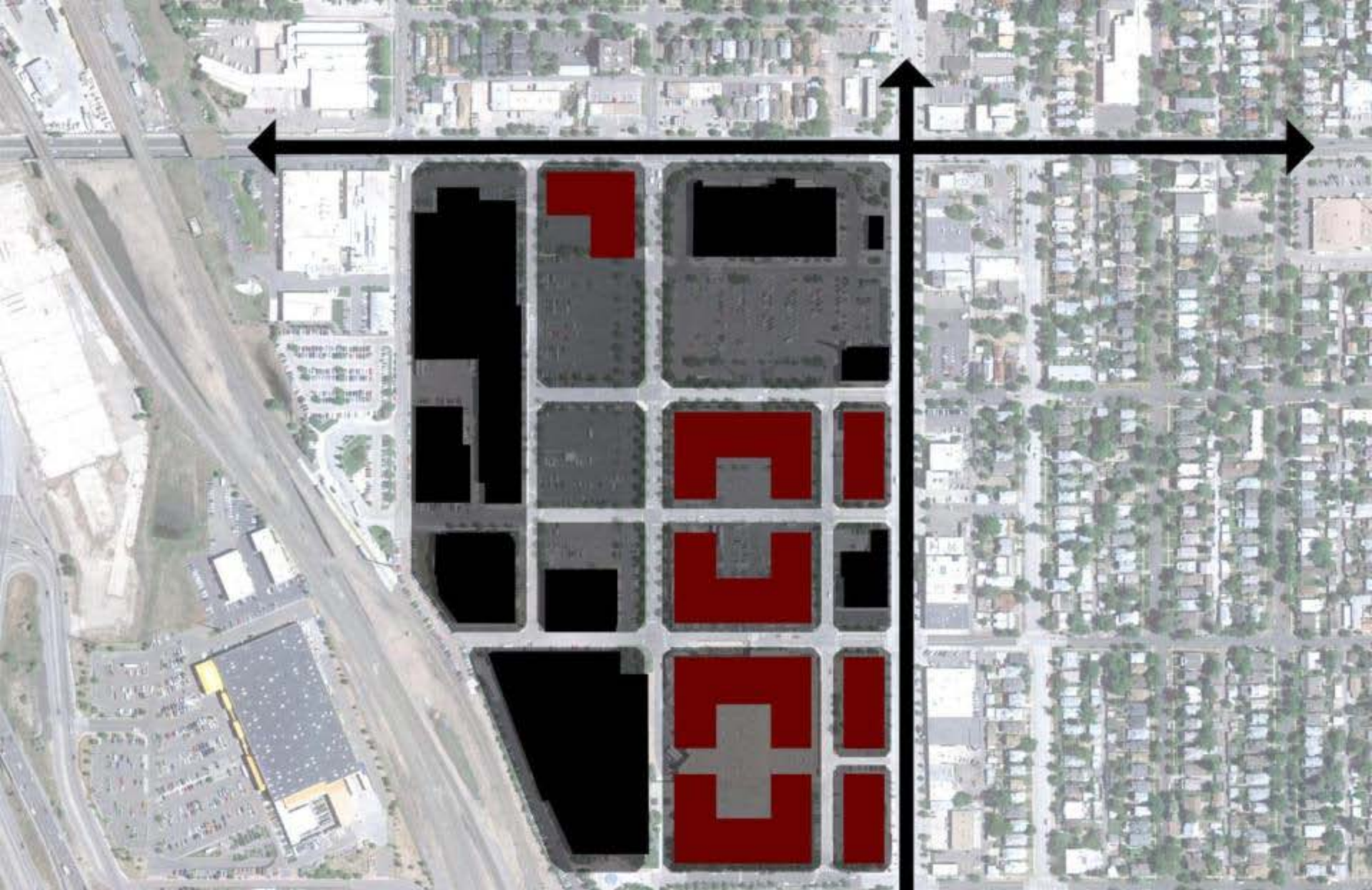
City assembled site for redevelopment



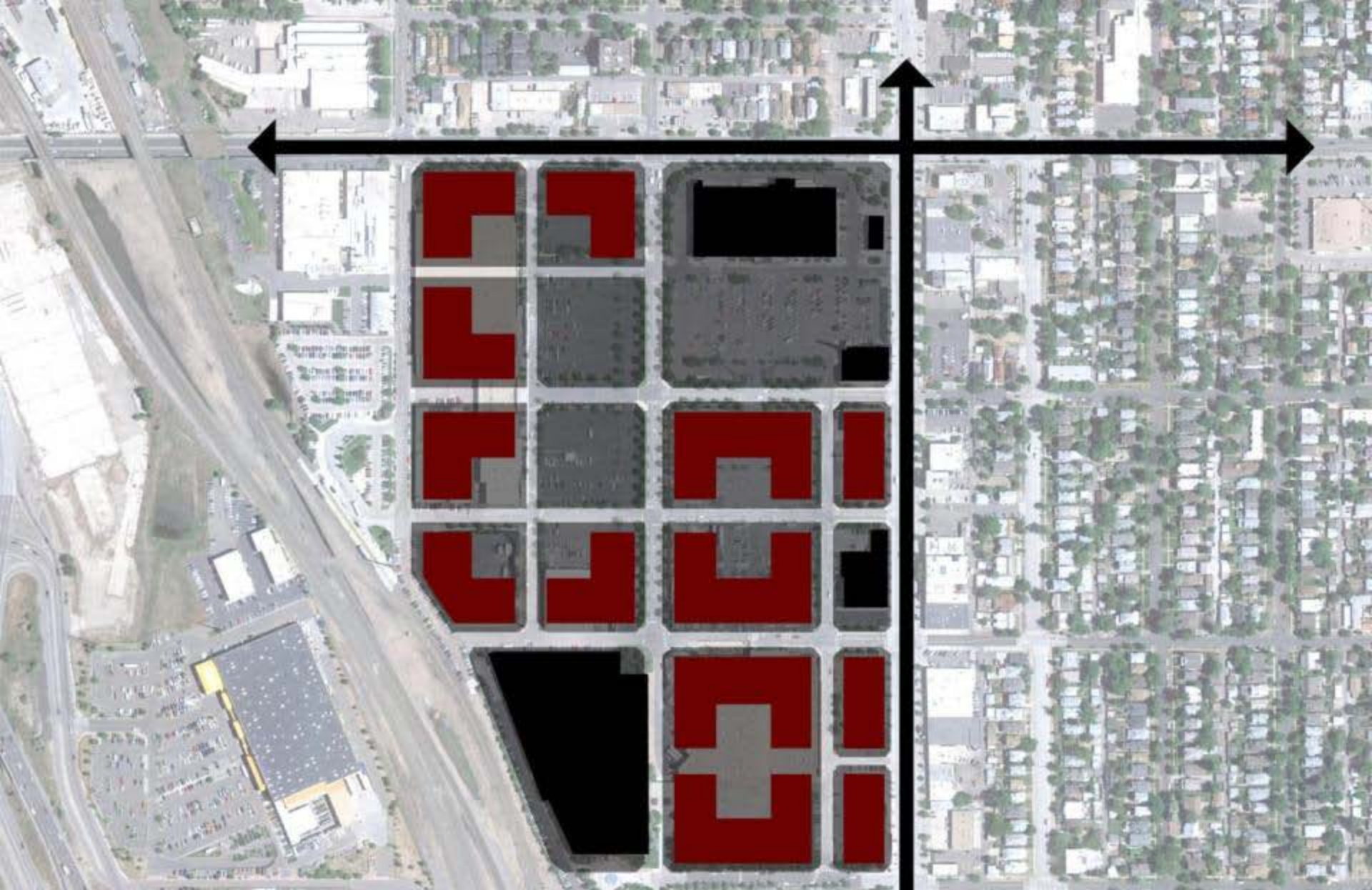
Superblocks 680' wide



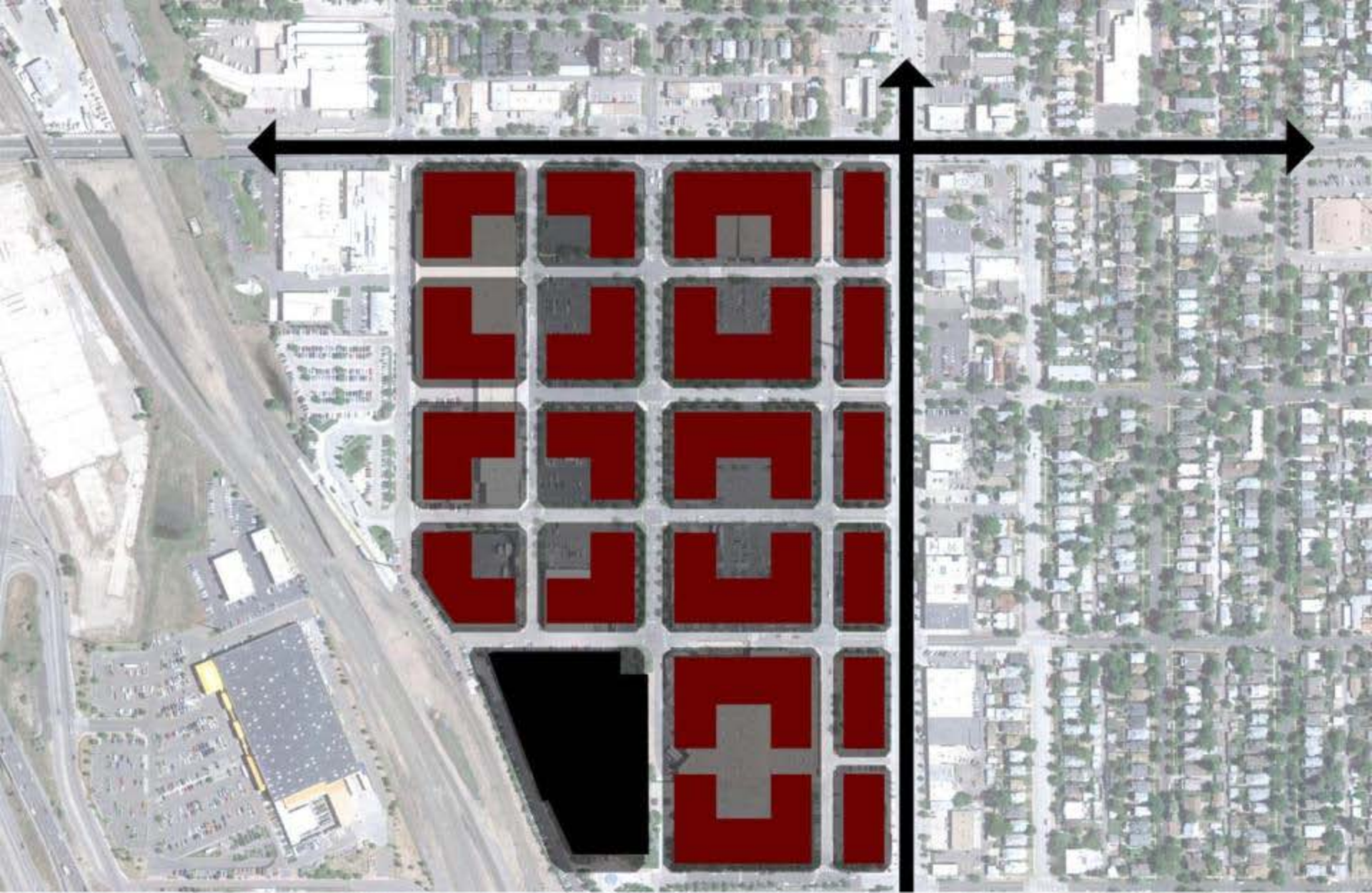
Circulation divides site into smaller blocks



Market-based opportunities – 7-15 years



Market-based opportunities – 25-35 years



Creating denser neighborhood patterns

# Shaping the Market with Transportation

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- » US 54/400 in Andover, KS (Wichita area)
- » Expanding a 4-lane rural road to a grade separated highway



# Existing Development Pattern

- » Large undeveloped parcels
- » Light industrial and large format retail emerging.
- » Single use, auto oriented patterns.
- » Lacks of E/W connectivity.



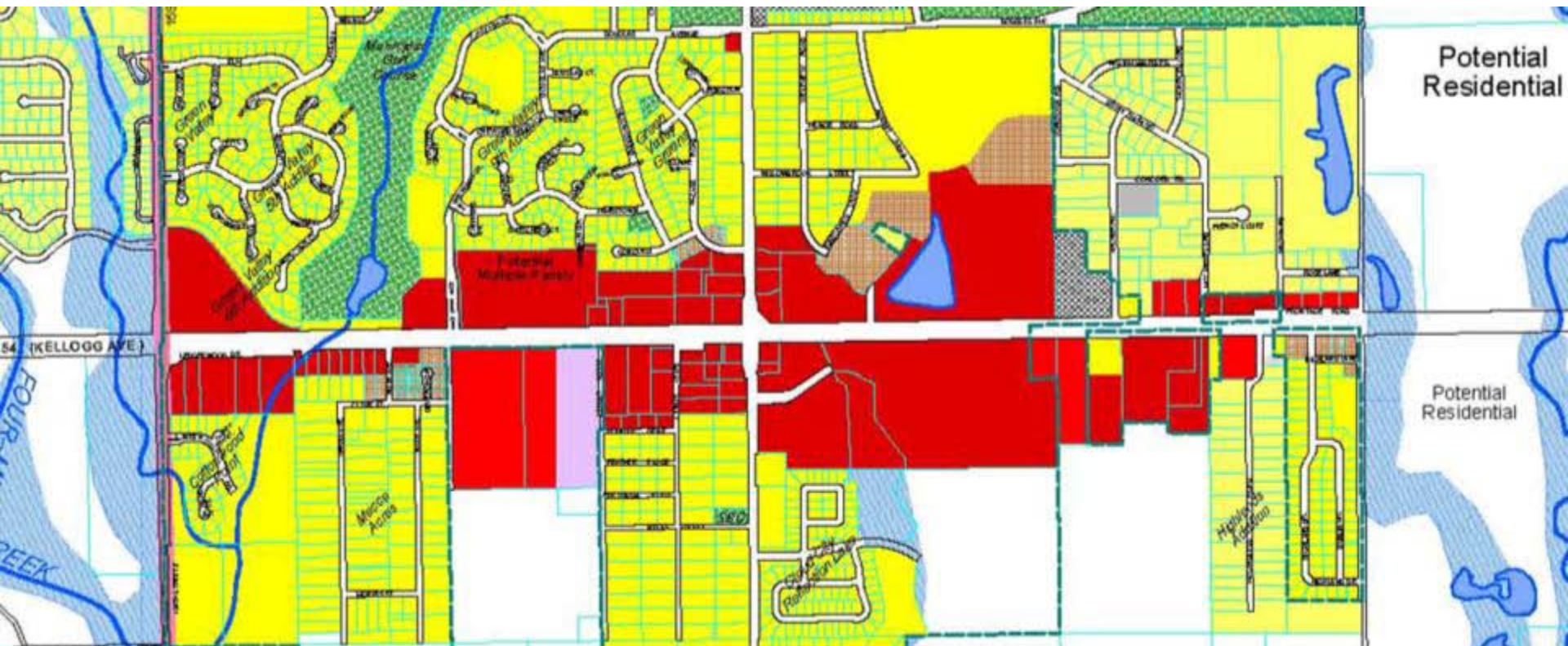
# Existing Land Use

- » Strip commercial emerging.
- » Predominantly residential.



# Future Land Use

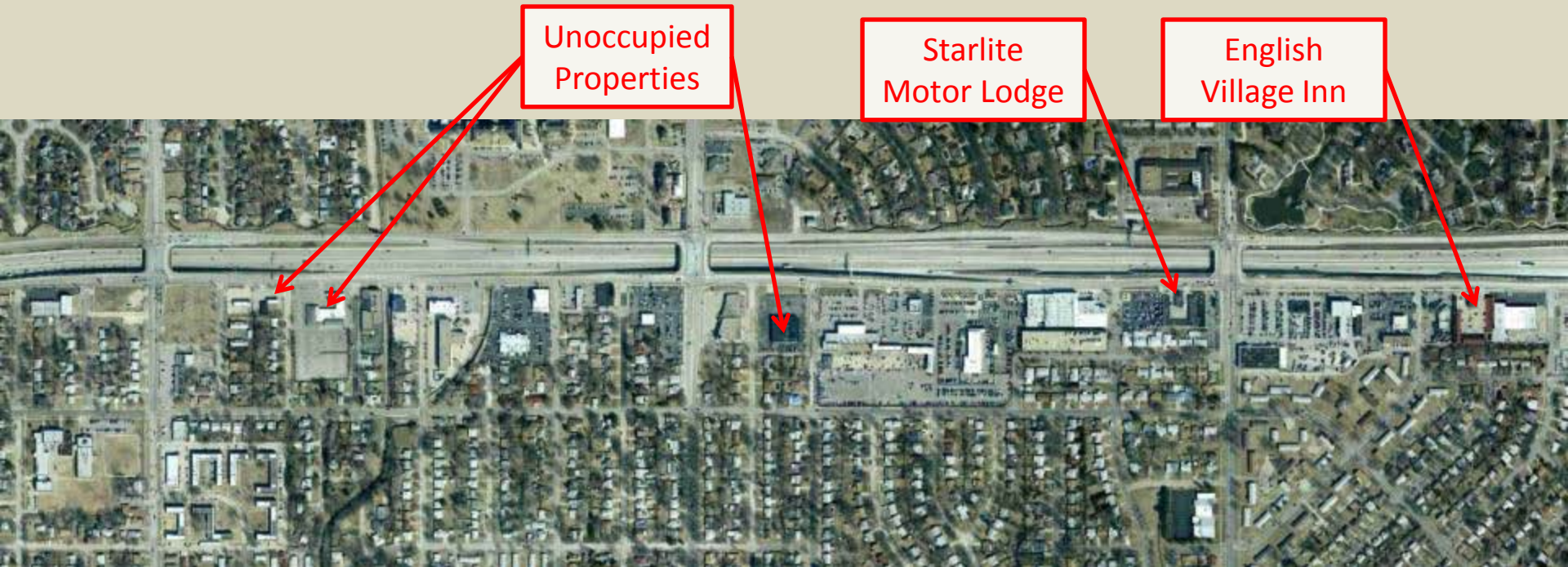
» Encouraged strip development, backing to residential.



# East Kellogg Blvd.

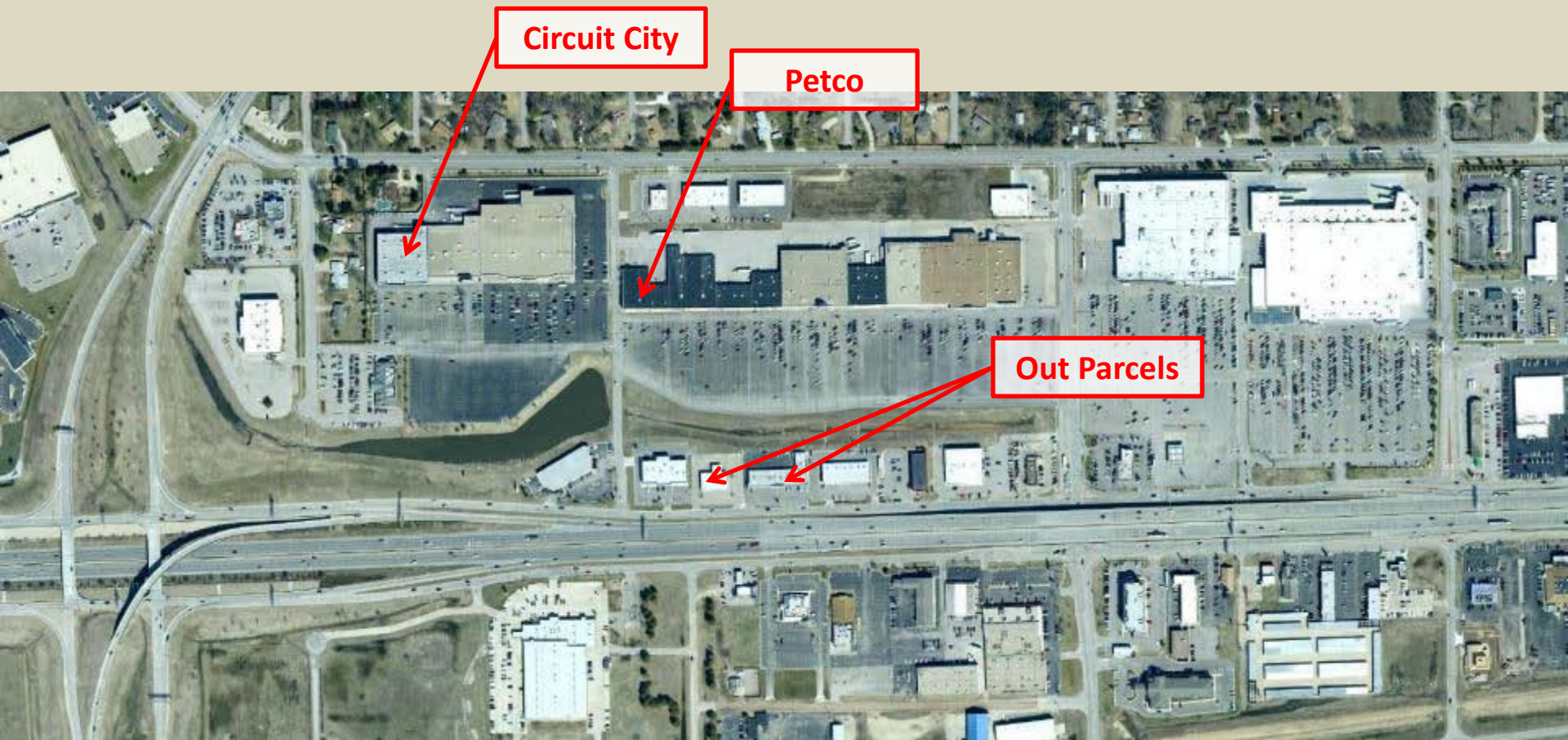
*Challenges for future redevelopment*

# Numerous large parcels that are not easily subdivided



East Kellogg around Oliver St & Woodlawn St

# Large parcels are difficult to phase redevelopment



Town West – west of I-235

# Good framework for redevelopment



Town West @ I-235



Unoccupied Building



Michael's



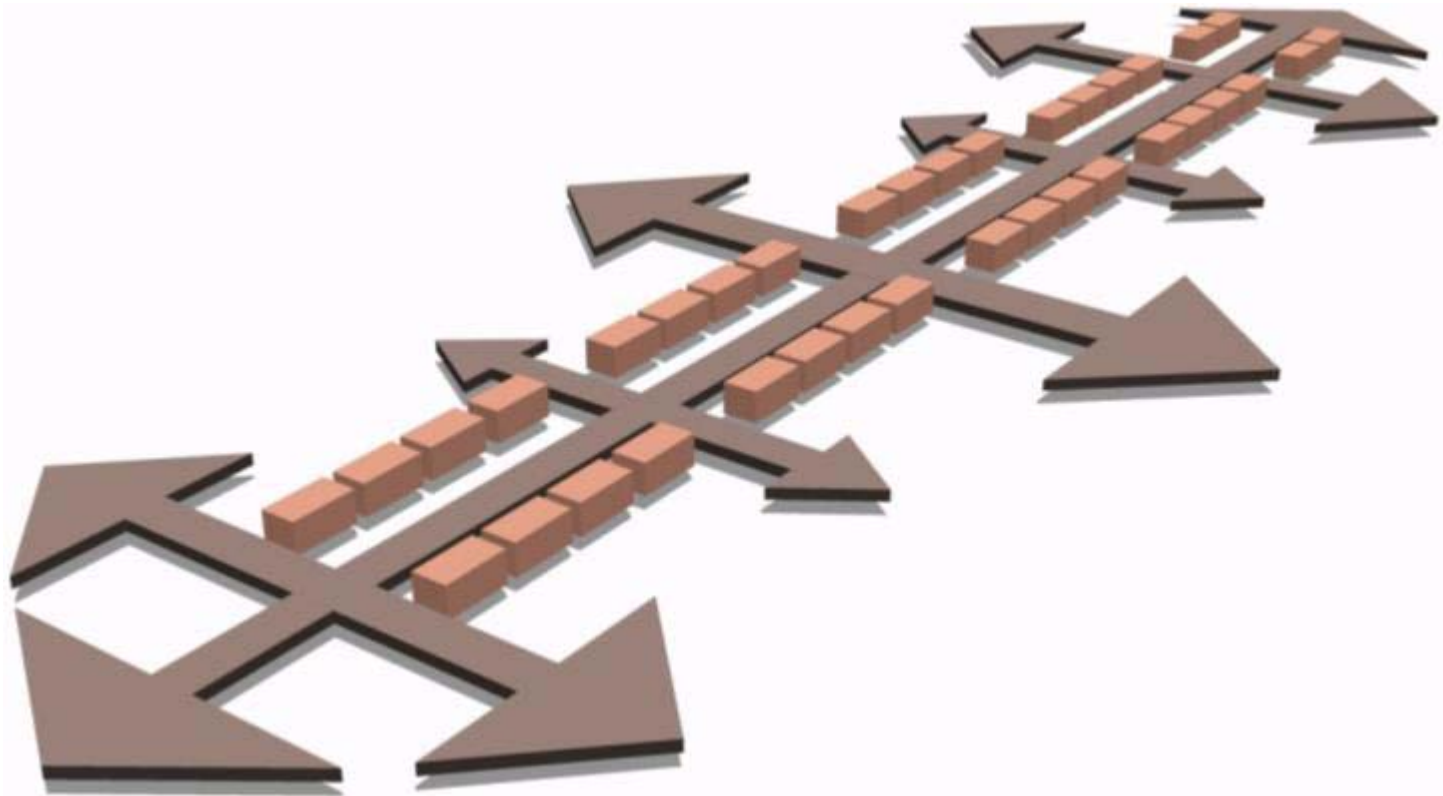
Shopko



Out Parcels

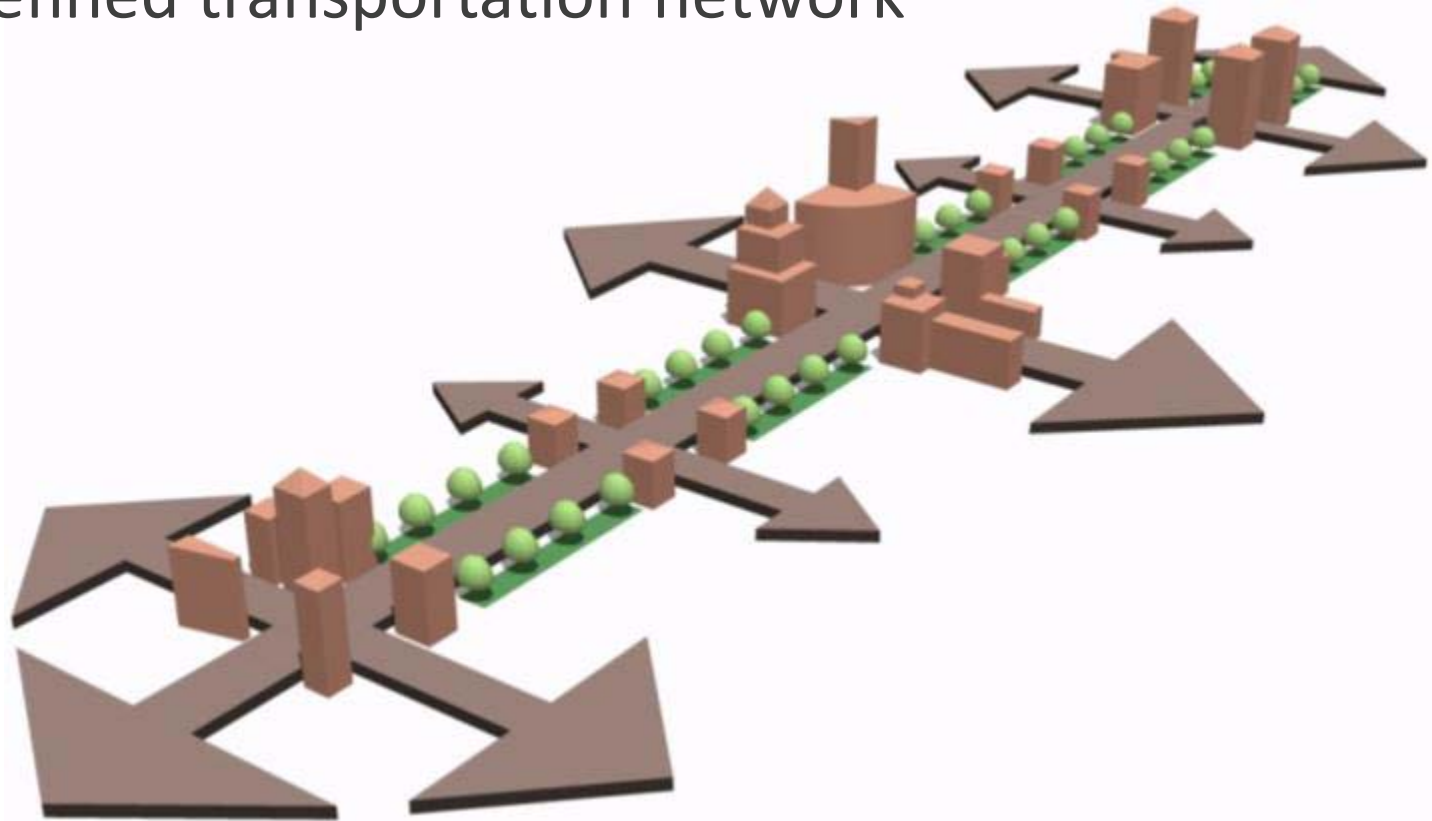
# Development Pattern – Strip

» Continuous commercial development

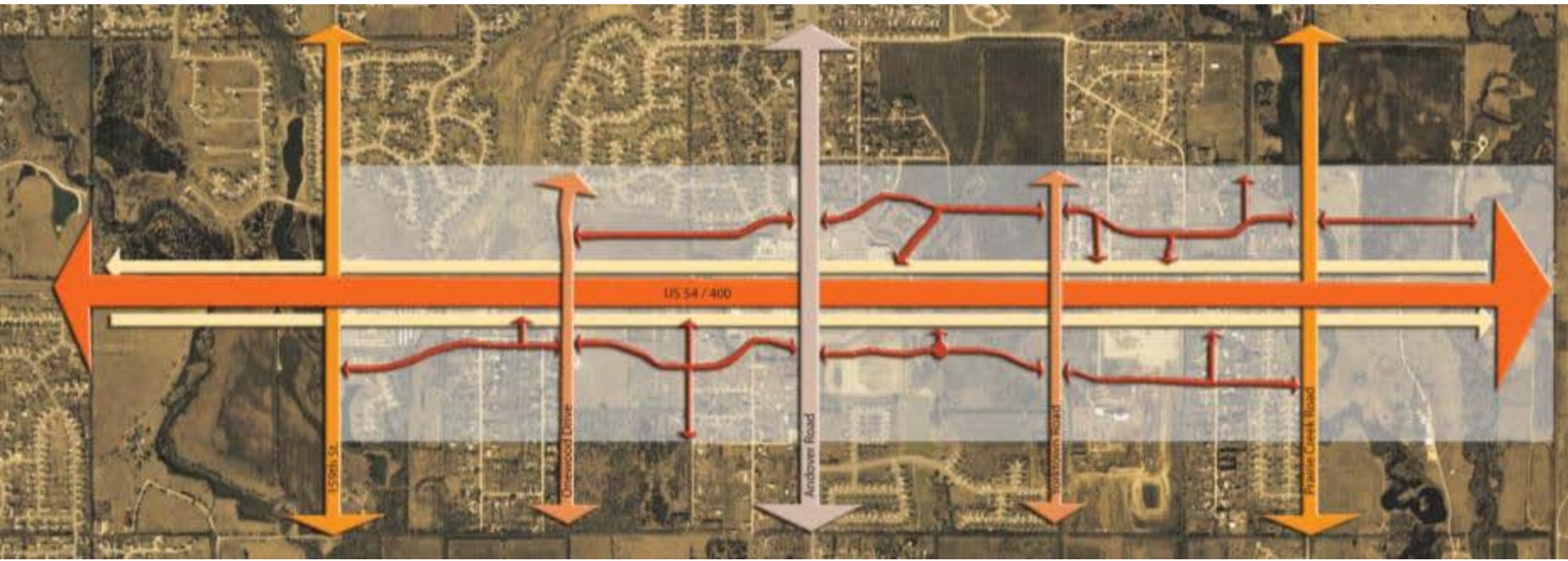


# Development Pattern - Nodal

- » Focus on major activity nodes
- » Separated by open space buffers
- » Requires refined transportation network



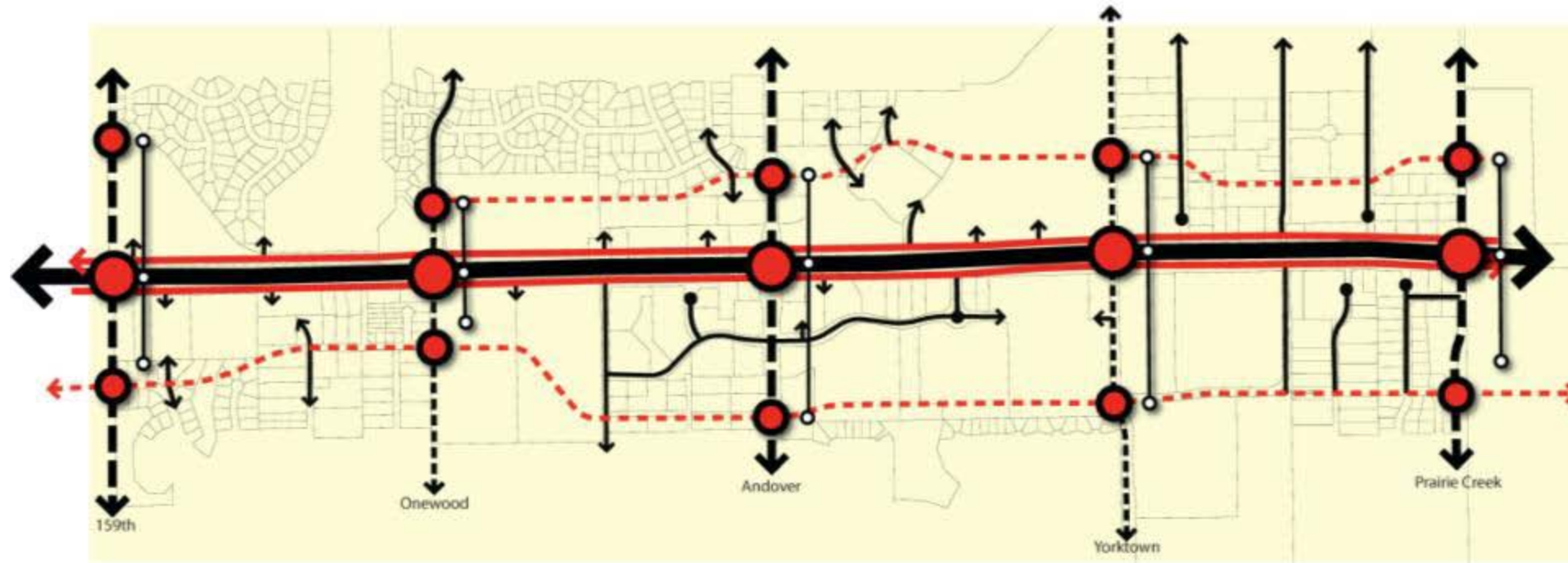
# Road Hierarchy



## Legend

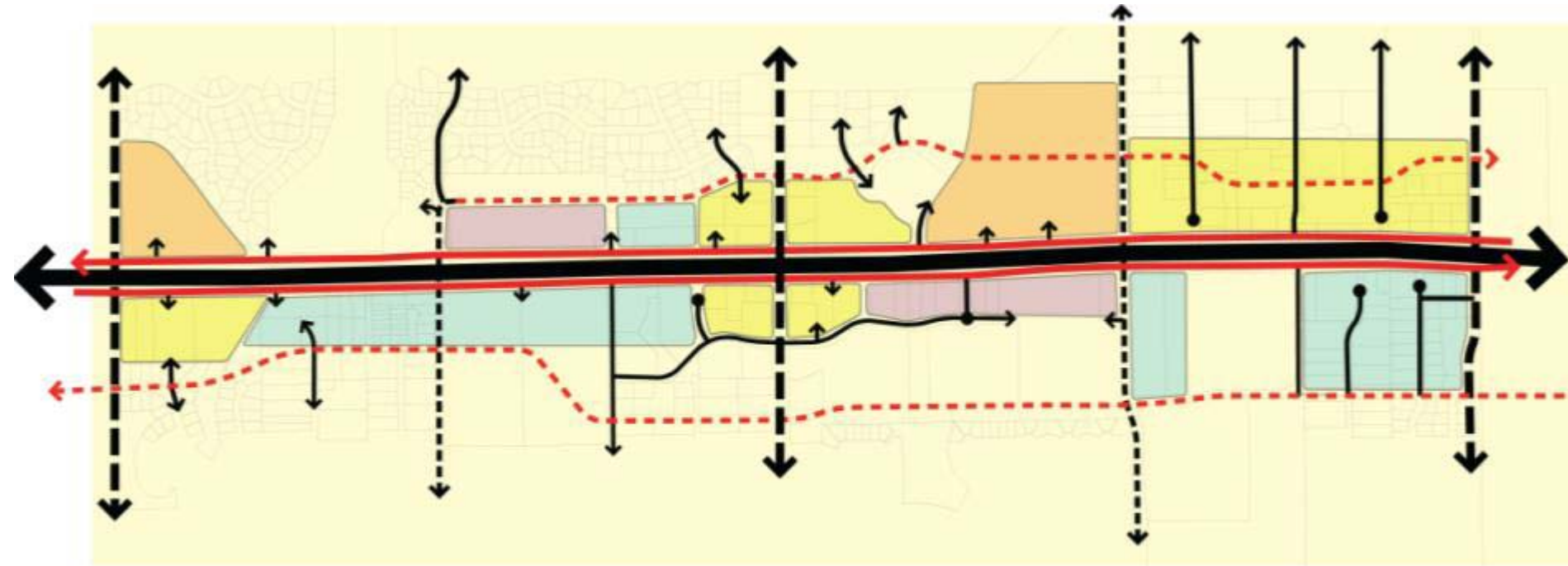
- US 54 / 400
- 6 Lane Arterial
- 5 Lane Arterial
- 4 Lane Arterial
- Frontage Roads
- Backage Roads
- Study Area

# Full Access Intersections



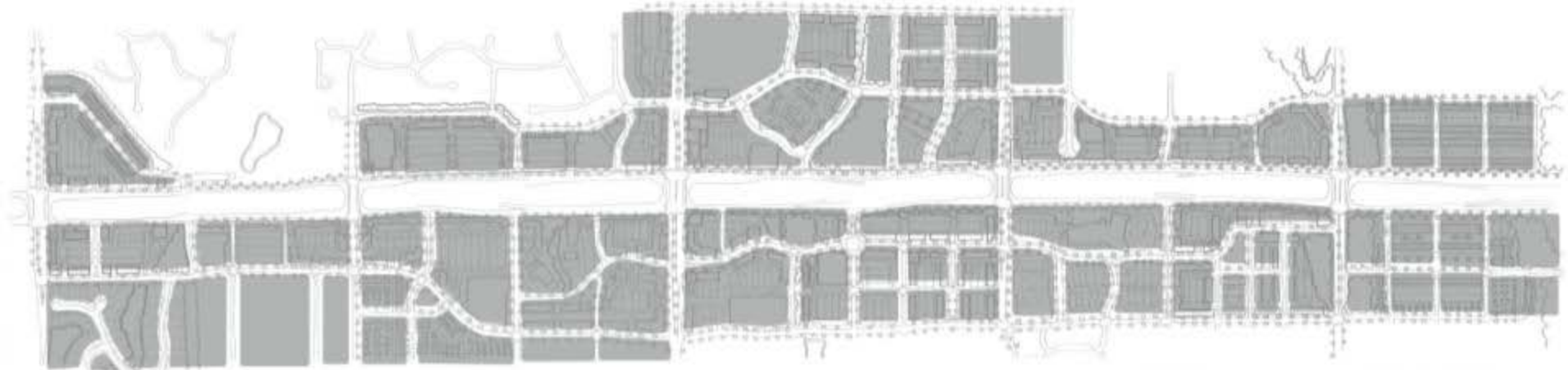
- Located at the 5 major N/S streets

# Access Management



- Negotiated with KDOT for frontage roads
- Additional local roads link backage to frontage roads

# Smaller Block Sizes



- Based on transportation framework and existing property lines.

# Green Connections on Local Streets










- Linking new and planned open spaces

# Conceptual Land Use



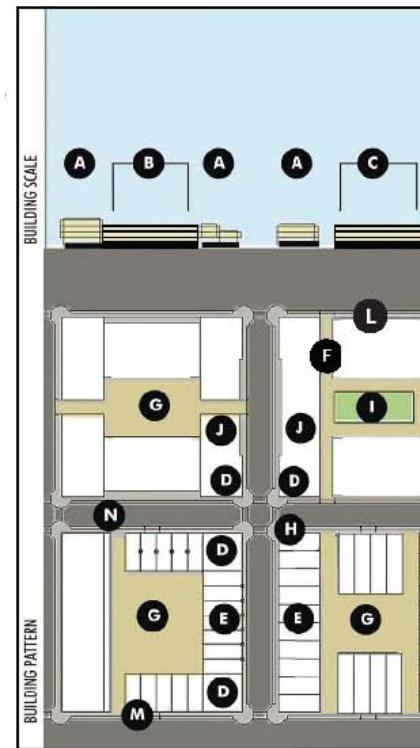
- Commercial Mixed Use at 6 & 5 lane arterials
- Residential Mixed Use at 4 lane collectors
- Single use commercial along highway between nodes
- Higher density residential to support commercial

MU-COM		Mixed Use Commercial
MU-RES		Mixed Use Residential
COM		Commercial
MF		Multi-Family
SFA		Single Family Attached
CVIC		Civic
OS		Open Space

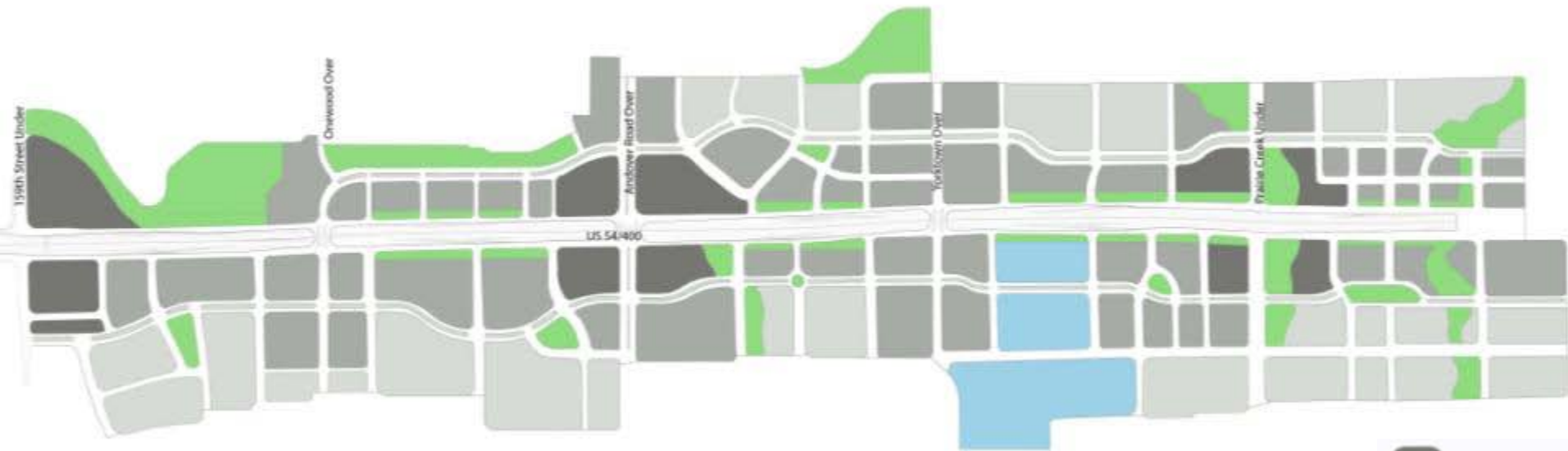
# Mixed-Use Commercial (MU-COM)



- Density 2-3 story buildings
- 50-70% lot coverage
- Ground floor retail/office
- Office above allowed
- Residential above allowed
- Vertical & horizontal mixed use



# Building Form



- Max heights at 6 & 5 lane arterials
- More height along the highway
- Heights step back from highway to community



# Illustrative Plan



- Illustrates one possible future based on frameworks.

# Thank You

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