

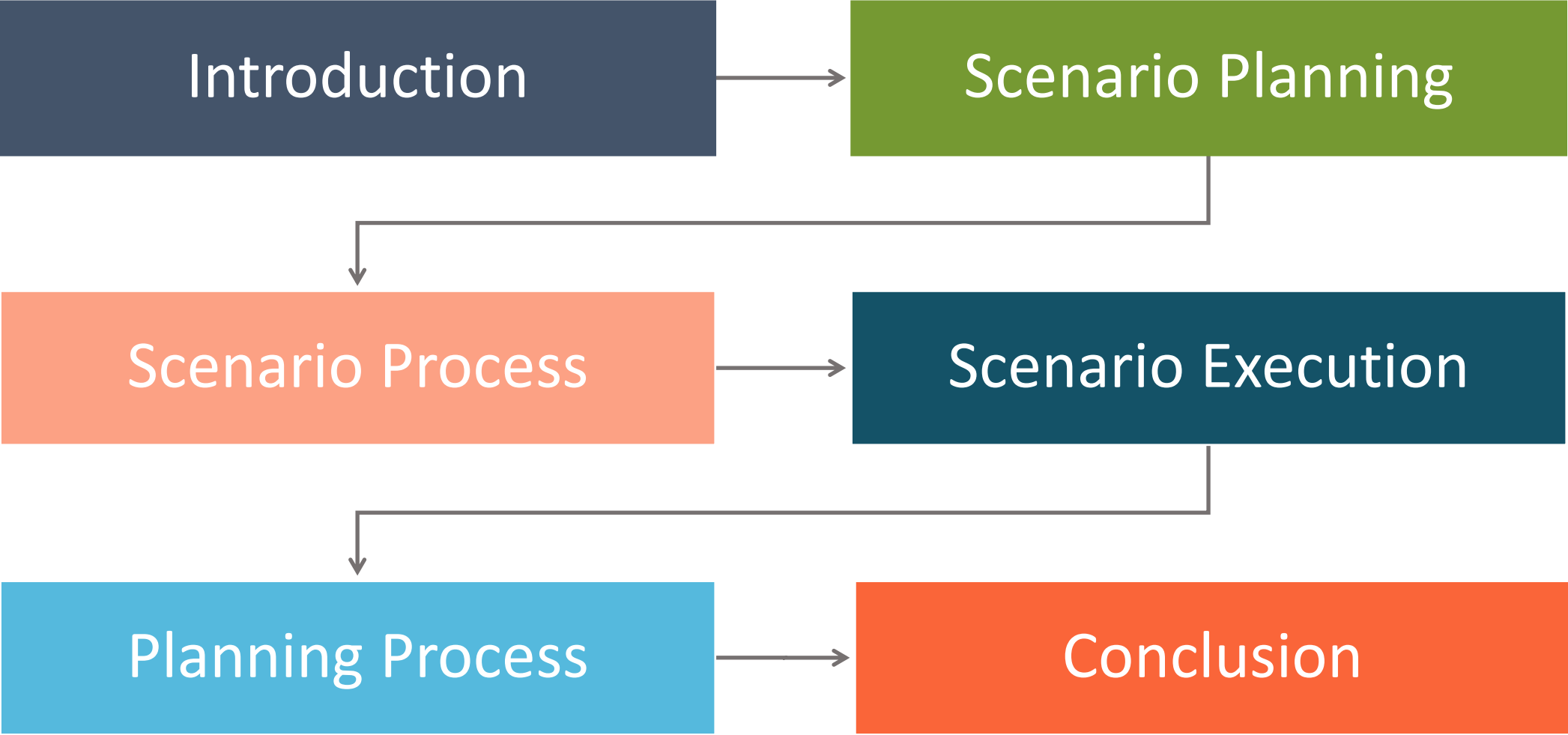
How Should Our Region Grow?

Land Use Scenarios Analysis of Central Oklahoma

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Association of Central Oklahoma Governments

September 20, 2016

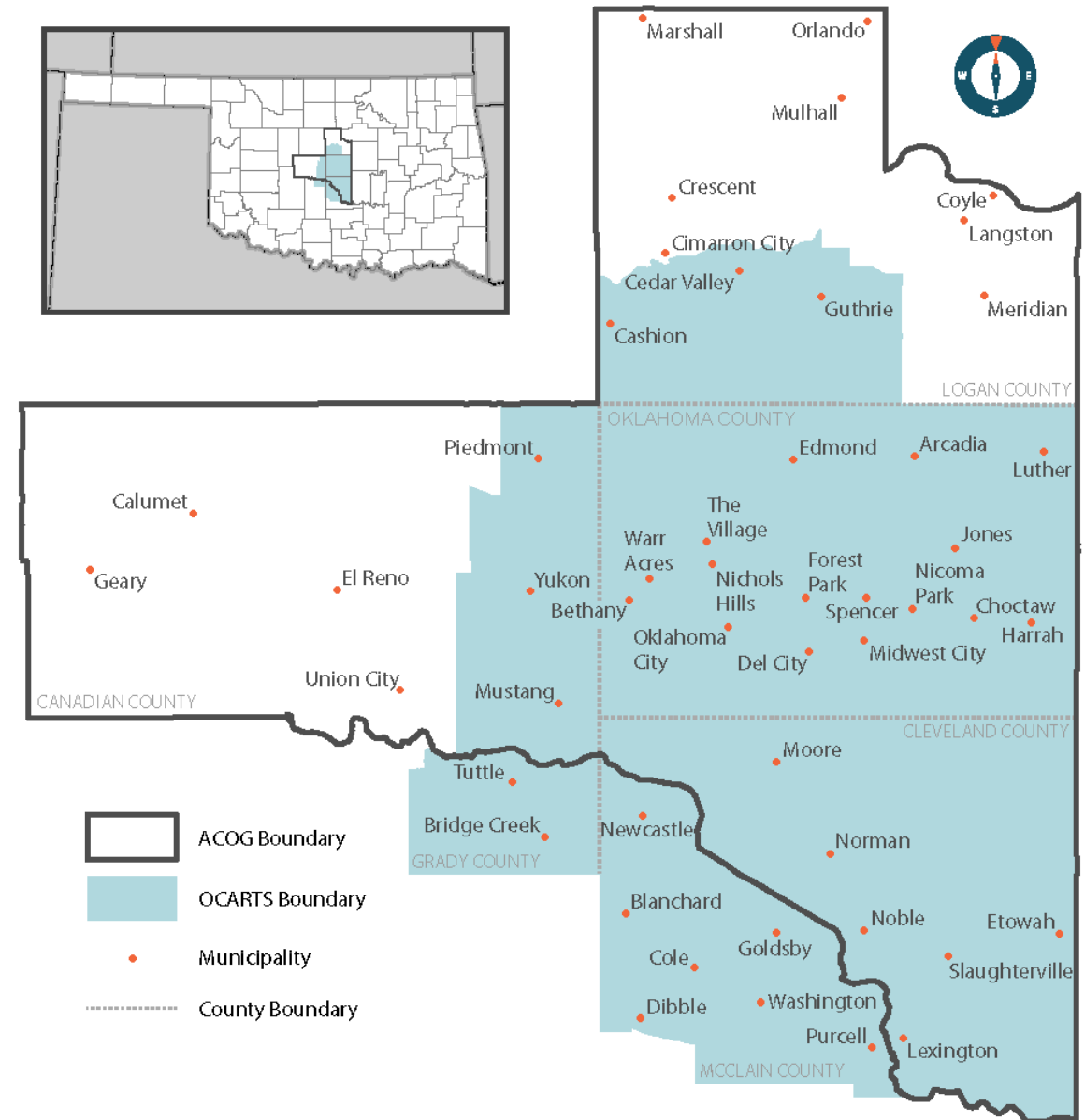


Introduction



What is ACOG?

- Association of Central Oklahoma Governments
- Divisions:
 - 9-1-1 Public Safety
 - Water
 - Economic Development
 - Transportation and Planning Services (serves as Metropolitan Planning Organization for Central Oklahoma)



Metropolitan Planning Organization

- Comprehensive, coordinated, and continuous transportation planning
- Long-range metropolitan transportation plan and short-range implementation programs
- Responsible use of federal transportation dollars

Metropolitan Planning Organization (MPO) Database		
MPO State Search: <i>Oklahoma</i>		
Yielded 4 records.		
Metropolitan Planning Organization	State	Major City
Association of Central Oklahoma Governments (ACOG)	OK	Oklahoma City
Frontier MPO	AR, OK	Fort Smith
Indian Nations COG (INCOG)	OK	Tulsa
Lawton MPO	OK	Lawton

Source: MPO Database, Federal Highway Administration (<https://www.planning.dot.gov/mpo.asp>)

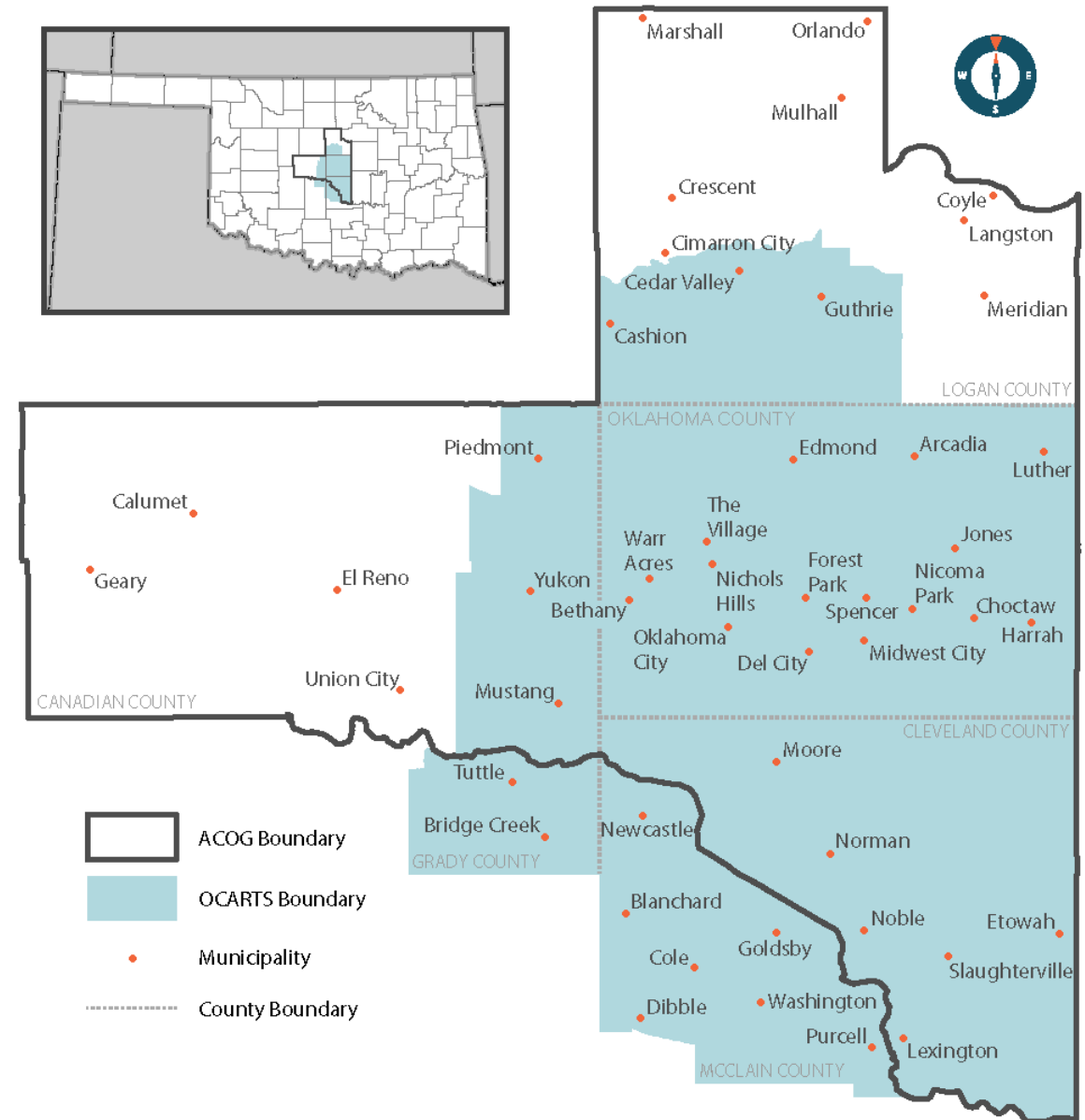
OCARTS and Encompass 2040

- Oklahoma City Area Regional Transportation Study
 - Transportation Management Area
- Metropolitan Transportation Plan (MTP)
 - Long-range transportation plan
 - **Encompass 2040**
 - Priorities for next 30 years (updated every 5 years)
 - Policy recommendations and specific projects
 - More than \$10 billion in multimodal transportation investments

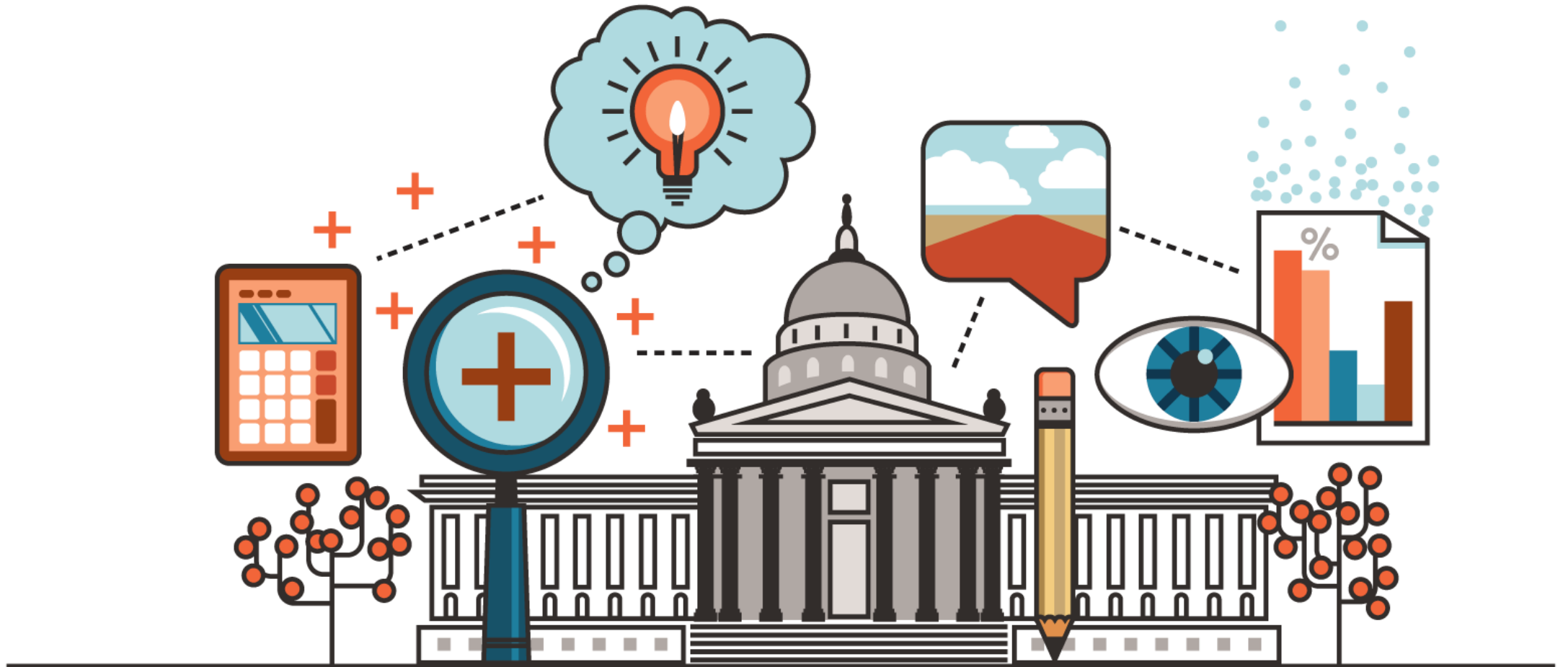


OCARTS Area Regional Snapshot

- 47 communities
- Six counties (2 full, 4 partial)
- 2,085 square miles
- Population:
 - 1.1 million (2010)
 - 1.6 million (2040 projected)
- Employment:
 - 600,000 (2010)
 - 875,000 (2040 projected)

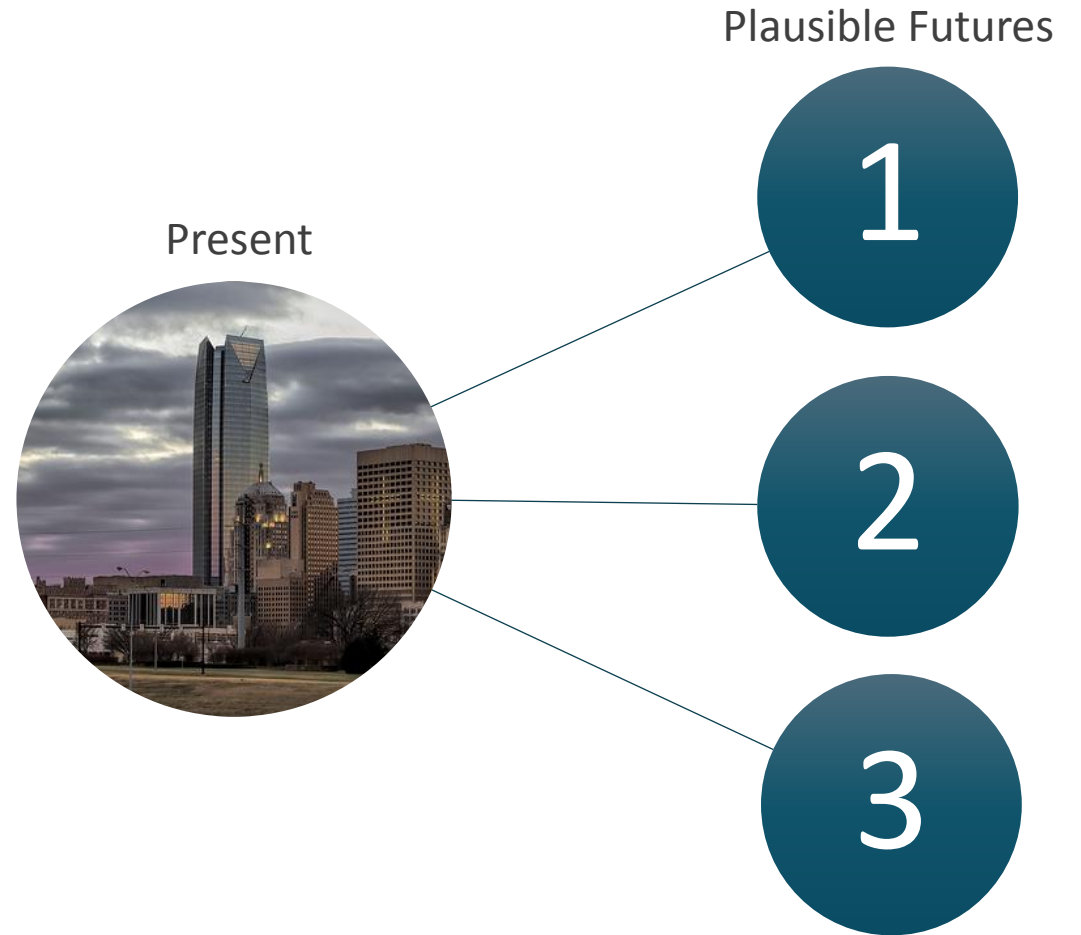


Scenario Planning



Scenario Planning

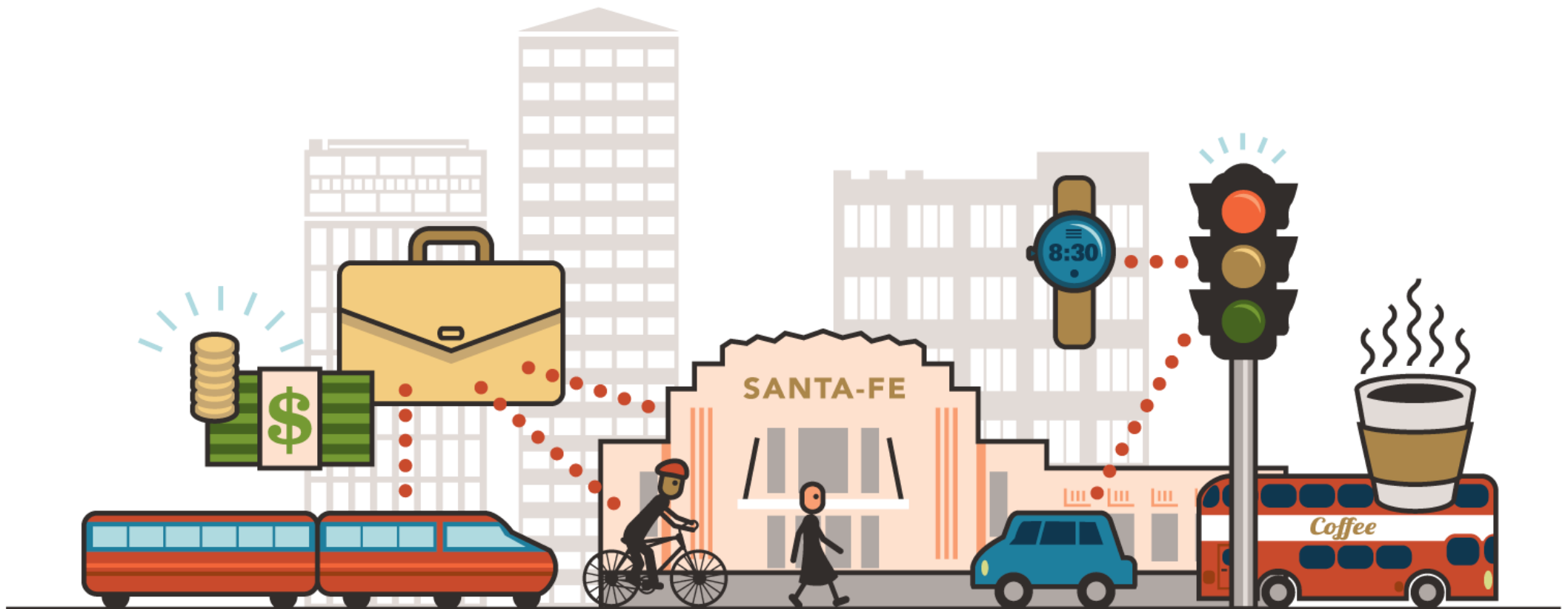
- A scenario is “an internally consistent view of what the future might turn out to be—not a forecast, but one possible future outcome” (Porter 1985)
- Scenario planning is “a process that identifies, explores, and assesses future alternatives for transportation, growth, land use, economic development, and other issues” (USDOT)
- MPOs have the option of developing multiple scenarios for consideration during the development of the MTP (MAP-21/FAST Act)

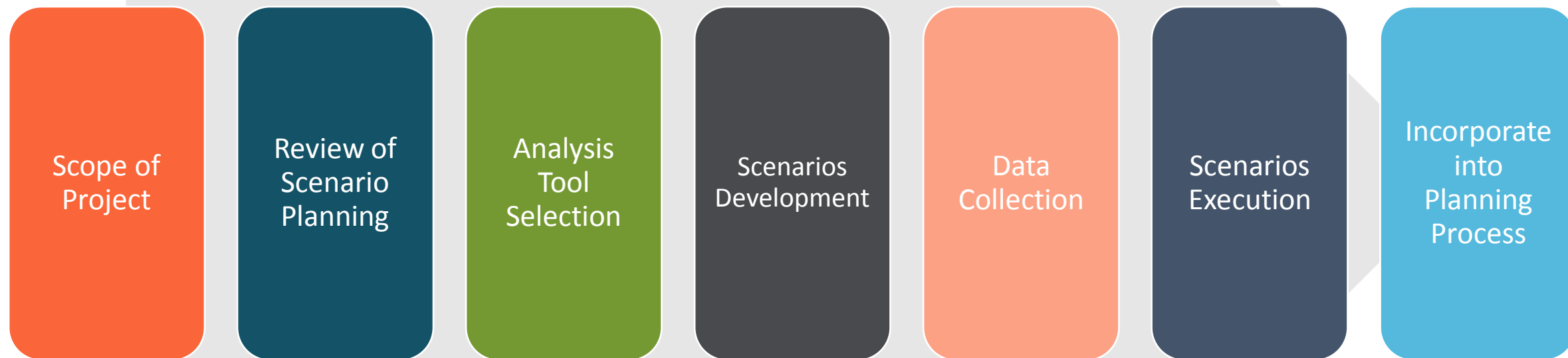


Purpose of Encompass 2040 Land Use Scenarios

- ✓ Educational exercise (FHWA)
- ✓ Determine the impacts of development
- ✓ Create alternative land use patterns for Travel Demand Model
- ✓ Support other regional planning efforts (regional transit)
- ✓ Help with 2040 Plan project selection
- ✓ Encourage local communities to incorporate scenario tools into next comprehensive plan

Scenario Process





Scope of Project

- Roughly 2 years to complete
- Limited staff (1-2, not full time)
- Consultant not budgeted
- Small budget for software

Review of Scenario Planning Elsewhere

- MPOs, Regional Councils, Cities:
 - Mid-America Regional Council (Kansas City)
 - Atlanta Regional Council
 - Delaware Valley Regional Planning Commission (Philadelphia)
 - Triangle J Council of Governments (North Carolina)
 - PlanOKC (Oklahoma City)
 - And many, many others

Analysis Tool Selection

- Analysis tools, including:
 - Cube Land
 - UrbanSim
 - Envision Tomorrow (OKC)
 - CommunityViz
 - Others
- CommunityViz
 - Placeways, Inc.
 - GIS-based platform
 - Proprietary
 - Based on:
 - Time
 - Available resources
 - Goals



Scenario Development

- Preliminary Scenarios
 - Internal Brainstorm
 - Six Initial Scenarios
 - Ways the region *could* develop
- Scenarios Analysis
 - Scenario 1 and Scenario 2
 - Scenario 3 as needed
 - Determined by ACOG's governing bodies
- Discussions with member communities
 - Planning, Technical, and Policy Committees

1

Continue similar development patterns of the past with no new zoning initiatives

2

Encourage infill, nodal, and downtown development in each community to support future regional transit

3

As determined by Intermodal Transportation Policy Committee

Data Collection

Controls

- Population (current and future)
- Employment (current and future)
- Traffic Analysis Zones (TAZs)
- Study Area Boundary

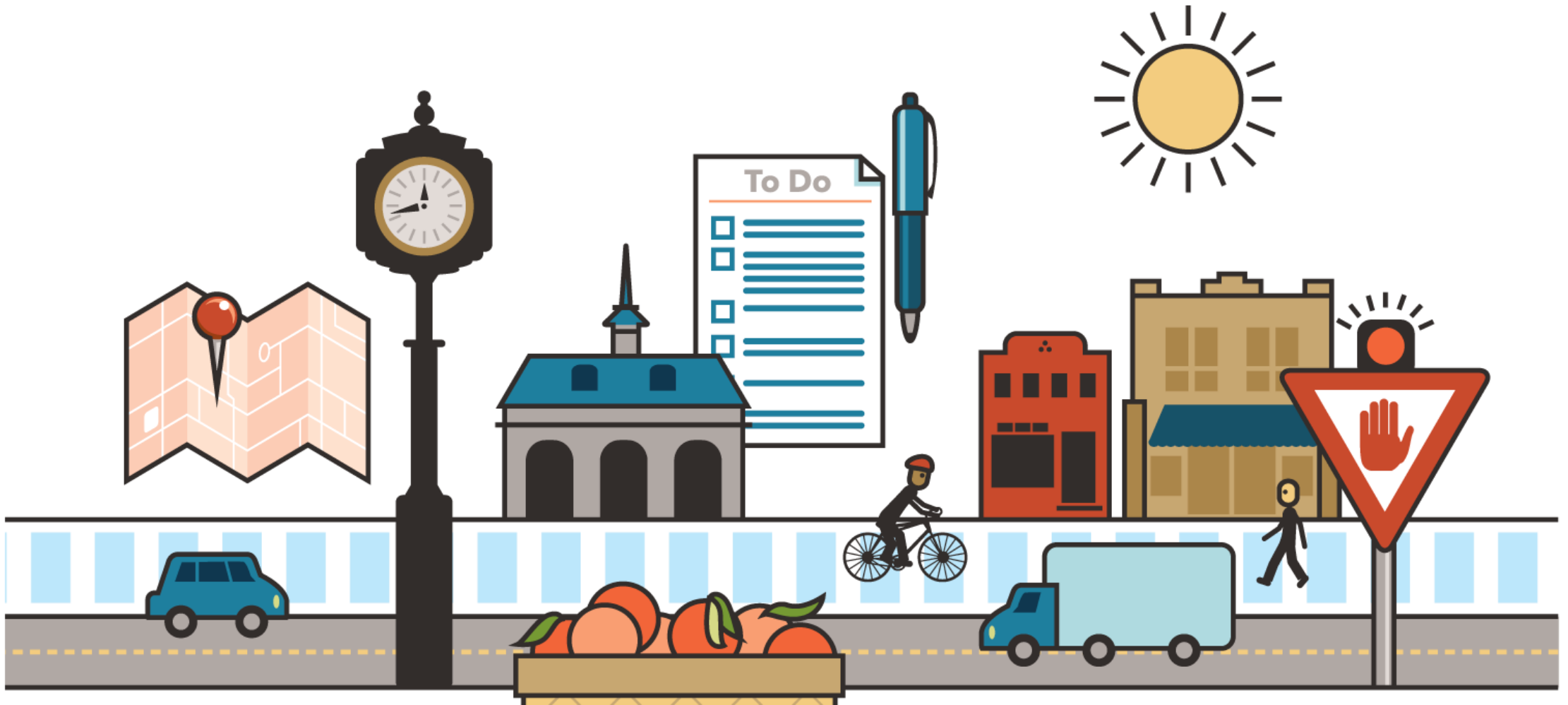
Analysis

- Land Use/Parcels
- Densities/Intensities
- Building Permits
- Sewer Service Area Boundary
- Environmental
- Schools
- Census Data:
 - Income, Population Density, Occupied Housing Units, etc.
- Transit (future)
- Street Network

Evaluation

- Transit Stops
- Bicycle Routes
- Intersections
- Network Dataset
- Sidewalks
- City Center
- Parks
- Points of Interest
- Amenities

Scenario Execution



Scenario 1: Historical Trend

Continue similar development patterns of the past with no new zoning initiatives

Scenario 2: Nodal Growth

Encourage infill, nodal, and downtown development in each community to support future regional transit

Factors

- **Constraints:** where development cannot occur
- **Attractiveness:** where development will occur first
- **Housing:** type, density, and location of housing
- **Employment:** type, density, and location of employment
- **Transportation:** modes available; new infrastructure or service
- **Environment:** impacts of development pattern on air quality, open space, etc.



Note: Factors can be the same for multiple scenarios, but may impact the region differently based on spatial distribution

Attractiveness

Component	Scenario 1	Scenario 2
Schools	✓✓✓	✓
Current Trends	✓✓✓	✓
Downtowns	✓	✓✓✓
Population Density	✓✓✓	✓
Income	✓✓✓	✓
Redevelopment Areas	✓	✓✓✓
Transit Oriented Developments (TODs)	-	✓✓✓
Utilizes Existing Service Area Boundary	✓	✓✓✓

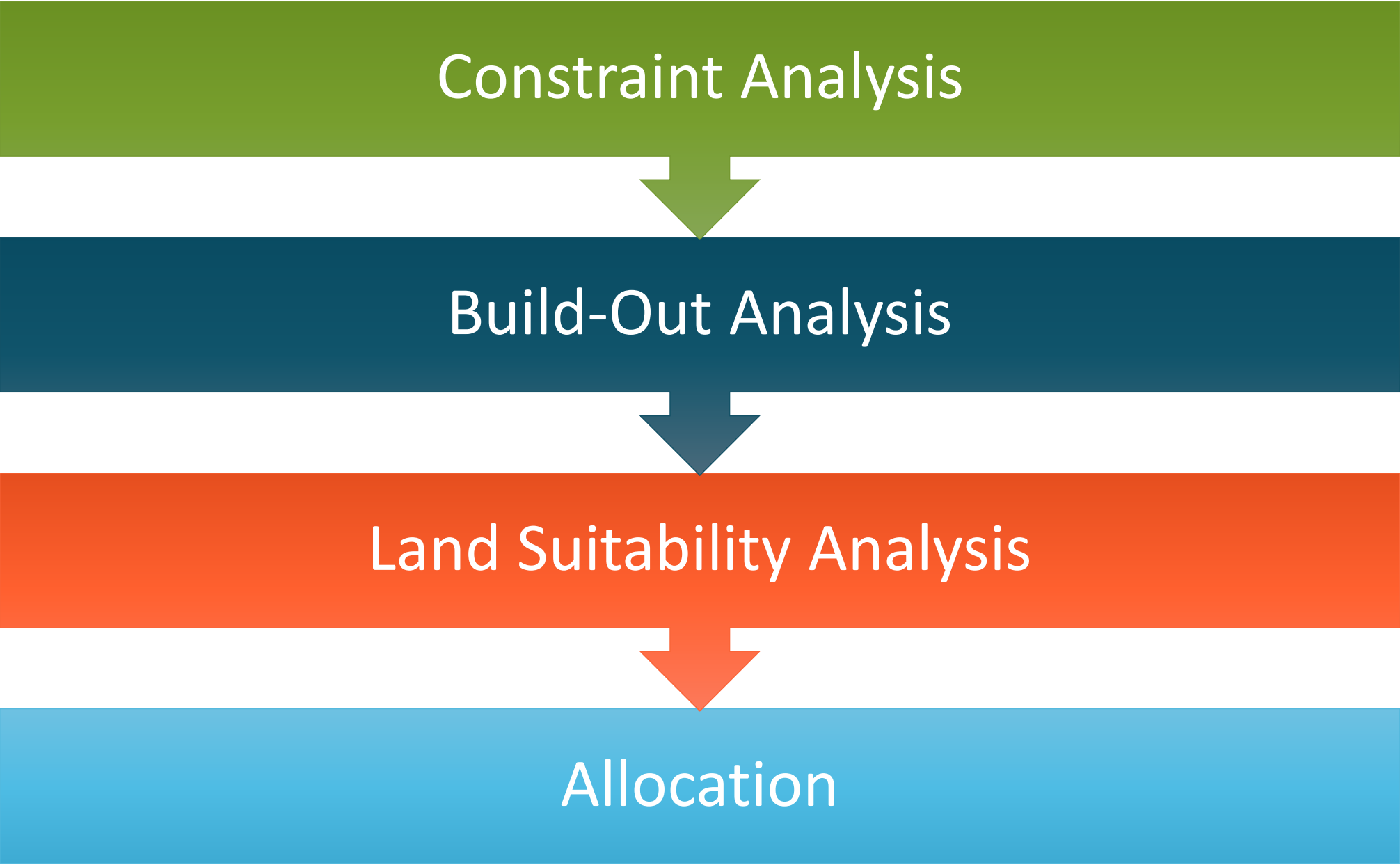


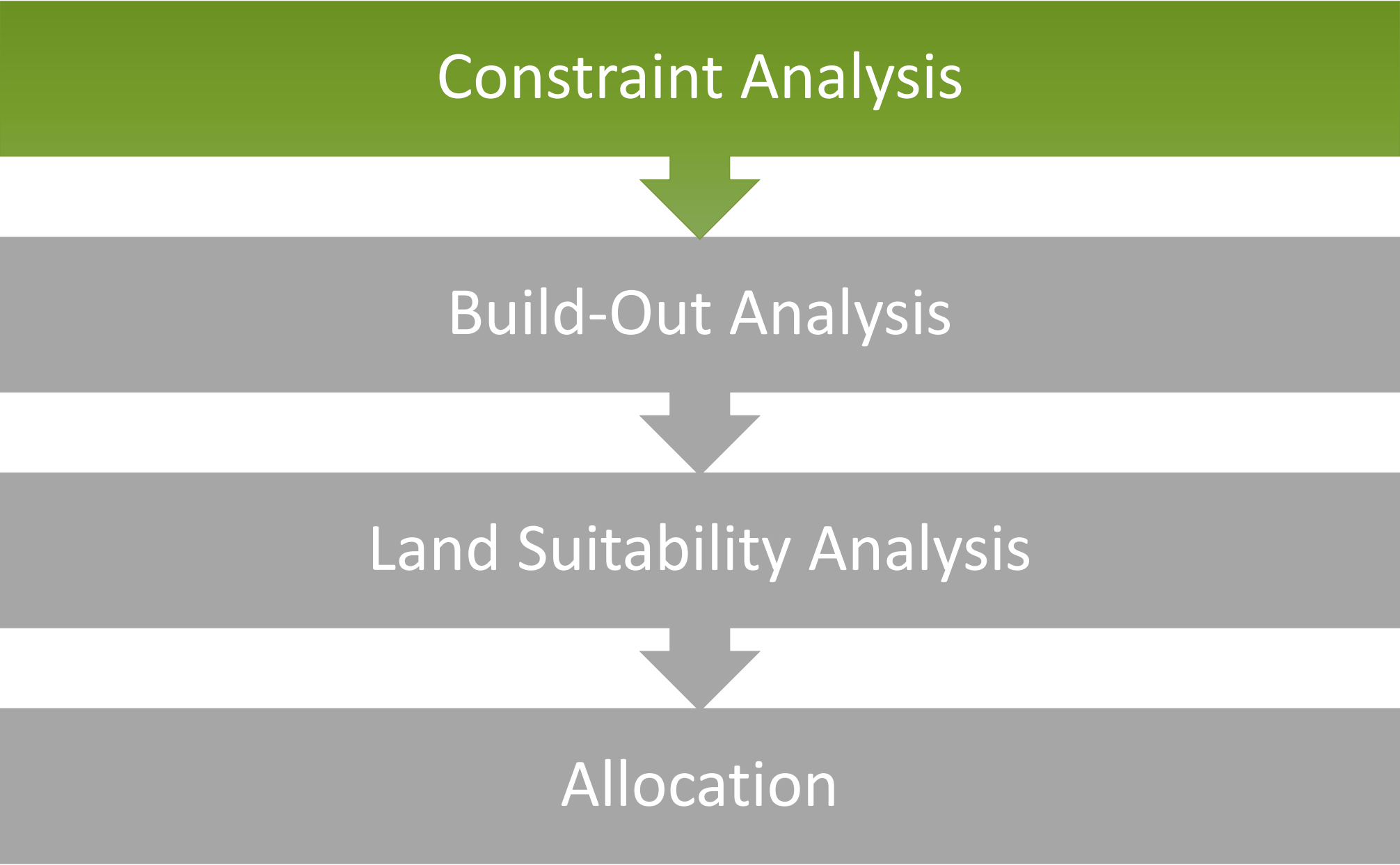
Scenario 1: Historical Trend

- **Constraints:** Parks, floodways, ROWs, wetlands, etc.
- **Attractions:** Trend, schools, income
- **Housing:** Lower density residential developments, around periphery
- **Employment:** Separated from housing, along transportation corridors
- **Transportation:** Auto-dependent

Scenario 2: Nodal Growth

- **Constraints:** Addition of prime farmland (reduced growth areas)
- **Attractions:** Downtowns, service areas, TODs
- **Housing:** Mixed-use, infill, higher density developments
- **Employment:** Downtowns, TODs, mixed-use
- **Transportation:** More transportation options (including regional transit)

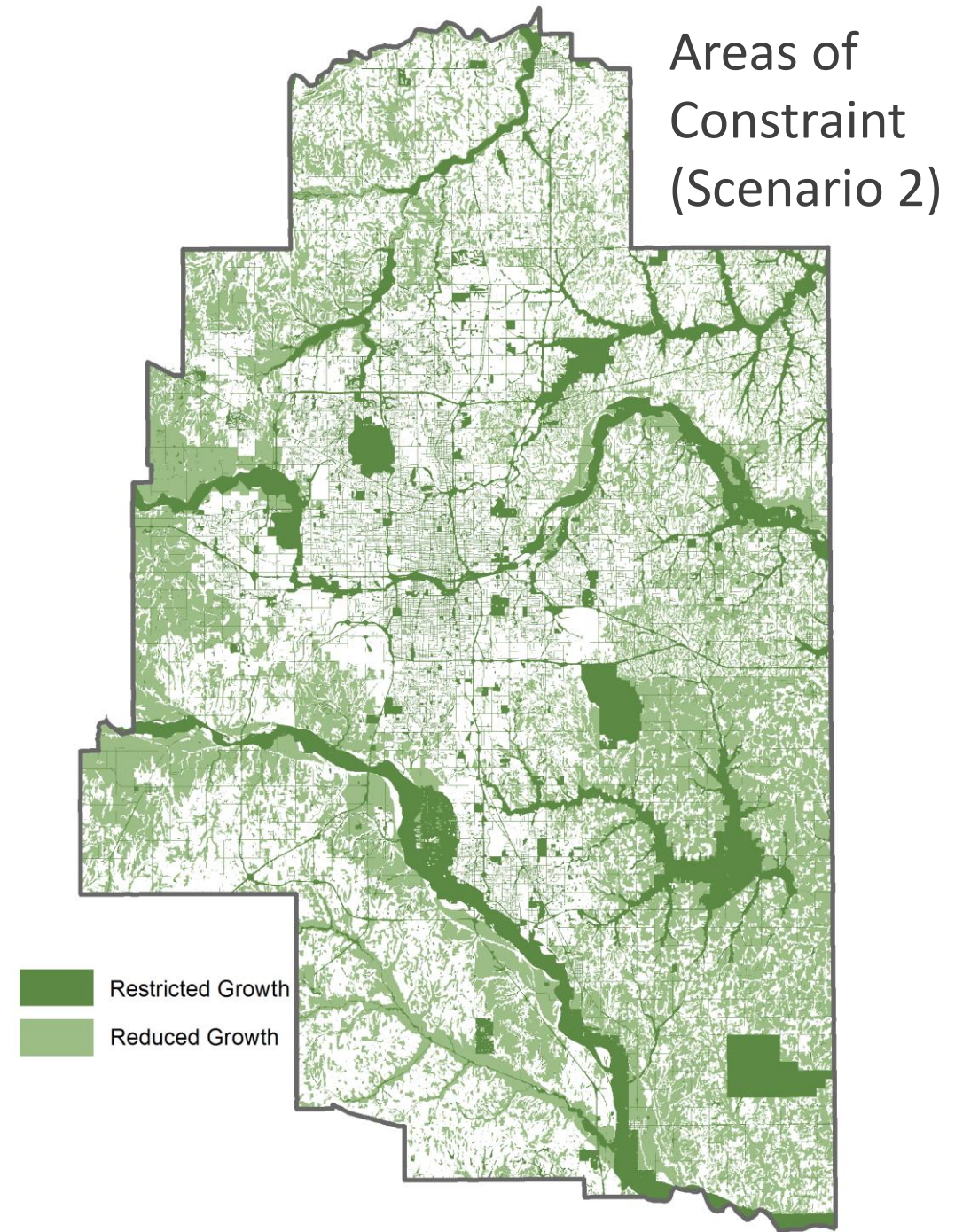
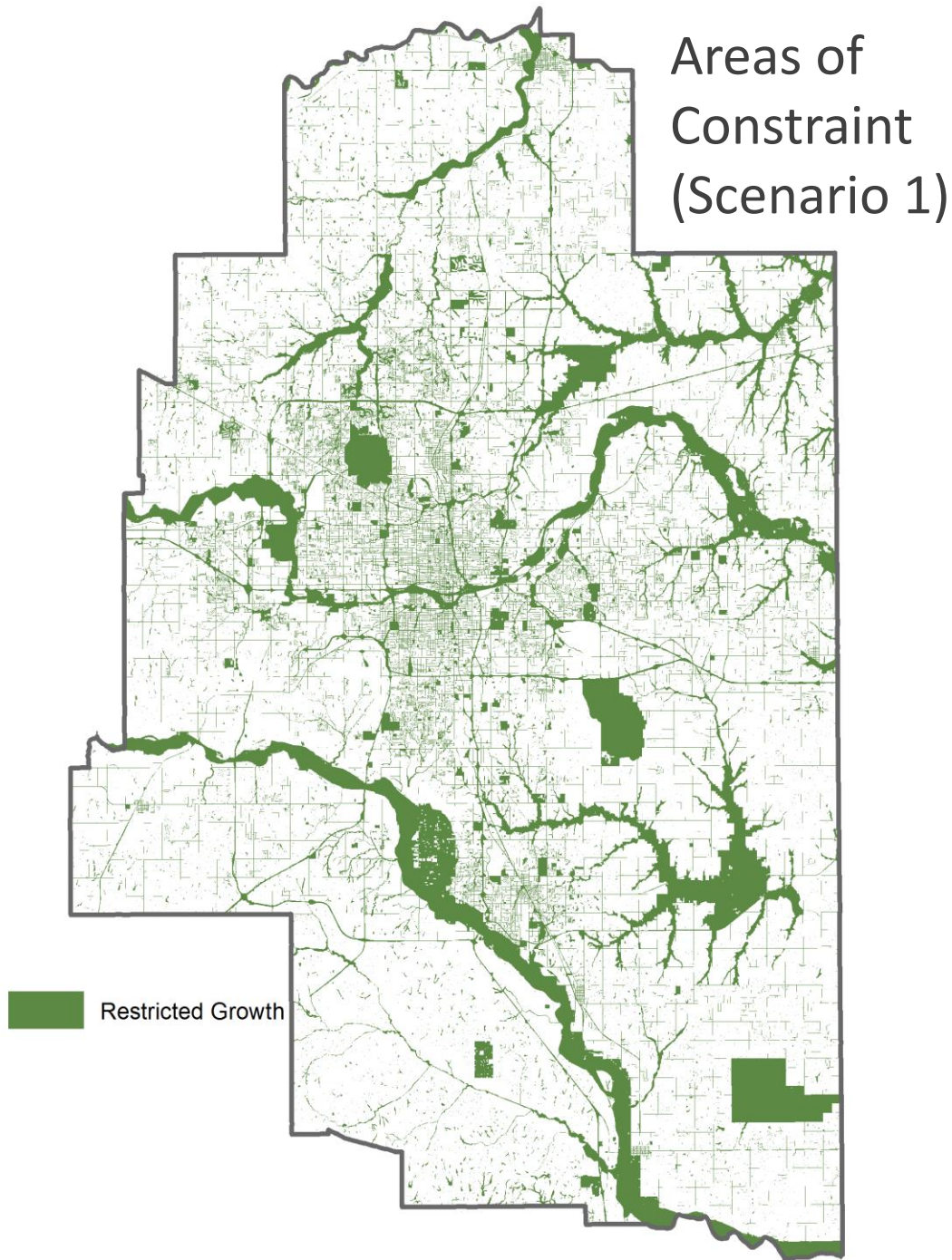


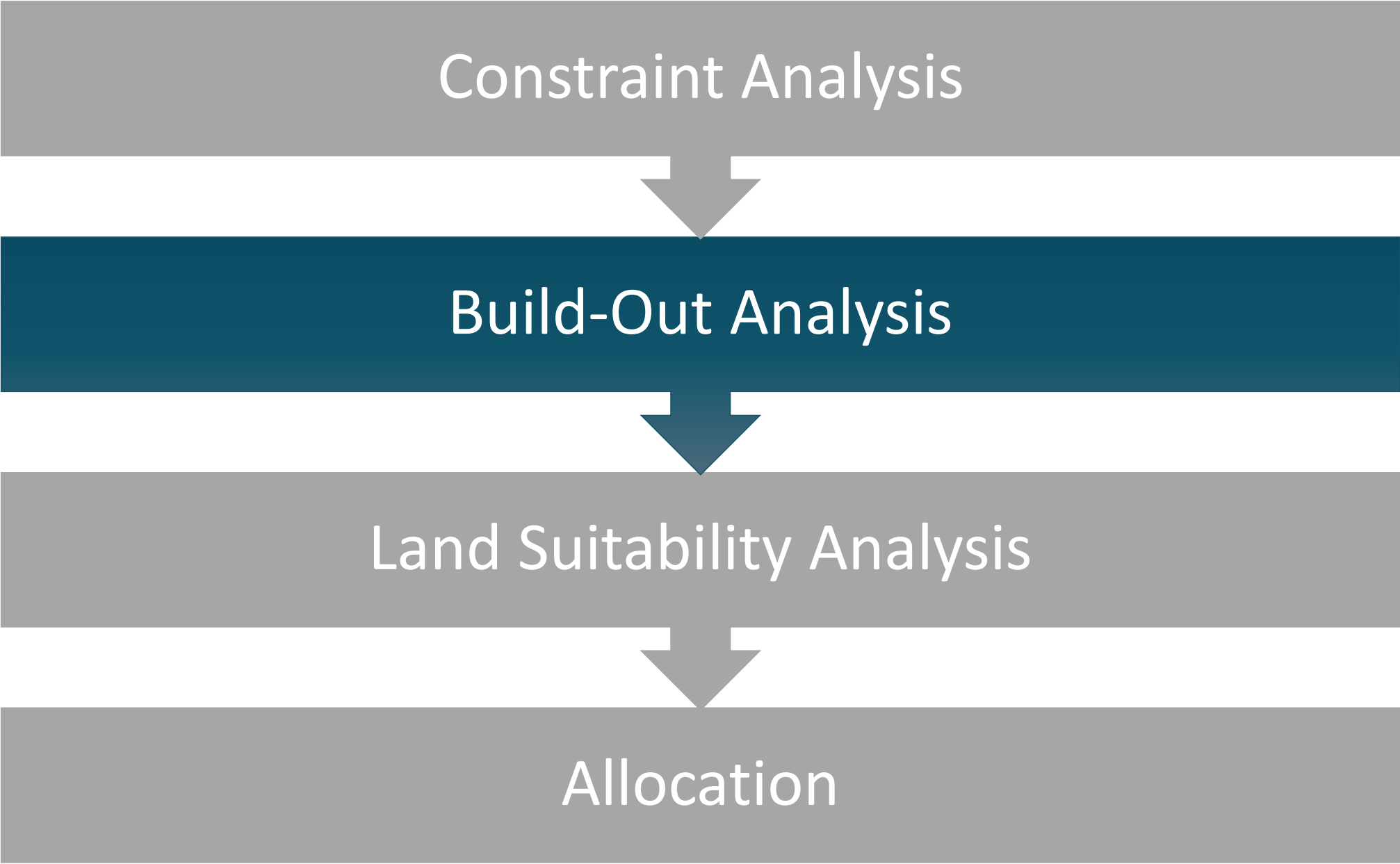


Constraint Analysis

- Determines land not available for development
 - Housing and employment
 - Used in Build-Out Analysis
- Areas of Constraint
 - Restricted Growth Areas:
 - Rights-of-way, protected areas, parks, water bodies, floodways, open space, wetlands
 - Reduced Growth Areas:
 - Prime farmland (Scenario 2 only)
 - Based on Planning Committee feedback







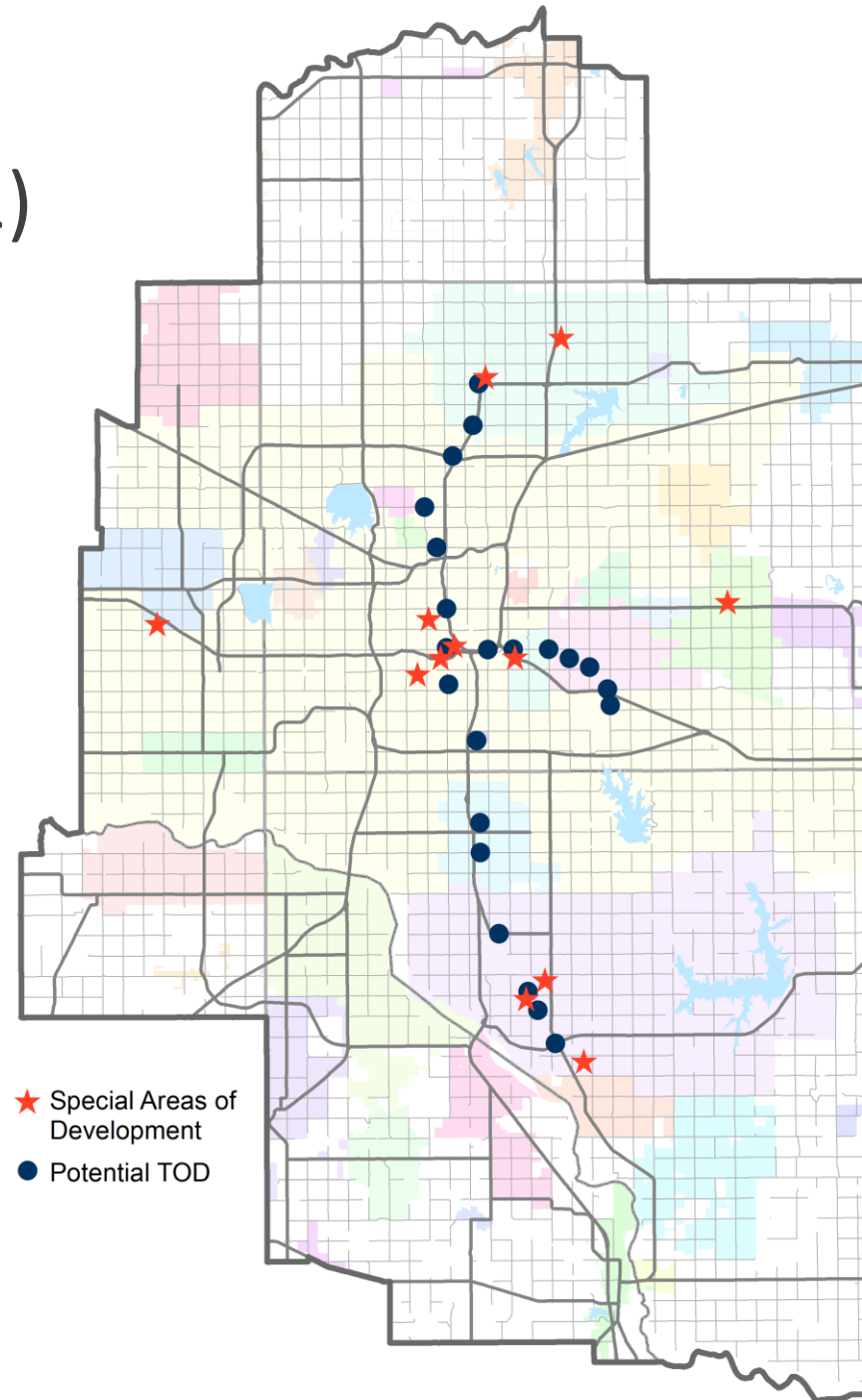
Build-Out Analysis

- Determines development capacity
 - Acreage and density
 - Housing and employment
 - TODs and Special Districts
- Potential Areas of Development
 - Based on:
 - Available land (not currently developed)
 - Not constrained (Constraint Analysis)

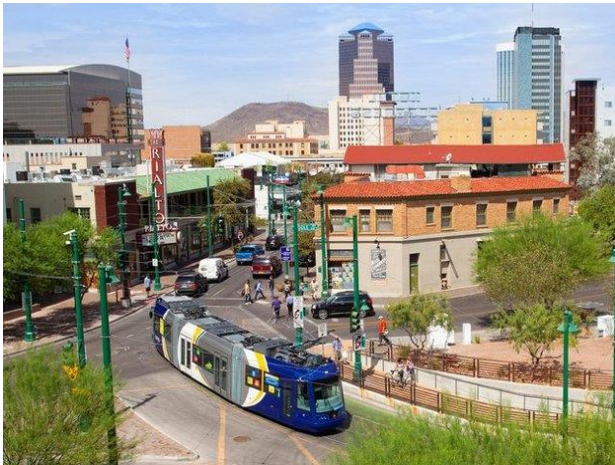


Special Areas of Development (Scenario 2)

- Key Development Areas
 - Downtowns
 - Town Centers
 - Redevelopment Areas
 - Special Districts
- Transit-Oriented Developments
 - Commuter Corridor Study (CCS)
 - Santa Fe Station
 - Bus Rapid Transit (BRT)
 - Streetcar
 - Additional regional transit improvements



Examples of Transit Oriented Development

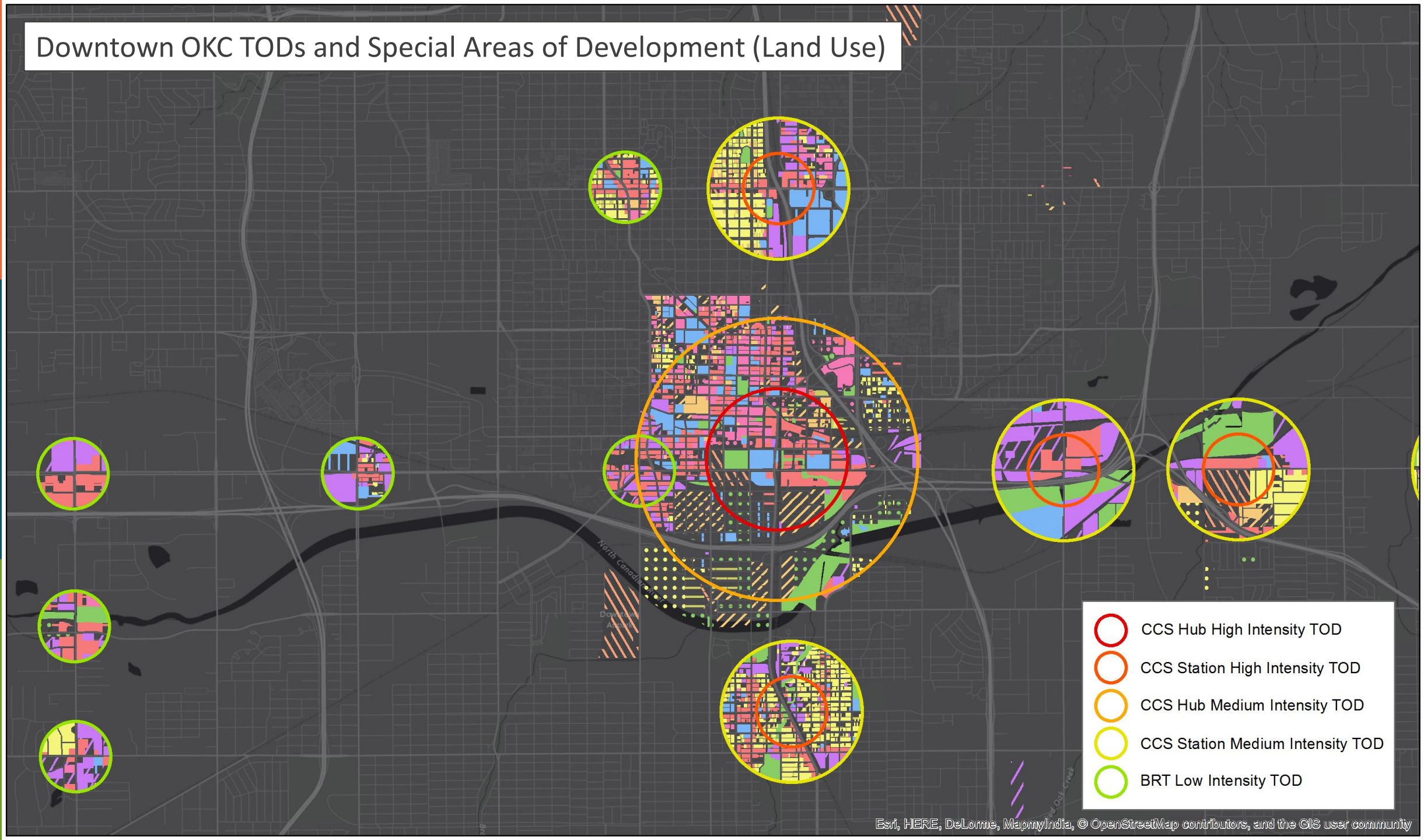


Examples of Downtown Development

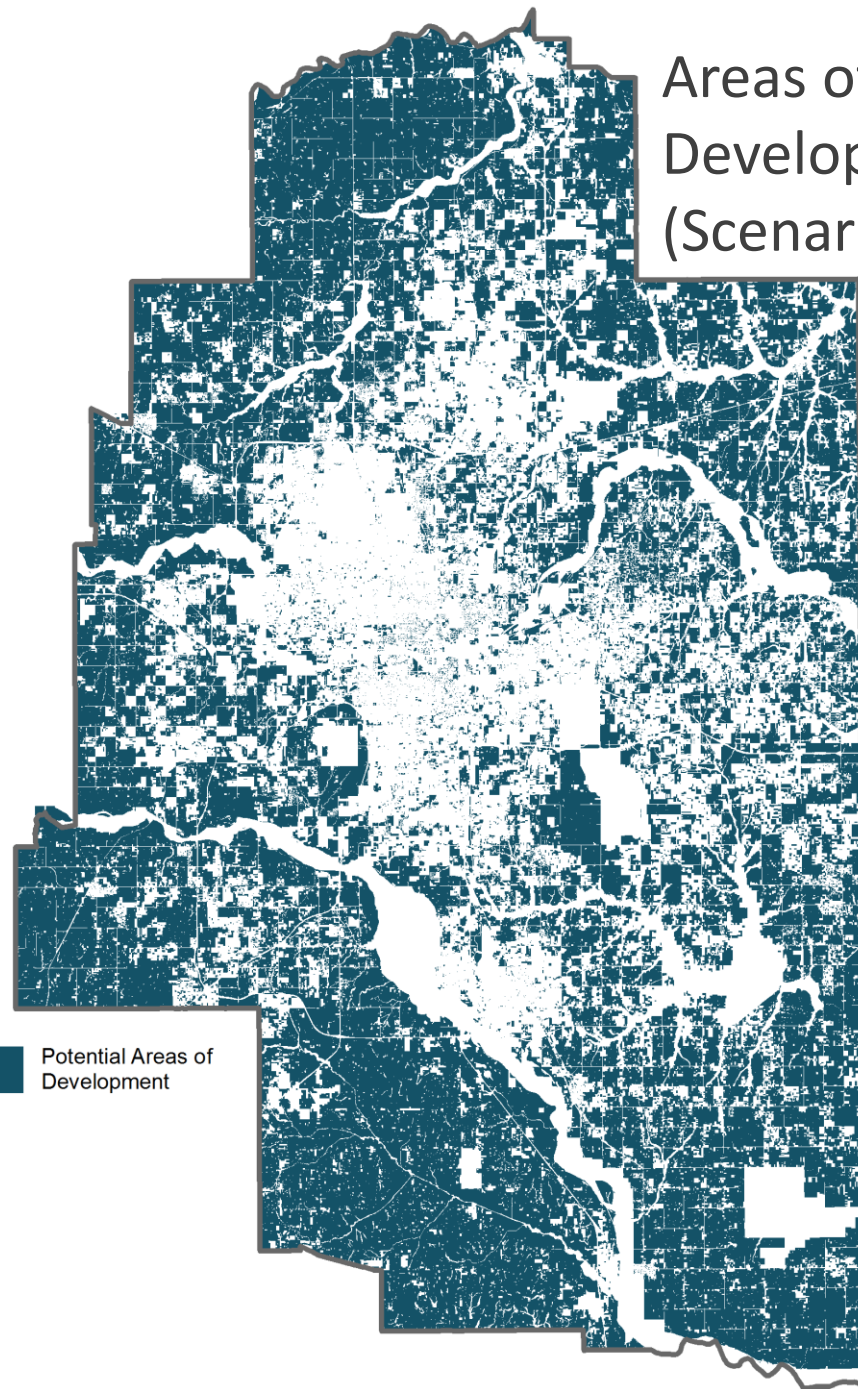


Source: City Center Form-Based Code (Norman, OK)

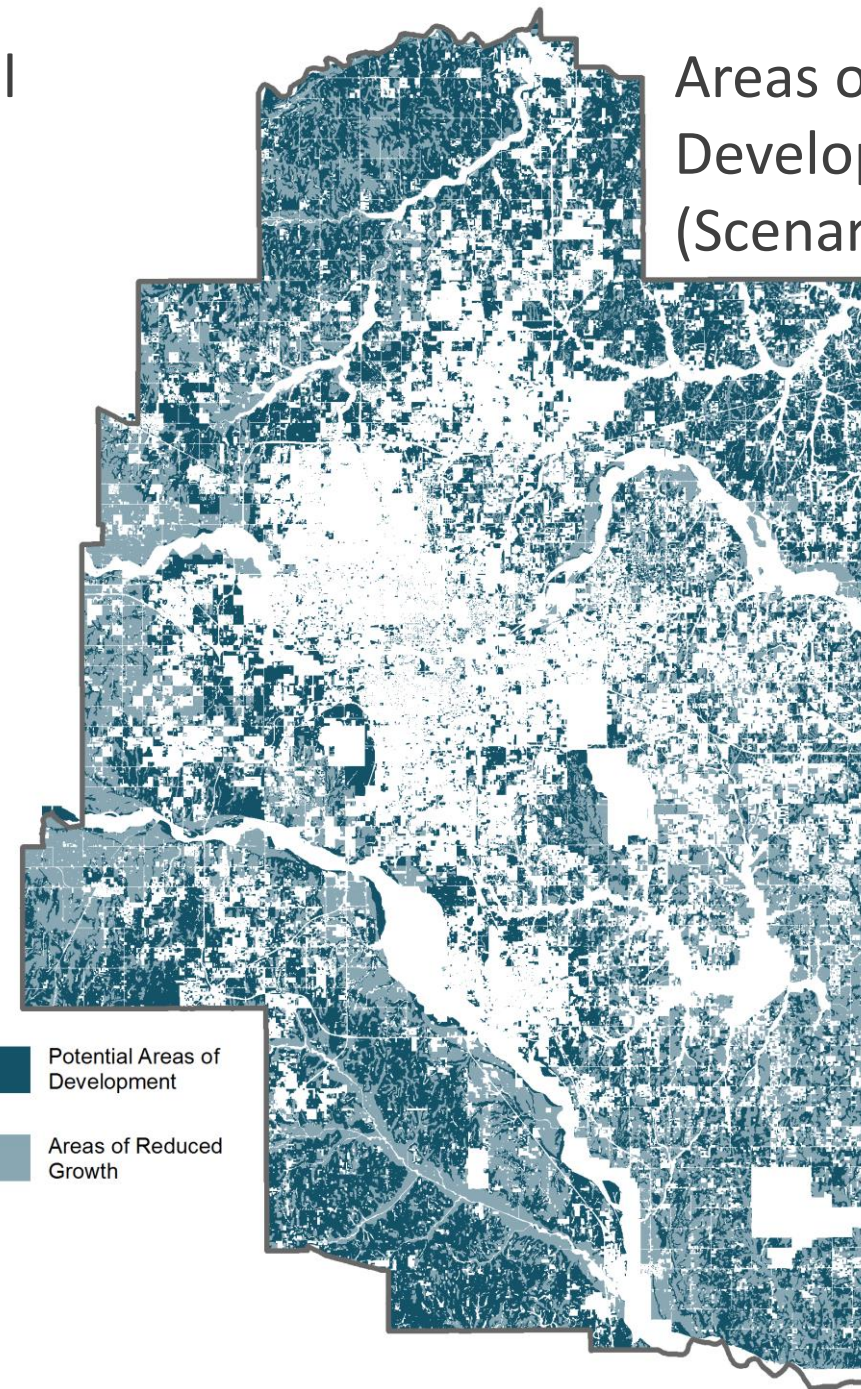
Downtown OKC TODs and Special Areas of Development (Land Use)



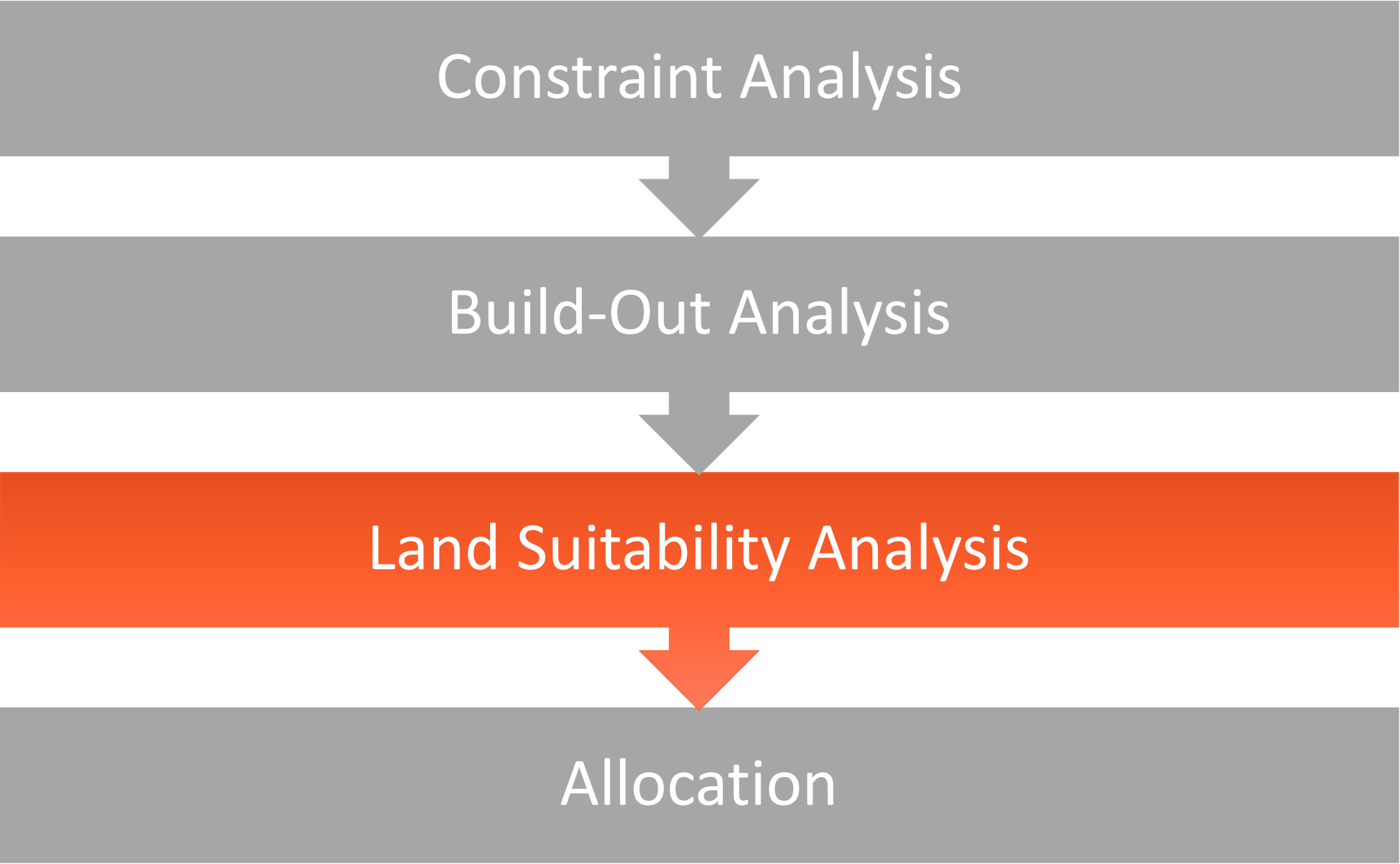
- CCS Hub High Intensity TOD
- CCS Station High Intensity TOD
- CCS Hub Medium Intensity TOD
- CCS Station Medium Intensity TOD
- BRT Low Intensity TOD



Areas of Potential Development (Scenario 1)



Areas of Potential Development (Scenario 2)



Land Suitability Analysis

- Determines attractiveness
 - Areas most desirable for development
- Residential Attractiveness
 - Based on:
 - Current development trend (2010-2013 building permit data), Schools, Income, Density
 - Downtowns, Special Districts, and TODs, Service area boundary (Scenario 2)
- Employment Attractiveness
 - Based on:
 - Acreage, Demographics, and Proximity

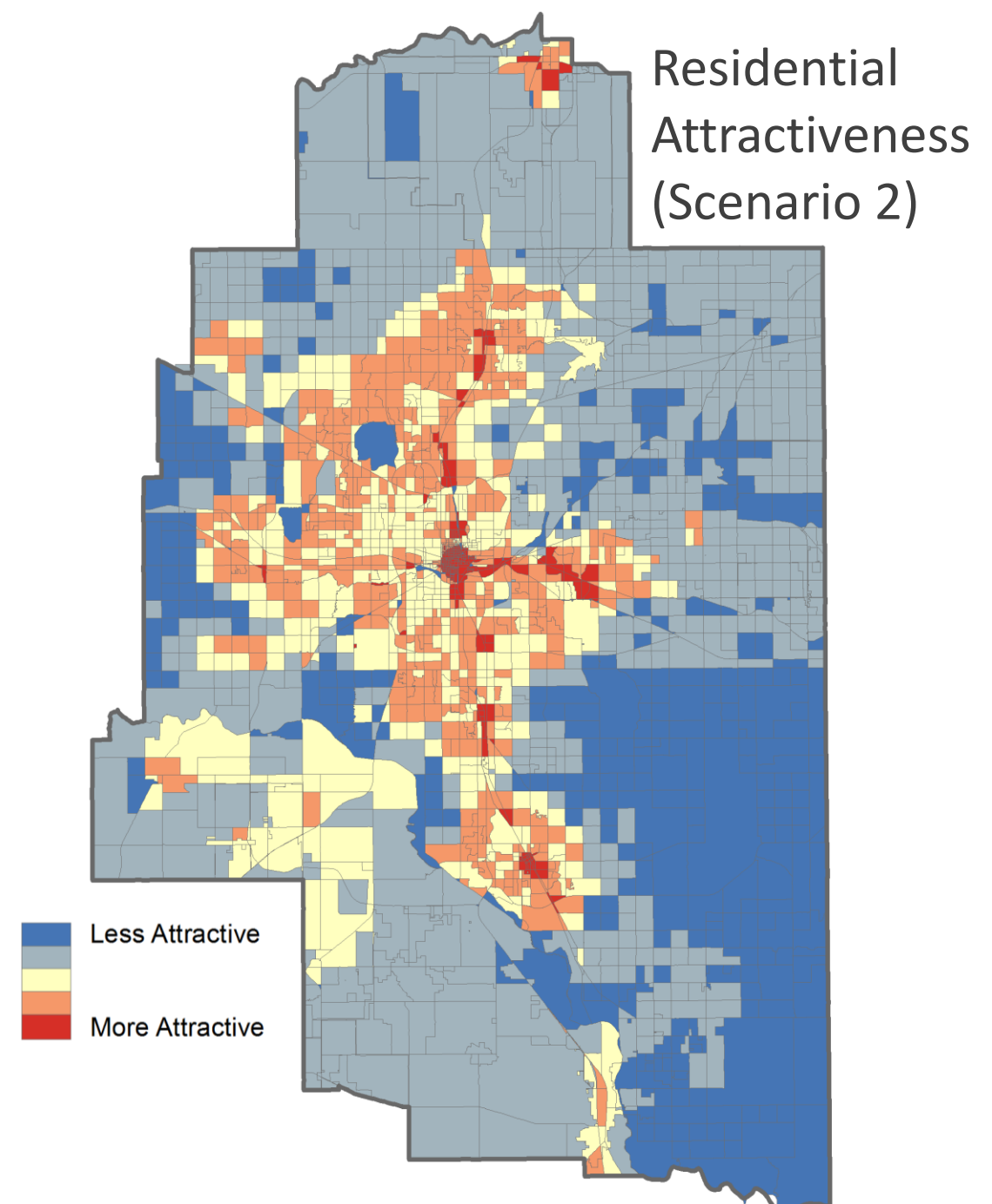
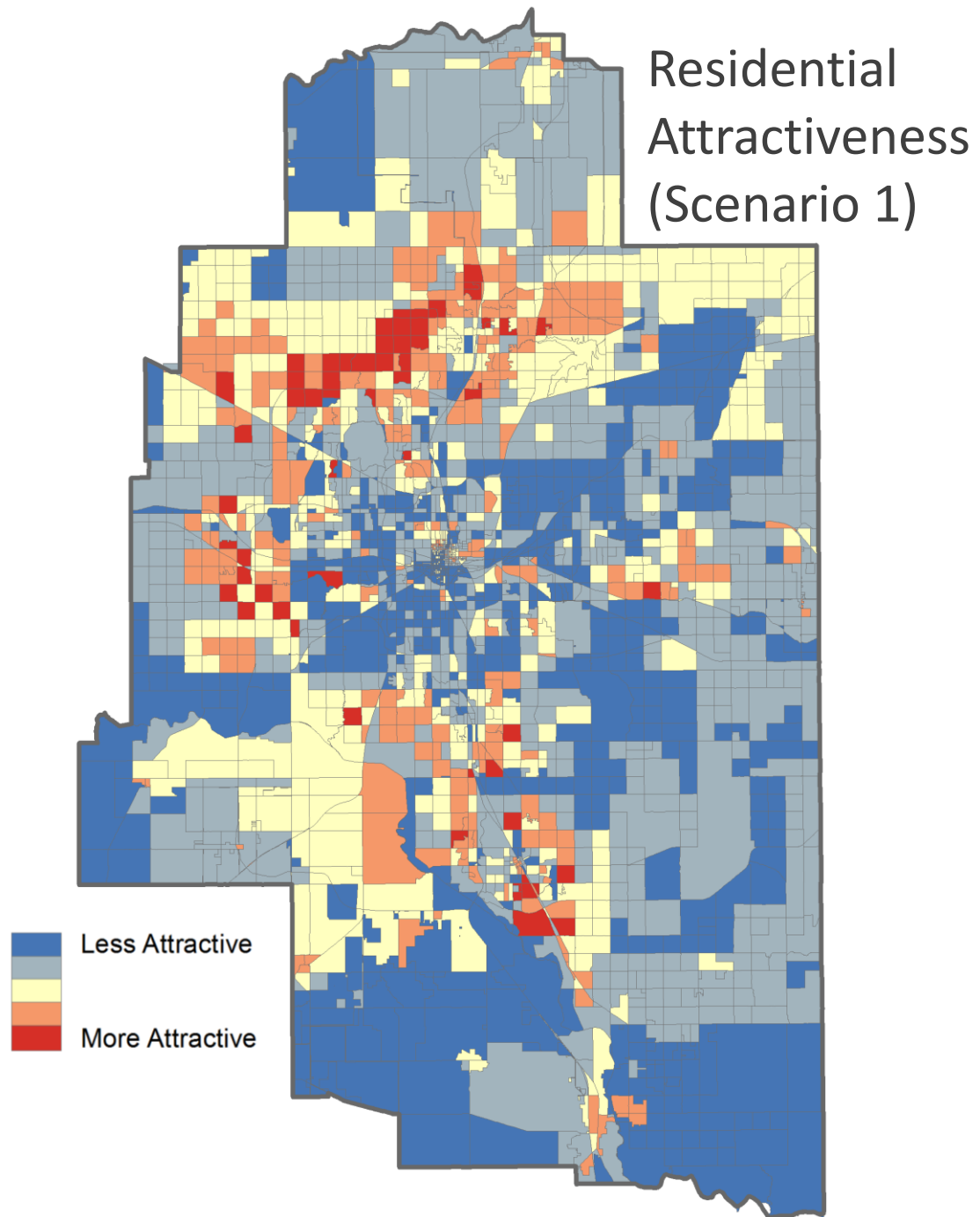


Land Suitability Analysis: Residential Attractiveness

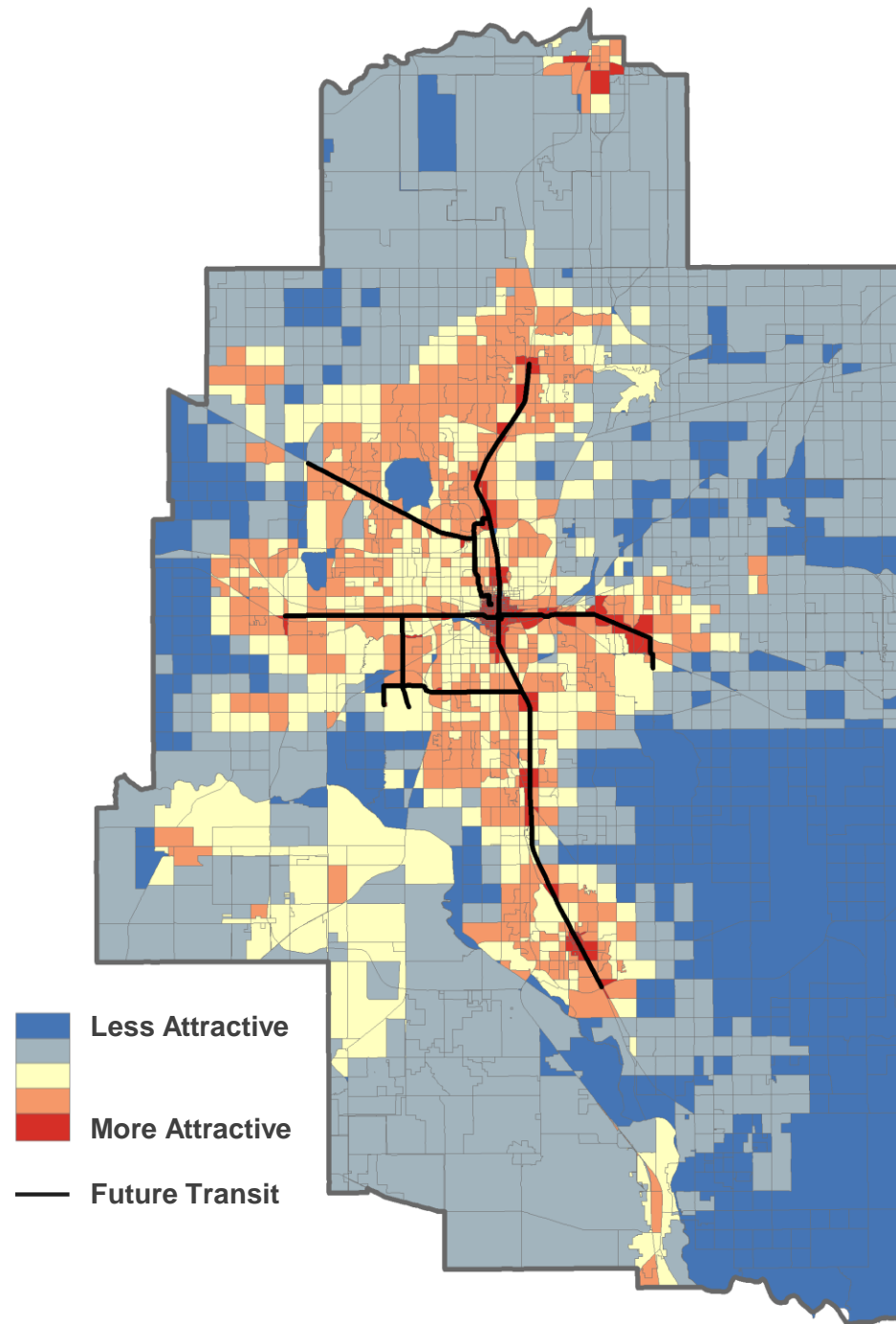
Component	Scenario 1	Scenario 2
Schools	✓✓✓	✓
Current Trends	✓✓✓	✓
Downtowns	✓	✓✓✓
Population Density	✓✓✓	✓
Income	✓✓✓	✓
Redevelopment Areas	✓	✓✓✓
Transit Oriented Developments (TODs)	-	✓✓✓
Utilizes Existing Service Area Boundary	✓	✓✓✓

Land Suitability Analysis: Employment Attractiveness (Scenario 1)

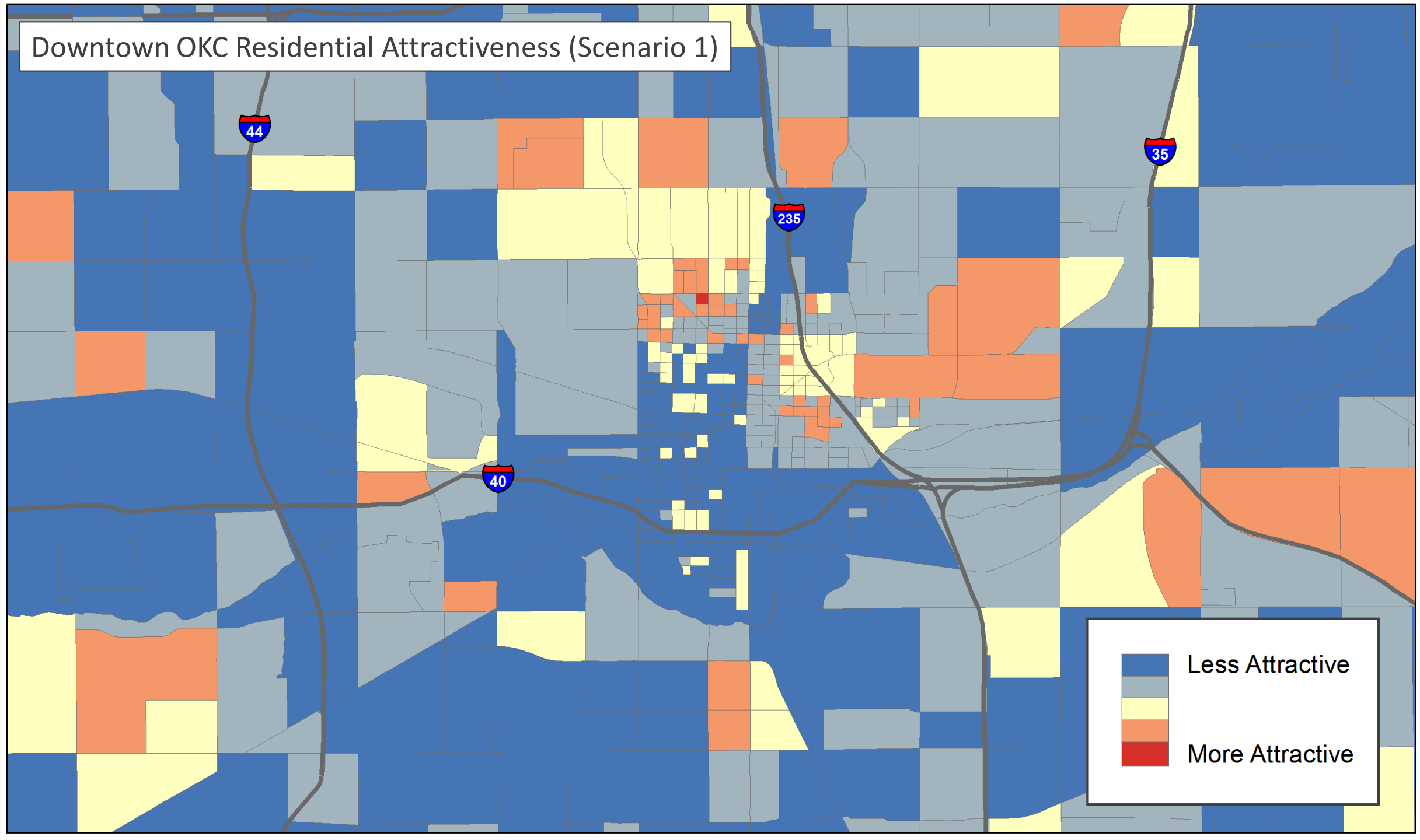
Component	Commercial	Office	Industrial	Public
Highway proximity (or network proximity)	✓		✓✓✓	
Proximity to like land use	✓	✓	✓	✓
Proximity to complementary land uses				✓
Downtown	✓✓	✓✓✓		✓✓
Airport proximity			✓	
Acreage available			✓	
Existing service area boundary	✓✓✓	✓✓✓	✓✓	✓✓✓
Employment density (total and/or by land use)	✓	✓	✓	✓
Population density (2010)	✓			
Future population (based on 2040 allocation)	✓✓✓			✓✓
Occupied housing units	✓			
Transit Oriented Developments	✓✓✓	✓✓✓		✓✓✓



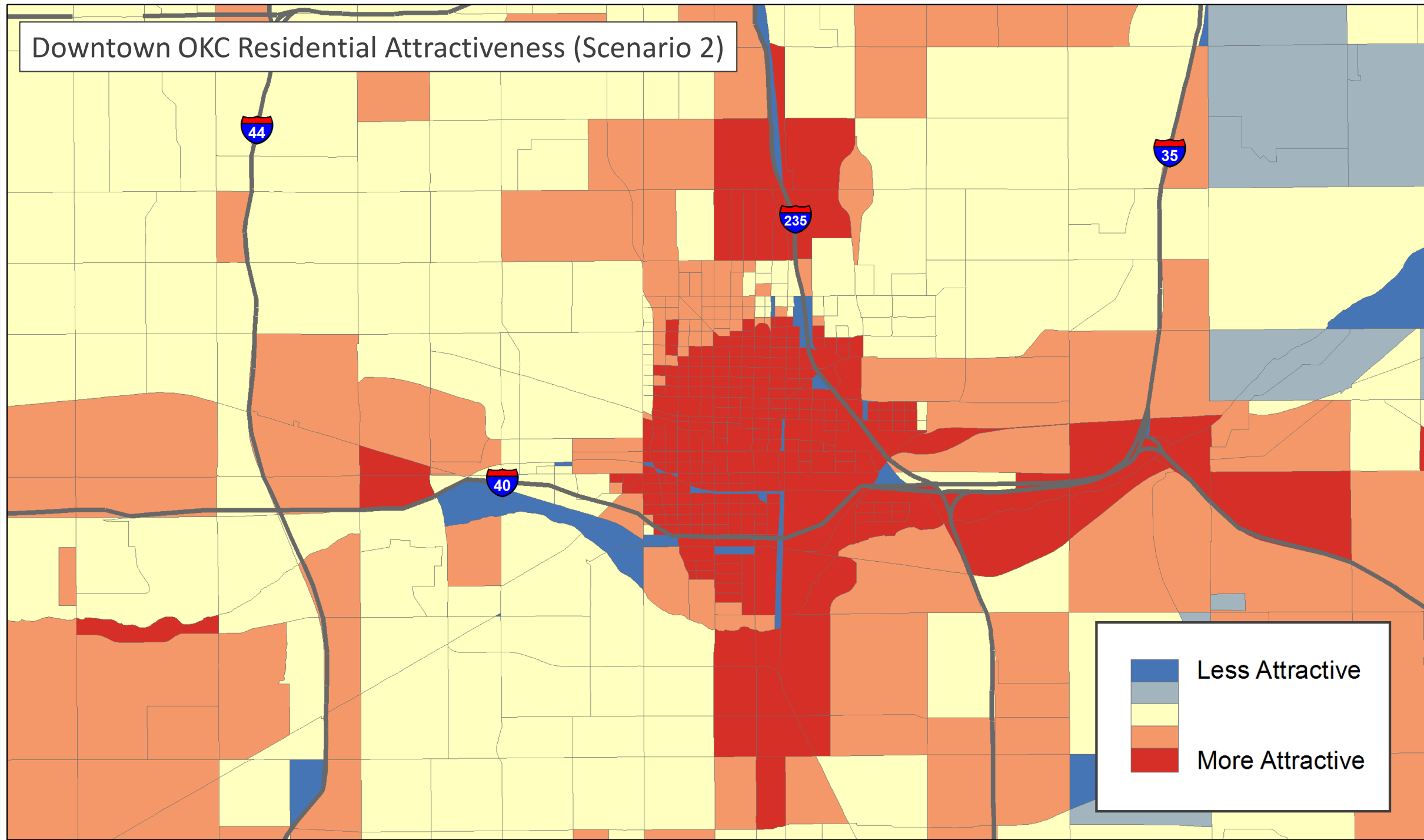
Residential Attractiveness (Scenario 2)

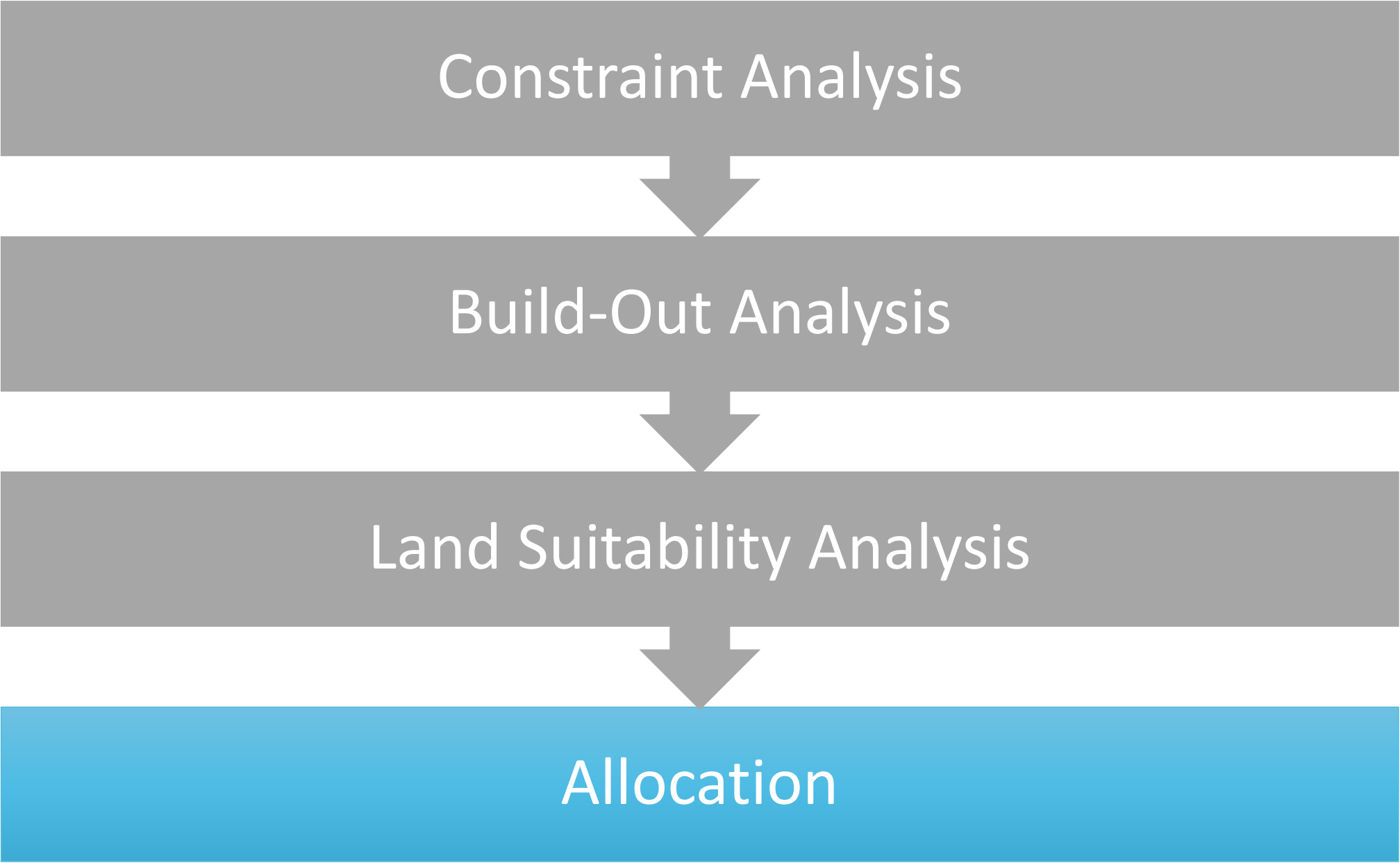


Downtown OKC Residential Attractiveness (Scenario 1)



Downtown OKC Residential Attractiveness (Scenario 2)

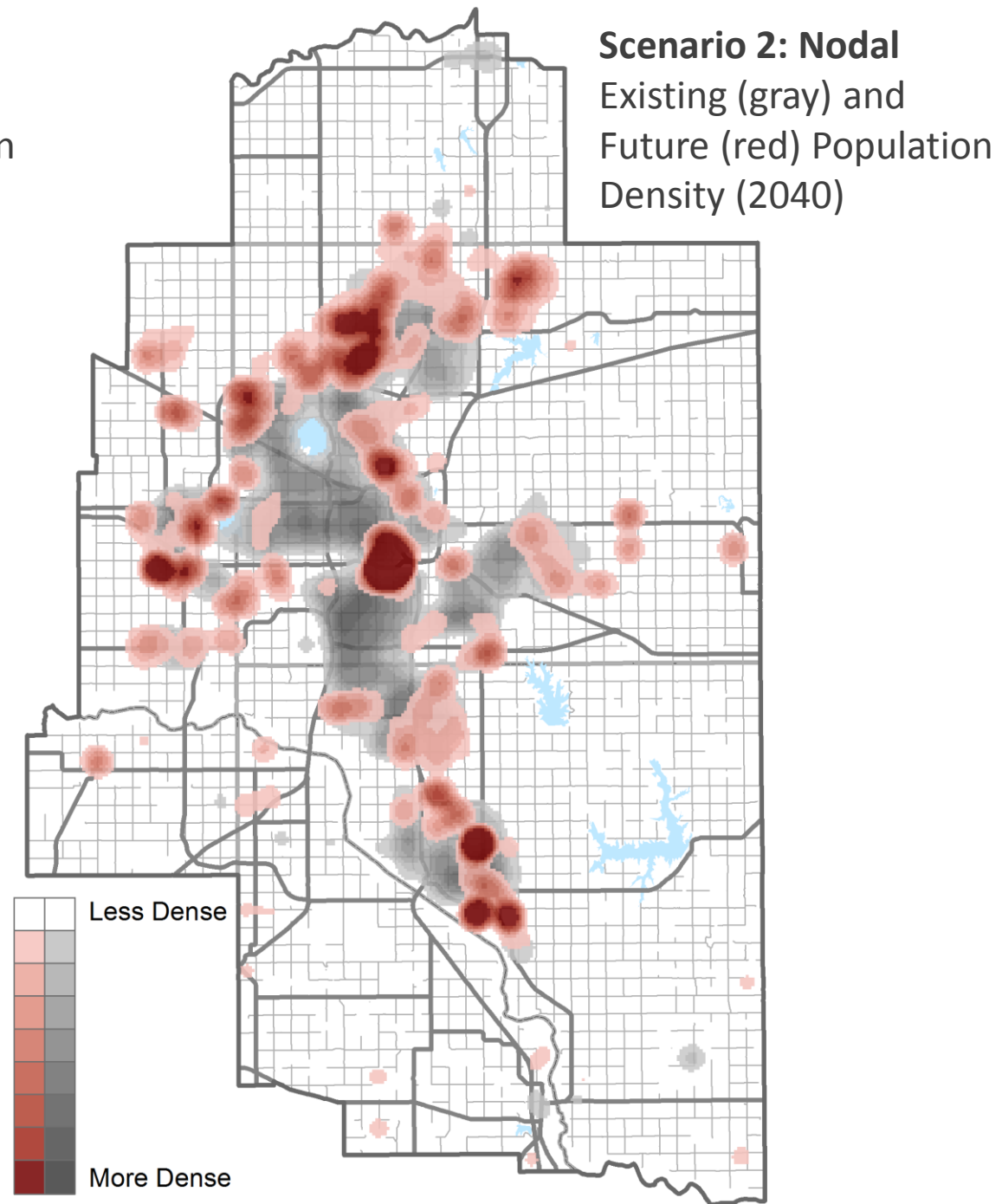
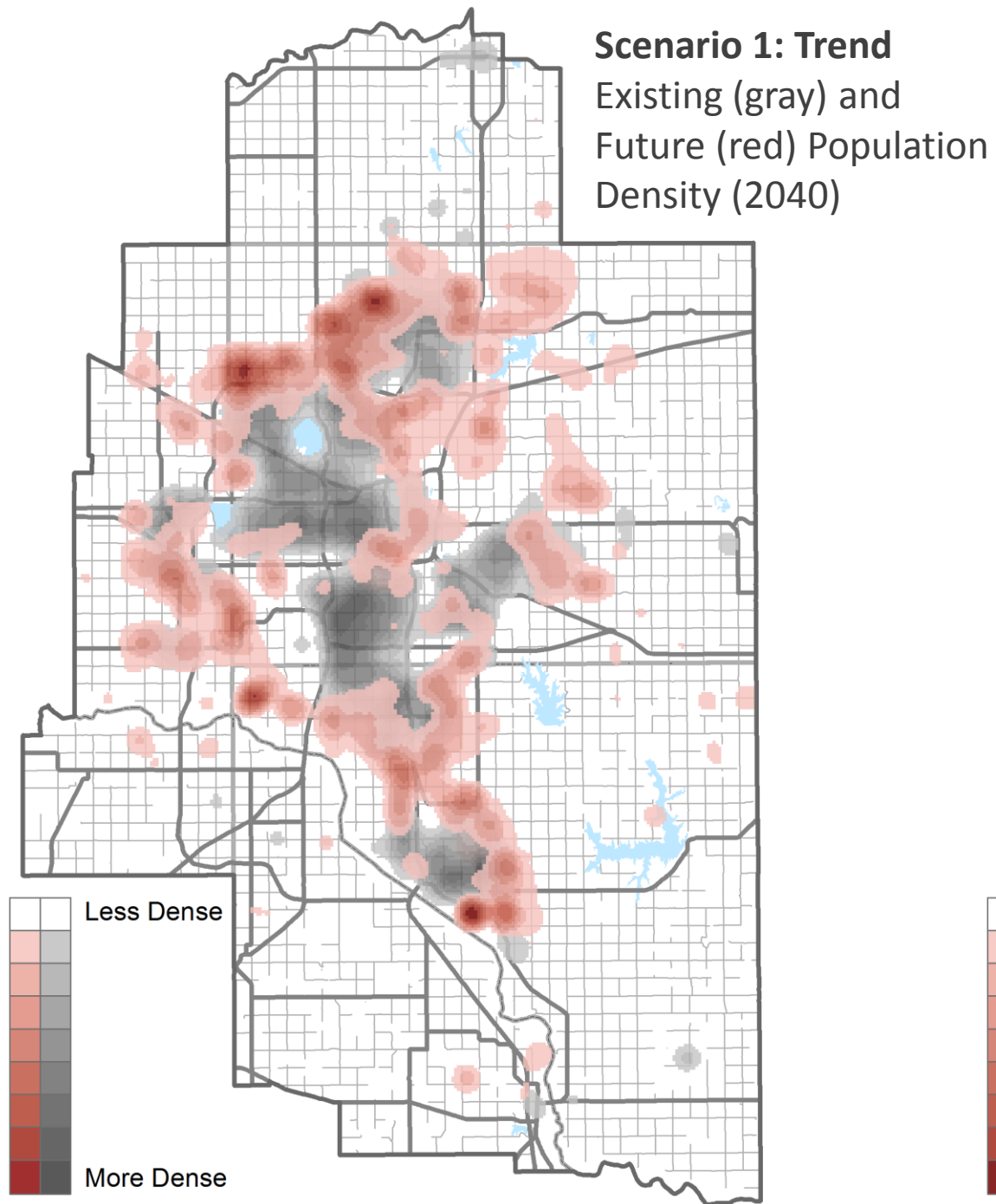




Residential Growth Allocation

- Future development capacity
 - Constrained land
 - Development characteristics
- Land Suitability Analysis attraction scores
- Population control totals
 - OCARTS, county, city

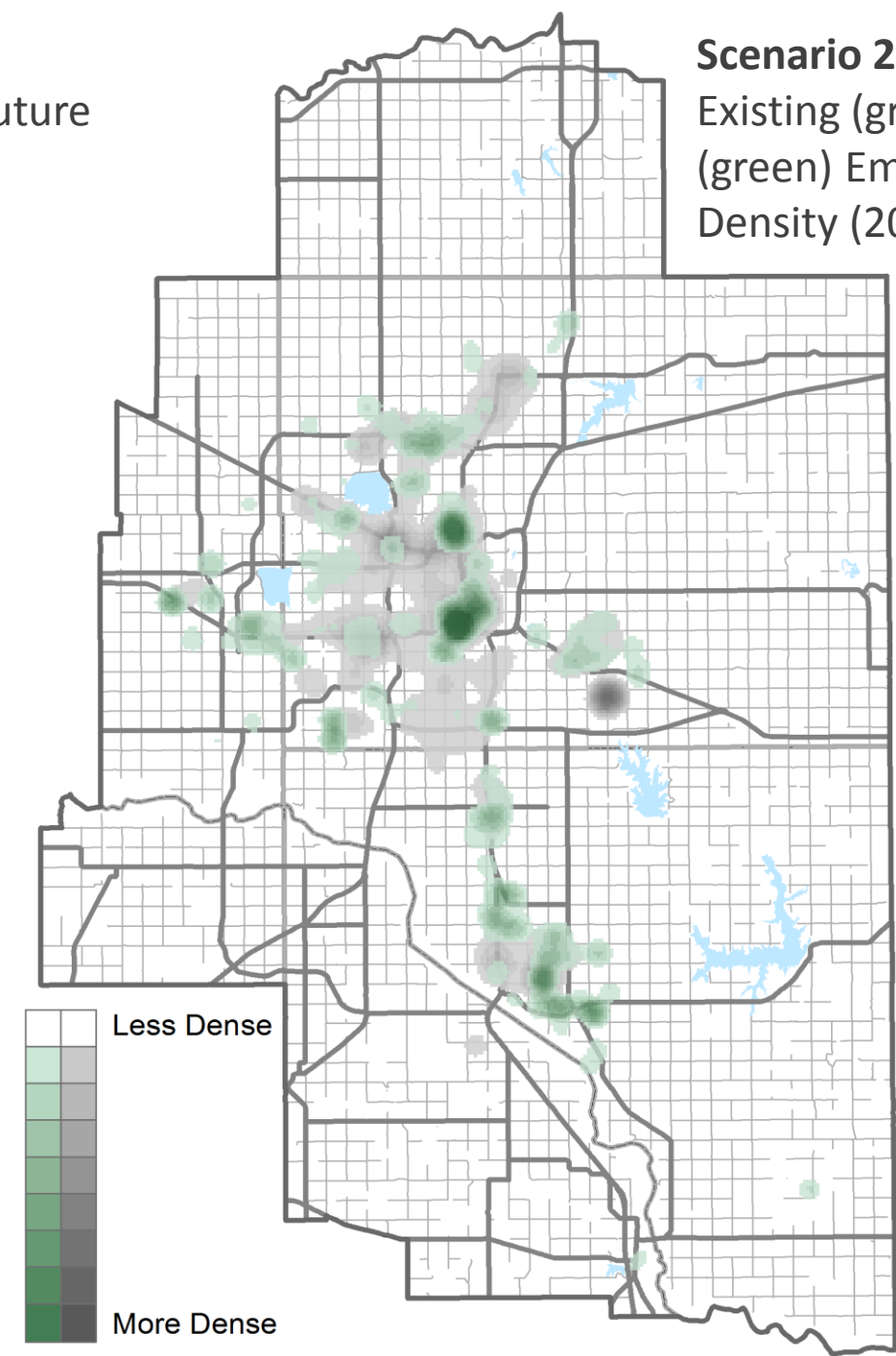
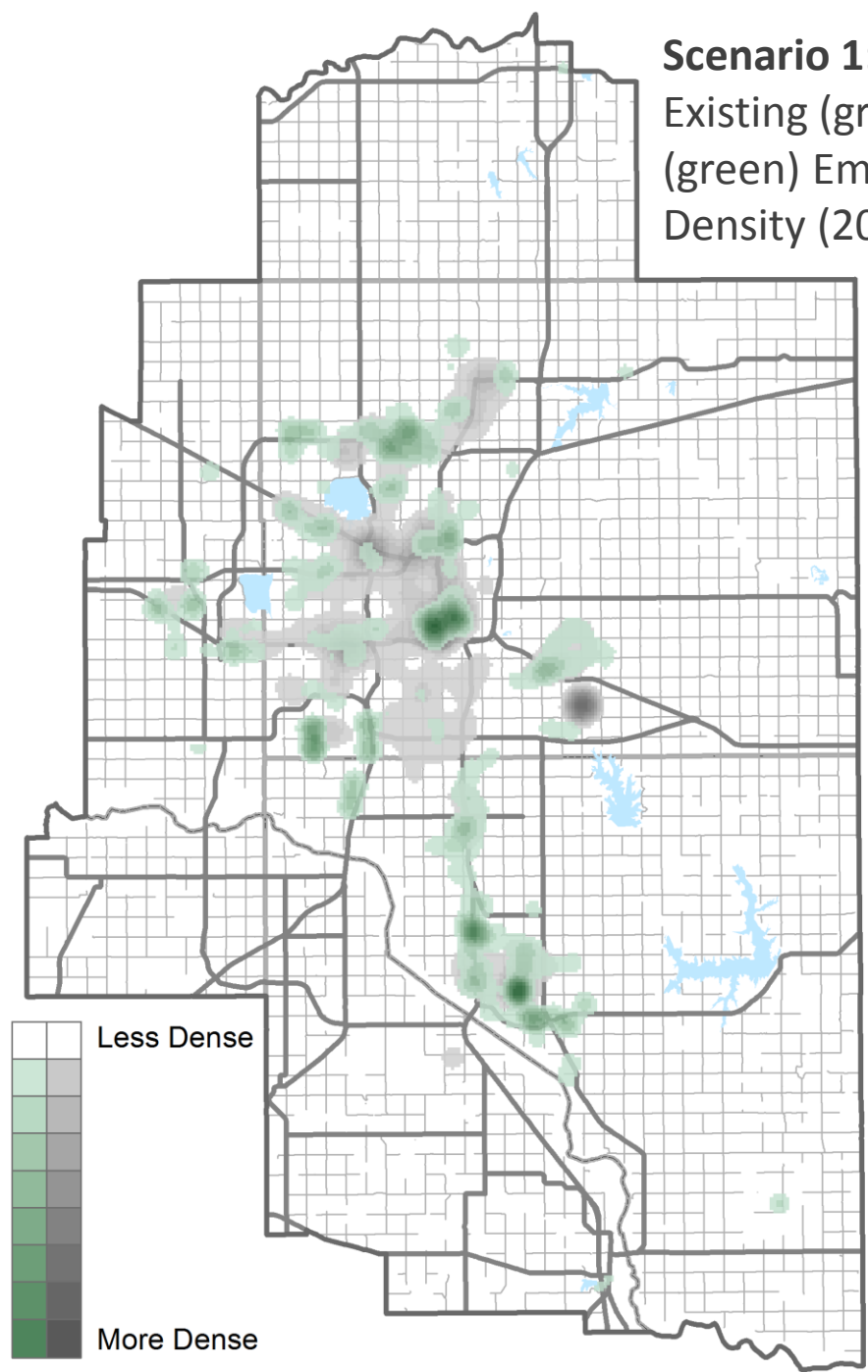




Employment Growth Allocation

- Future development capacity
 - Constrained and Developable Areas
 - Same as residential growth
 - Development characteristics
- Land Suitability Analysis attraction scores
 - Different for each employment land use type (Commercial, Office, Industrial, Public)
- Employment control totals
 - OCARTS, county, city, COIP



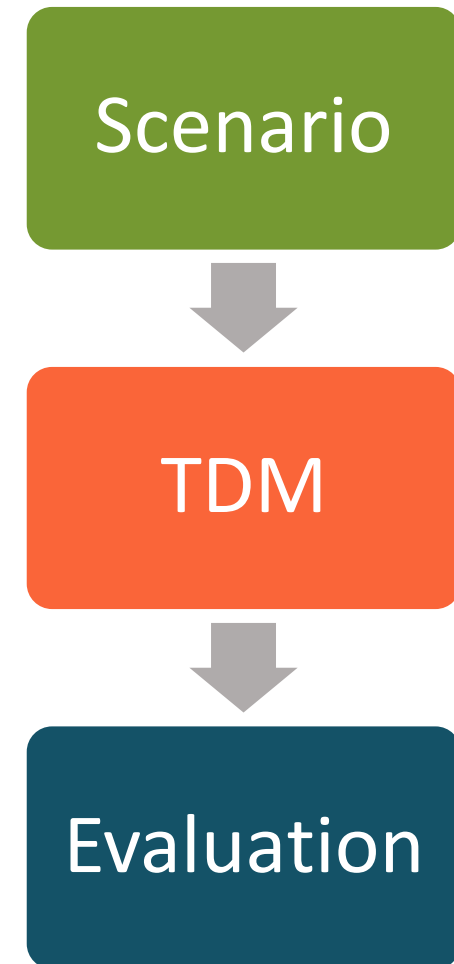


Incorporating into the Planning Process



Incorporating Scenarios

- Encompass 2040 MTP
- Link between land use and transportation
- Travel Demand Model (TDM)
 - Population and employment data (Scenarios)
 - Current and future transportation projects
 - Roadway
 - Transit
 - Bicycle/pedestrian
- Impacts of development
- Financially constrained plan



2010 Base Network

- Current conditions as of 2010
- Regional streets
- Fixed transit routes

Alternate 1

- No Build Alternate
- Present + Committed Projects
- Roadways and transit routes
- Improvements from 2010 to December 2016
- ODOT 8-Year Construction Work Plan (through 2016)

Alternate 2

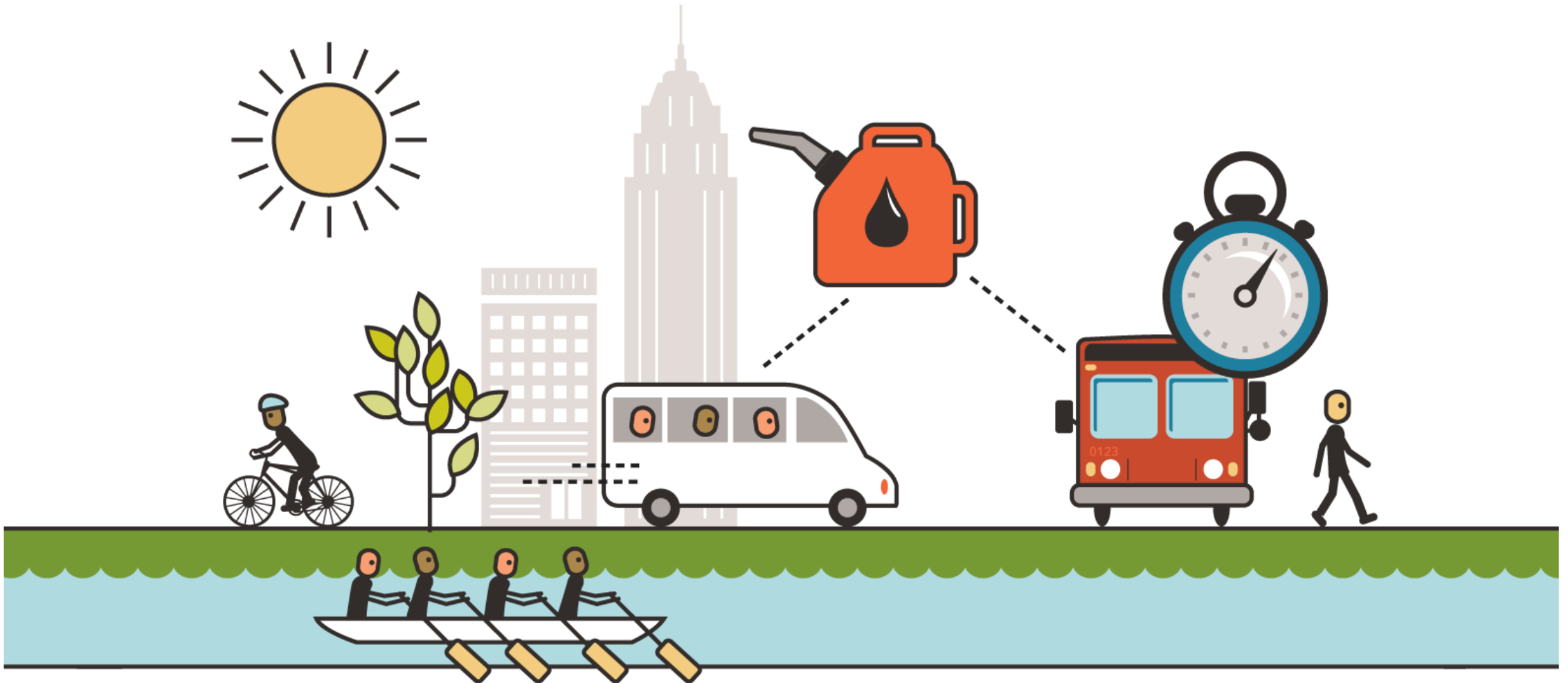
- Future Improvements
- Member entity projects
- Roadway and transit routes
- Gap projects
- Long-range ODOT projects

Alternate 3

- Illustrative Alternate
- Regional transit
- No dedicated funding source

TDM Networks Evaluation	2010 Base Network	Alternate 1		Alternate 2		Alternate 3	
		Scenario 1	Scenario 2	Scenario 1	Scenario 2	Scenario 1	Scenario 2
Demographic Data							
Population	1,142,338	1,595,168	1,595,168	1,595,168	1,595,168	1,595,168	1,595,168
Employment	601,839	875,402	875,402	875,402	875,402	875,402	875,402
Daily Transportation Demand							
Vehicle Miles of Travel	30,266,000	45,299,000	44,321,000	46,550,000	45,517,000	45,997,000	44,927,000
Vehicle Hours of Travel	853,000	1,503,000	1,474,000	1,415,000	1,389,000	1,398,000	1,371,000
Vehicle Trips	4,165,000	5,896,000	5,976,000	5,858,000	5,928,000	5,788,000	5,851,000
Transit Ridership	15,700	22,800	26,200	22,900	26,600	91,100	108,900
System Performance							
Congested Road Miles	289	647	626	308	297	295	290
Average Overall Speed (mph)	35	30	30	33	33	33	33
Average Freeway Speed (mph)	45	40	40	44	44	44	44
Average Arterial Speed (mph)	35	25	25	29	29	29	29
Average Trip Length (miles)	7.27	7.68	7.42	7.95	7.68	7.95	7.68
Average Trip Length (minutes)	12.29	15.30	14.80	14.49	14.06	14.49	14.06
Daily Hours of Delay	138,000	454,000	425,000	366,000	340,000	349,000	322,000
Delay per Trip (minutes)	1.99	4.62	4.27	3.75	3.45	3.62	3.31

Conclusion



Lessons Learned

- Time
 - Tool evaluation, data creation/collection, processing
- Computer processing power
 - Parcels vs. TAZs
- Tool issues
 - Beta testing
- Next time:
 - Place Types
 - Financial Costs

QUESTIONS?

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