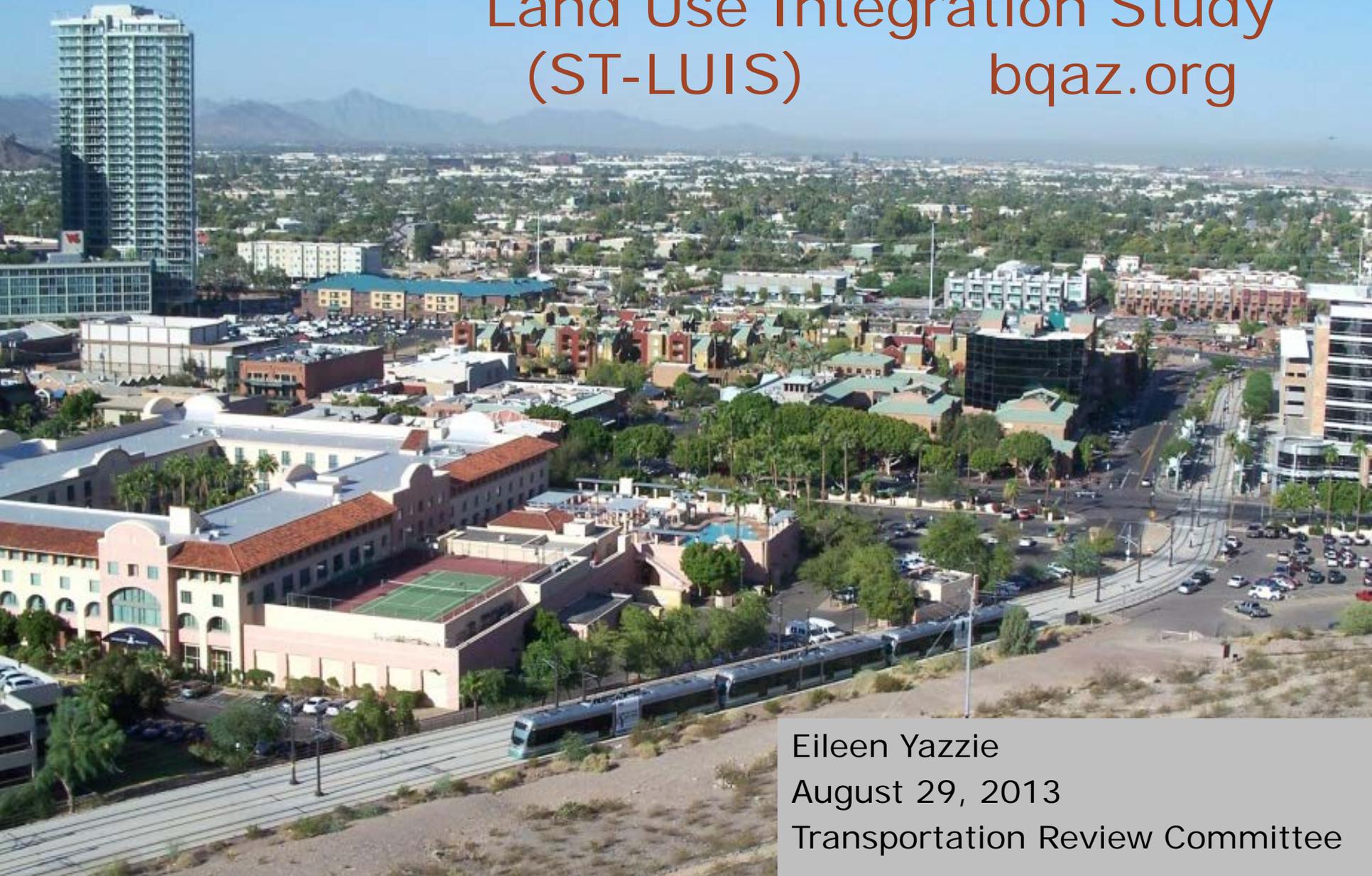


Sustainable Transportation and Land Use Integration Study (ST-LUIS) bqaz.org

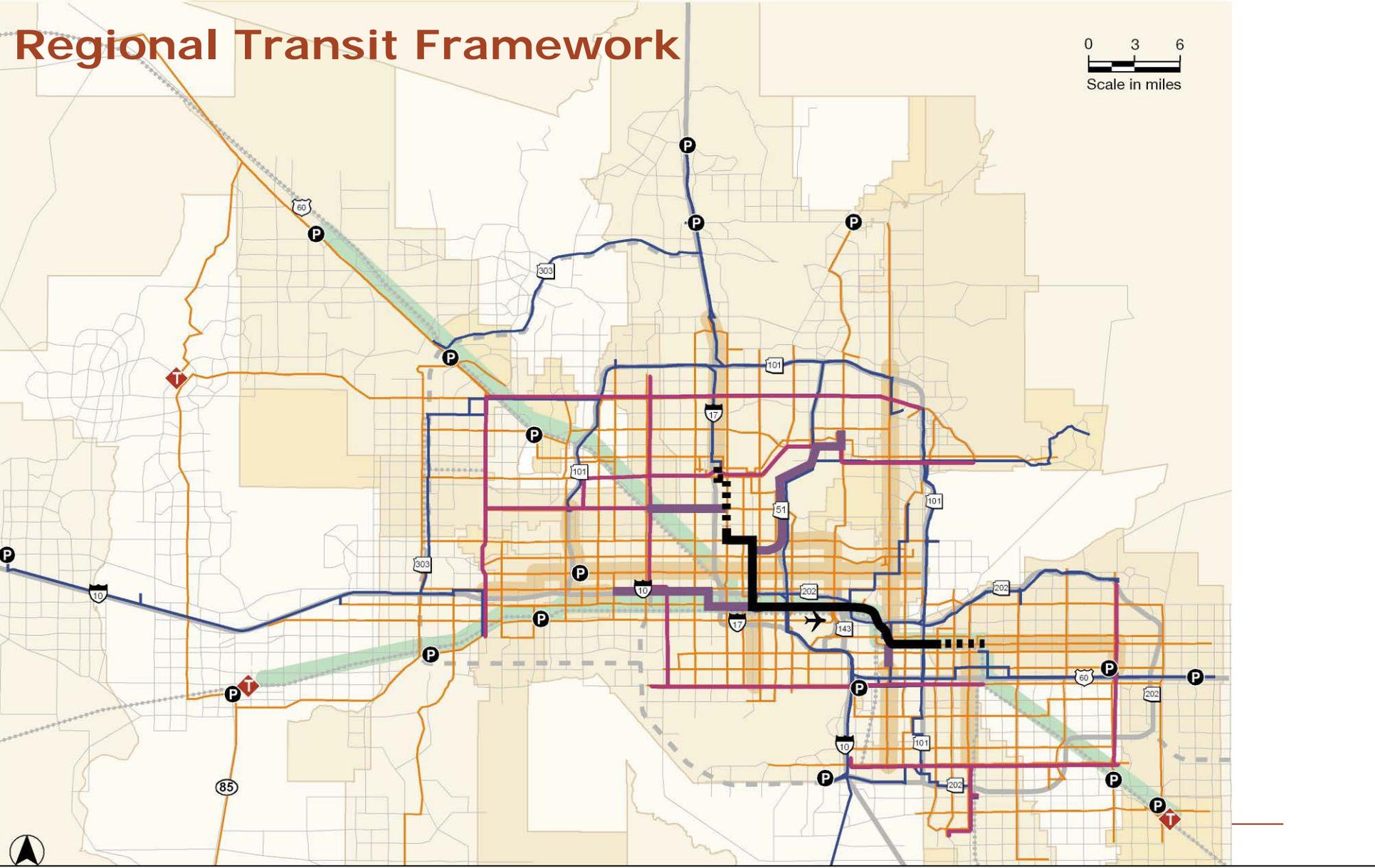
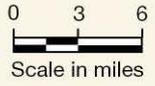


Eileen Yazzie

August 29, 2013

Transportation Review Committee

Regional Transit Framework



LEGEND

- Existing and Planned Transit Service and Facilities**
- Light Rail Line
 - Light Rail Extension
 - Future High Capacity Transit Corridors

- Freeways/Expressways**
- Existing
 - Planned

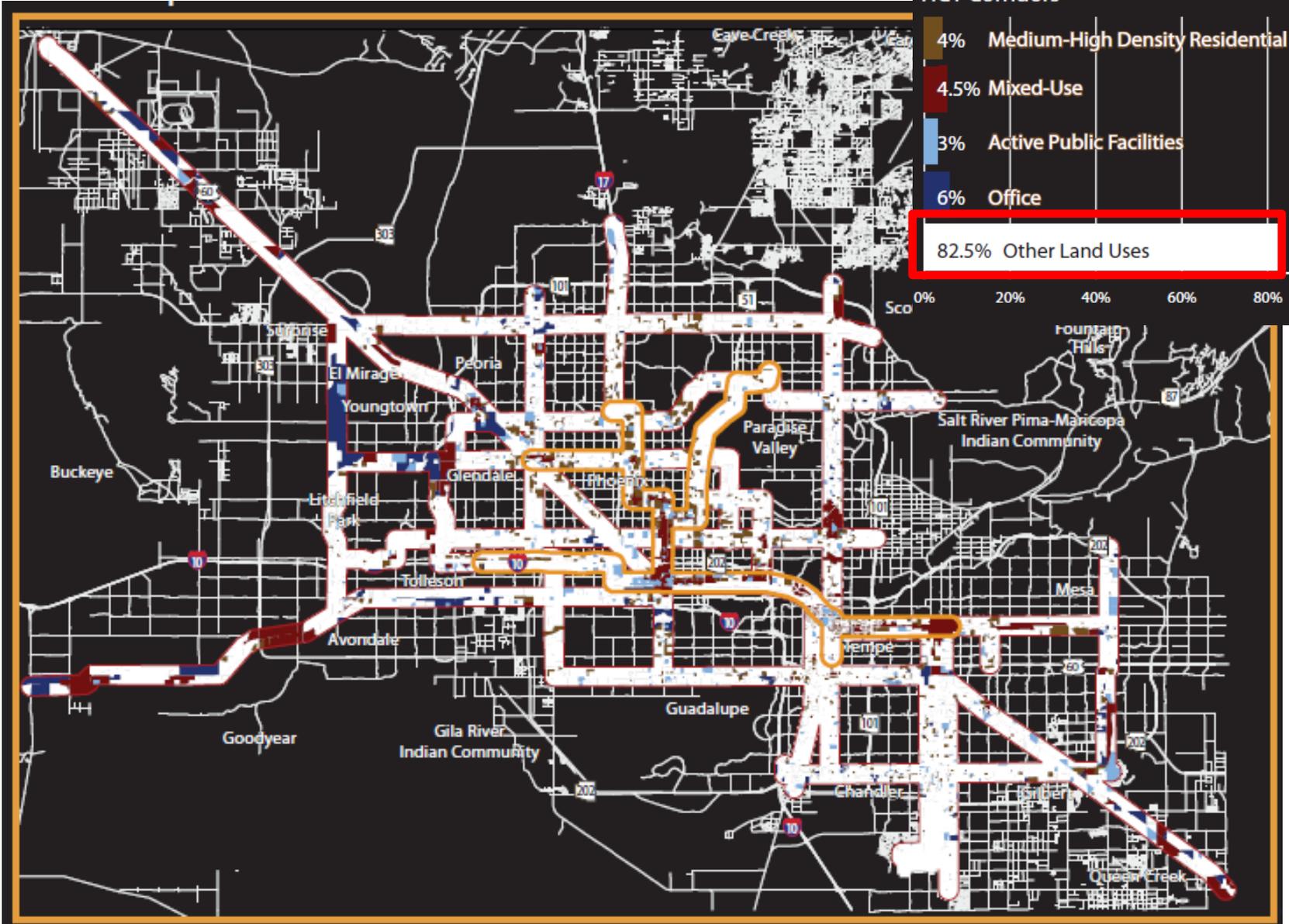
- New High Capacity Transit**
- All-day Service
 - Peak Service

- Arterial Bus Rapid Transit
- Express Bus
- Regional Supergrid Bus

- New or Expanded Park-and-Ride Facility
- New or Expanded Transit Center

Regional Transit Framework

Distribution of Land Uses Within 1/2 Mile of Adopted and Illustrative HCT Corridors



2010 Adopted and Illustrative HCT Corridors & 2009 General Plan Land Uses

Influencing Factors - Market



76 Million Baby Boomers & 75-80 Million Millennials

Almost ½ of All Households are Single People



Influencing Factors



Knowledge Based
Employment
Sectors

Federal, State, Regional
Local Transportation
Funding



Gasoline
Prices



Influencing Factors - Successful Light Rail

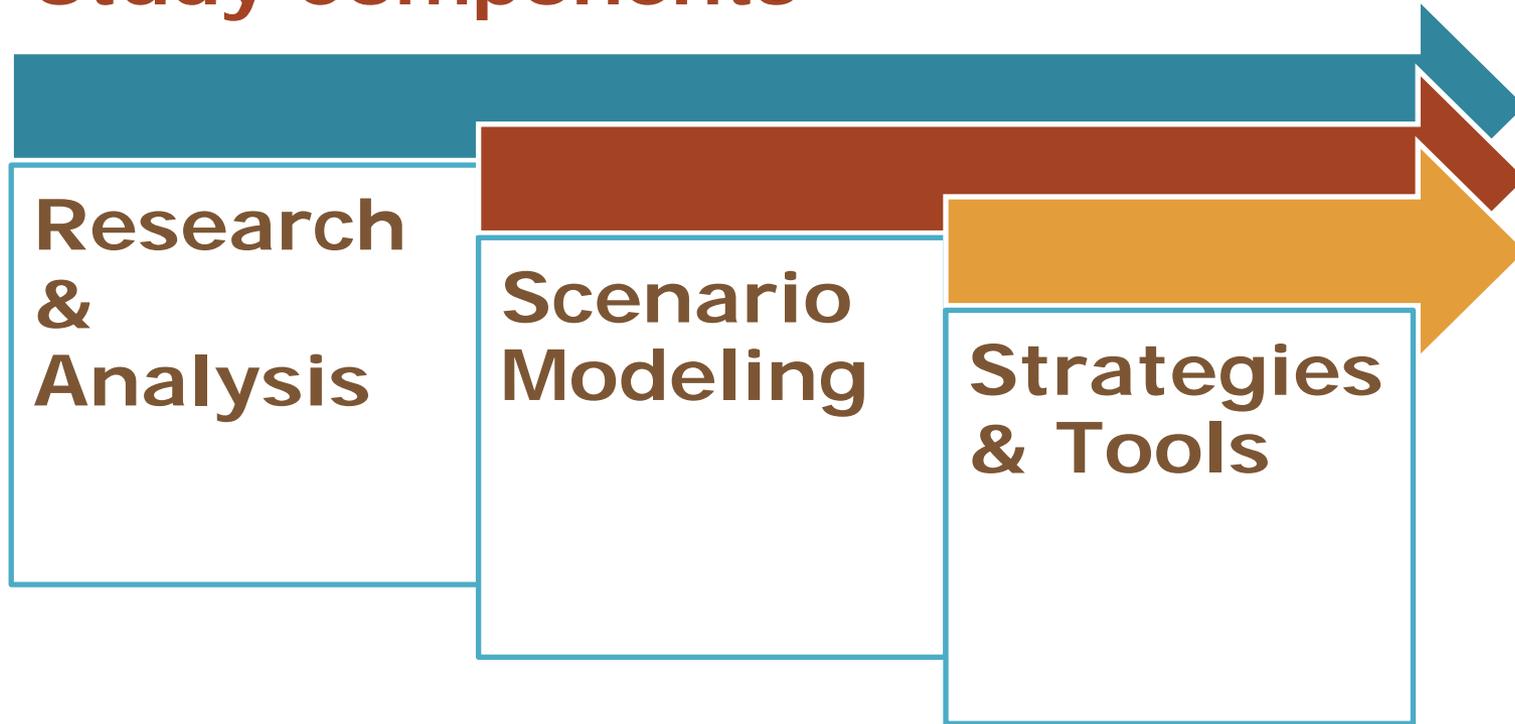


Can you say... Record setting?

October 2012 - 1,380,055 light rail boardings which is **9.6% higher** than October of 2011



Study Components



Key Findings



SUSTAINABLE TRANSPORTATION
& LAND USE INTEGRATION STUDY

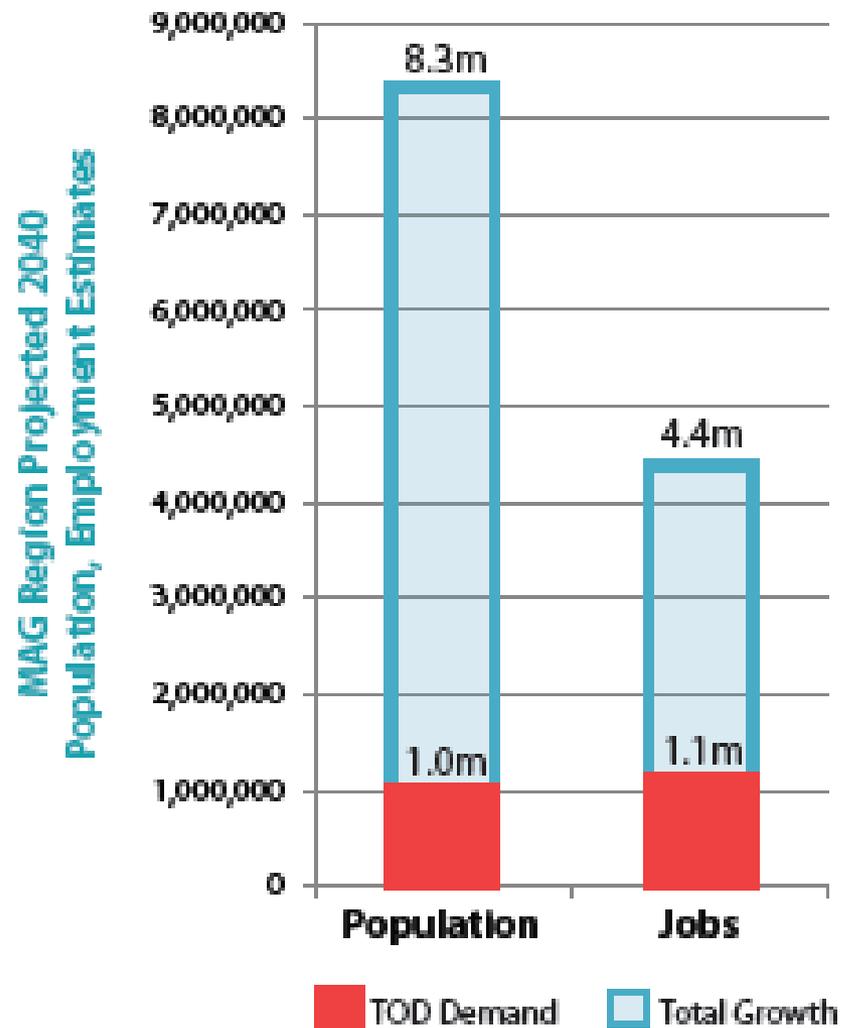


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3.1 Demand for TOD, supported by demographic shifts

3.2 Compact Walkable and TOD is achievable in Different Parts of the Region

Figure 2: Regional Population and Employment Projections



Source: Woods and Poole; MAG; Strategic Economics 2011



EL MAPA DEL SISTEMA

Local bus, Light Rail, LINK, Express and RAPID bus routes
Effective/Validez 01.28.2013
602.253.5000 | ValleyMetro.org

- TC Transit Center
- (P) Park-and-Ride
- Point of Interest
- ← Direction of travel

RAPID bus
fast and frequent bus service
park & rides to downtown
on weekdays 5-8 a.m. and

- 1100 1100 East R
- 1100W 1100 West R
- 117 117 RAPID
- 58-51 58-51 RAPID
- CRSM Central South Mountain



3.3 & 3.4 Mix of LRT, Upgraded Bus Service and Corridor Modifications =

Increase in transit use and productivity

High Quality Transit = 15 minutes



Downtown Tempe



Scenario Modeling



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ST-LUIS SCENARIO PLANNING

DOES...	DOESN'T...
Test three land use and transit corridor patterns	Test additional scenarios of interest
Incorporate MAG socioeconomic data and ST-LUIS market findings	Reflect location-specific opportunities
Use MAG's Regional Transit Framework Study (RTFS) corridors as input	Evaluate all corridor combinations
"Imagine" population and job growth directed to HCT station areas	Reflect localized existing conditions
Use a hybrid modeling method: Direct Ridership Model (DRM) and MAG 4-step model	Reflect benefits of compact walkable development outside station areas
Provide generalized results and recommendations	Make specific corridor recommendations
Include HCT corridors and assumptions for feeder bus services	Include specific local transit proposals



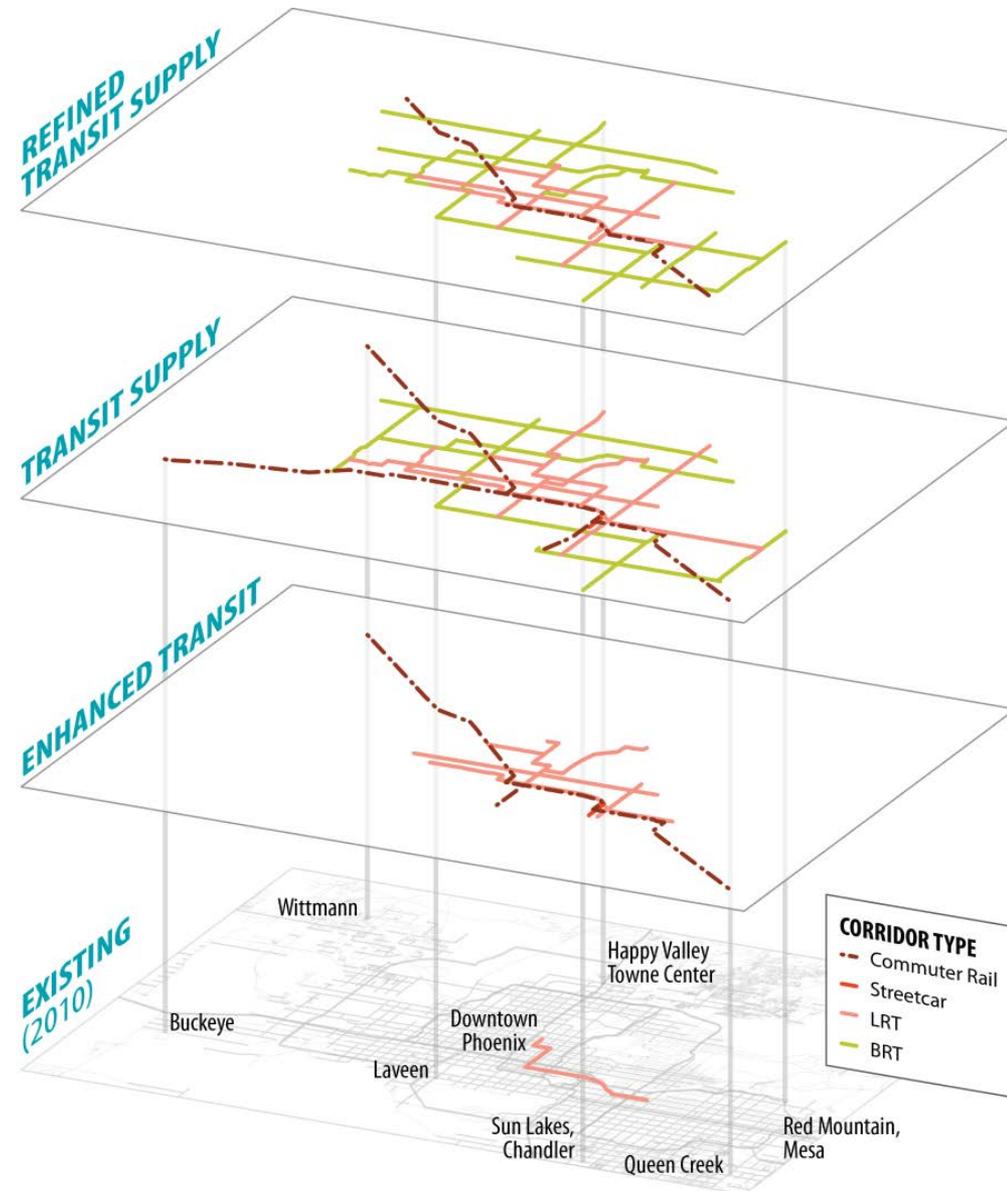
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Scenario Modeling

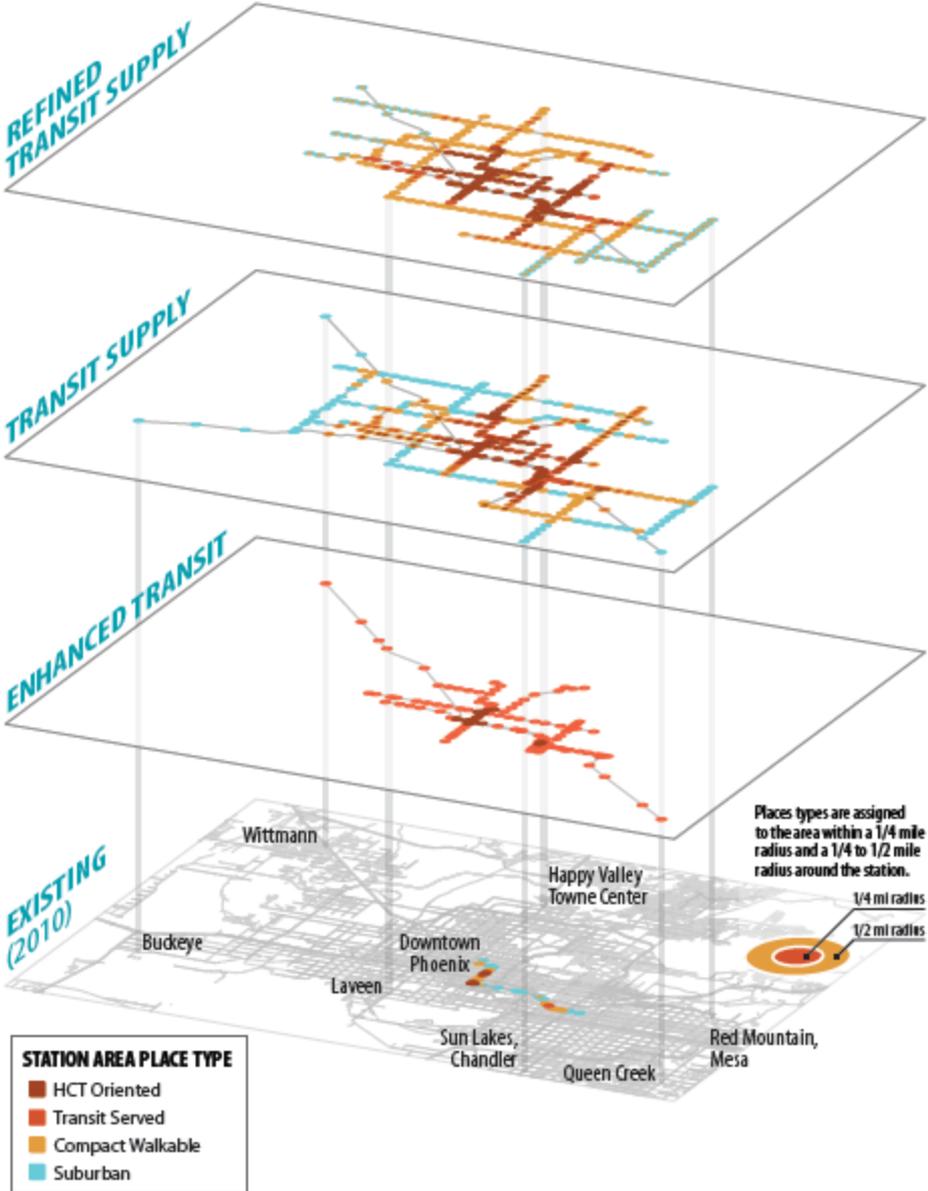
- **Refined Transit Supply:** Generous expansion with revisions to Transit Supply network
- **Transit Supply:** Very generous expansion of HCT transit network
- **Enhanced Transit:** Moderate expansion of HCT transit network
- **Existing (2010):** Current transit network



Changing Land Use

Land Use was modified at the Station Areas to:

- HCT Oriented
- Transit Served
- Compact Walkable
- Suburban



Scenario Modeling Results

- A small, compact and selective HCT Network like Enhanced Transit is most productive, best fits with TOD demand, and represented the lowest capital cost.
- A Large Rail Network Would Oversupply Land for TOD.

PLACE TYPES

The ST-LUIS uses three 'place types' to categorize different areas in the region into groups with shared transportation and land use characteristics. These are described in detail on pages 15-16.

SUBURBAN (Not a ST-LUIS Place Type)

● NON-TOD

COMPACT WALKABLE

● CW

TRANSIT SERVED

● TOD

HCT ORIENTED

● TOD

Table 1: Scenario Characteristics

	TRANSIT				STATION AREA PLACE TYPES		
	Modes	Corridors	Miles	Stations	TOD	TOD+CW	Non-TOD
Enhanced Transit Scenario 1	Rail Corridors (LRT, Streetcar, Commuter Rail)	10	160	124	124	-	-
	BRT Corridors	-	-	-	-	-	-
	Total	10	160	124	124	-	-
Transit Supply Scenario 2	Rail Corridors (LRT, Streetcar, Commuter Rail)	15	268	193	106	66	21
	BRT Corridors	9	167	159	-	-	159
	Total	24	435	352	106	66	180
Refined Transit Supply Scenario 3	Rail Corridors (LRT, Streetcar, Commuter Rail)	10	158	123	111	3	9
	BRT Corridors	14	209	200	1	32	167
	Total	24	366	323	112	35	176

Key Recommendation



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Provide a high quality, productive transit system supported by compact walkable and transit-oriented places.



COMPACT WALKABLE

15-30 persons/acre



TRANSIT SERVED

30-45 persons/acre



HCT ORIENTED

45+ persons/acre

Strategies & Tools

One Size Doesn't Fit All



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ST-LUIS PLACE TYPES



SUBURBAN

Suburban places typically host low walkability and bikeability in large, single-use areas. They are hardest to serve effectively with transit service.

For reference only. Not a ST-LUIS Place Type.



COMPACT WALKABLE

Compact places accommodate a range of housing styles, typically on smaller lots. These places have pedestrian and bicycle-friendly streets, better connected street networks, and a mix of uses.



TRANSIT SERVED

Transit Served places have small blocks, highly connected streets, mixed uses, and walk- and bike-friendly streets. Some corridors can support high quality transit service.



HCT ORIENTED

HCT Oriented places have the highest levels of activity, a diverse mix of uses, including employment centers. Small, highly connected blocks make walking and biking attractive. High capacity transit is conveniently located nearby.

Density	15-30 persons/acre	30-45 persons/acre	45+ persons/acre
Land Use	Neighborhood land uses with mix of local serving employment	Neighborhood land uses with mix of employment	Mixed use, employment/office, regional uses (universities, centers)
Transit	Local bus, Commute services (RAPID & Express), Dial-a-Ride	LINK bus, Local bus, Commute services (RAPID & Express), Dial-a-Ride, Commuter Rail	LRT, Streetcar, LINK bus, Local bus, Commute services (RAPID & Express), Dial-a-Ride, Commuter Rail
Employment (Share of transit-supportive jobs)	Low	Moderate	High
Walk Access to Transit	Walk access to local transit and feeder service to HCT stops	Walk access to BRT or commuter rail stops and complementary local services	Walk access to LRT, streetcar or commuter rail stops and complementary local services
Locations	Outside HCT station areas (more than 1/2 mile from stops)	HCT Corridors, typically within 1/2 mile of BRT or Commuter Rail stops	HCT Corridors, typically within 1/2 mile of LRT, streetcar or commuter rail stops
Market Opportunity	Widespread	Moderate	Limited
Feasible Development Types: Residential and Mixed Use	Small lot/courtyard single family 1-2 story office/retail		
	2-3 story apartments, townhomes 3-4 story retail/office park		
			3-7 story mixed use, multifamily

ST-LUIS Place Type Characteristics

Each ST-LUIS Place Type represents areas in Maricopa County with a unique blend of seven land use and transportation characteristics. Each of the characteristics is defined below.

DENSITY	CENTRALITY	EMPLOYMENT	CONNECTIVITY	WALKABILITY	BIKEABILITY	TRANSIT
<p>Residential population and/or jobs on a per-acre basis, averaged over an area such as a station area with a 1/2 mile radius (~500 acres).</p> <p>ST-LUIS Place Type density refers to combined population and jobs.</p> <p>Density Map</p>	<p>Closeness to the region's core or other job center with both relatively high job density and a significant number of jobs in transit-supportive categories (see Employment).</p> <p>Centrality Map</p>	<p>Presence of transit-supportive jobs (those jobs that typically cluster near LRT or other high capacity transit - HCT i). These jobs include region-serving office, medical, cultural and higher education.</p>	<p>Ability to easily and efficiently connect between modes, connect between destinations located close together, and choose alternate routes because of small block sizes.</p>	<p>Favorable conditions for walking, including very close-together destinations, wayfinding signage, continuous sidewalks, shade, safe crossings, buffering from adjoining traffic, and small blocks.</p>	<p>Favorable conditions for cycling, including nearby destinations, a network of bicycle lanes, wayfinding signage, safety buffers, high visibility signage and pavement markings, and secure bicycle parking.</p>	<p>Transit service available nearby offering a long daily span of service, frequent service i, good coverage and transfer opportunities that reach job centers and other important destinations with at most a single transfer.</p>

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[See Glossary of Terms](#)

[Next >>](#)



► Sustainable Transportation & Land Use Integration Study

Local Toolkit: Community Pathways to Sustainable Transportation

February 2013



SUSTAINABLE TRANSPORTATION
& LAND USE INTEGRATION STUDY



To move ahead, click here →

[Next >>](#)

WELCOME!



Profile: Compact Walkable



COMPACT WALKABLE

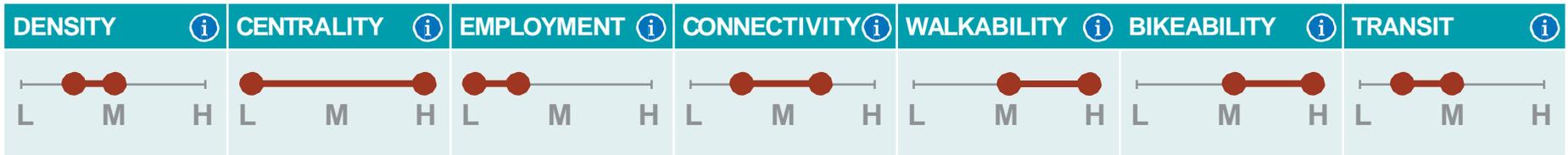
Compact places accommodate a range of housing styles, typically on smaller lots. These places have pedestrian and bicycle-friendly streets, better connected street networks, and a mix of uses.



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Shops and services within a 10 minute walk



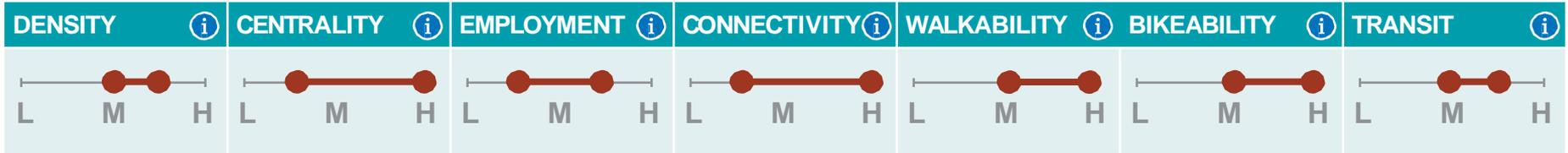
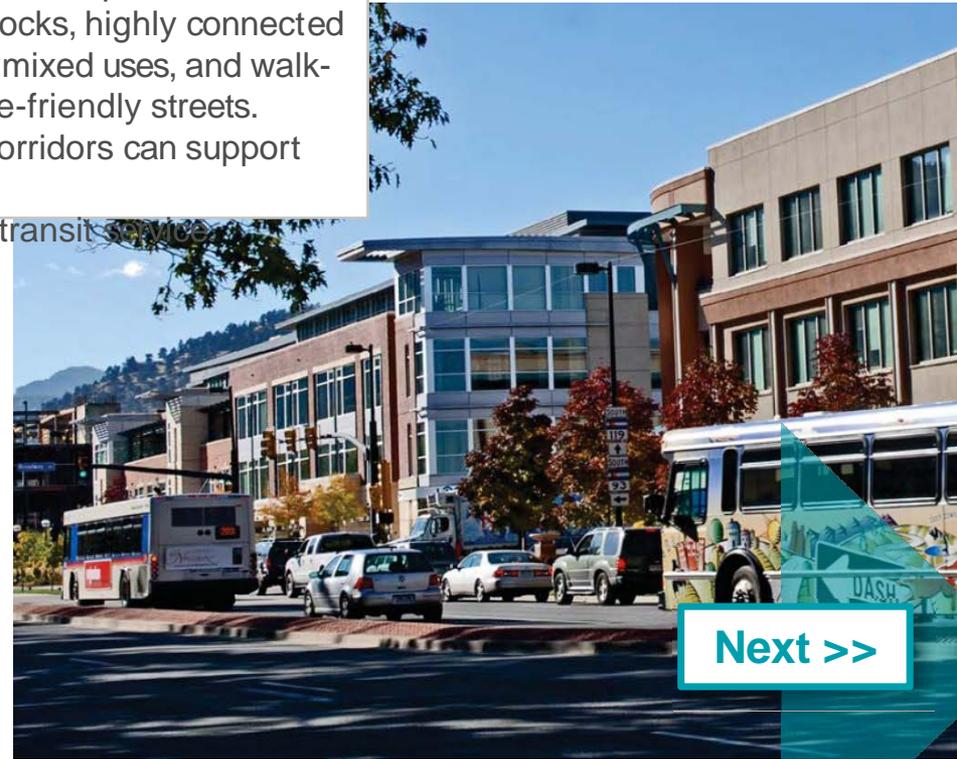
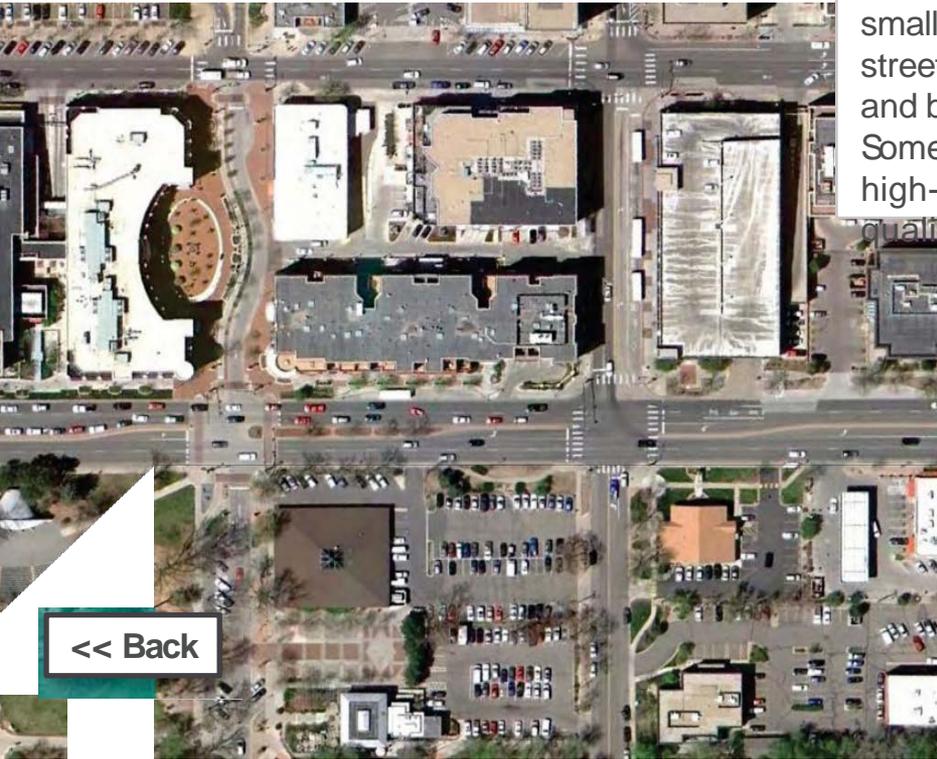
Profile: Transit Served



TRANSIT SERVED

Transit served places have small blocks, highly connected streets, mixed uses, and walk- and bike-friendly streets. Some corridors can support high-

quality transit service



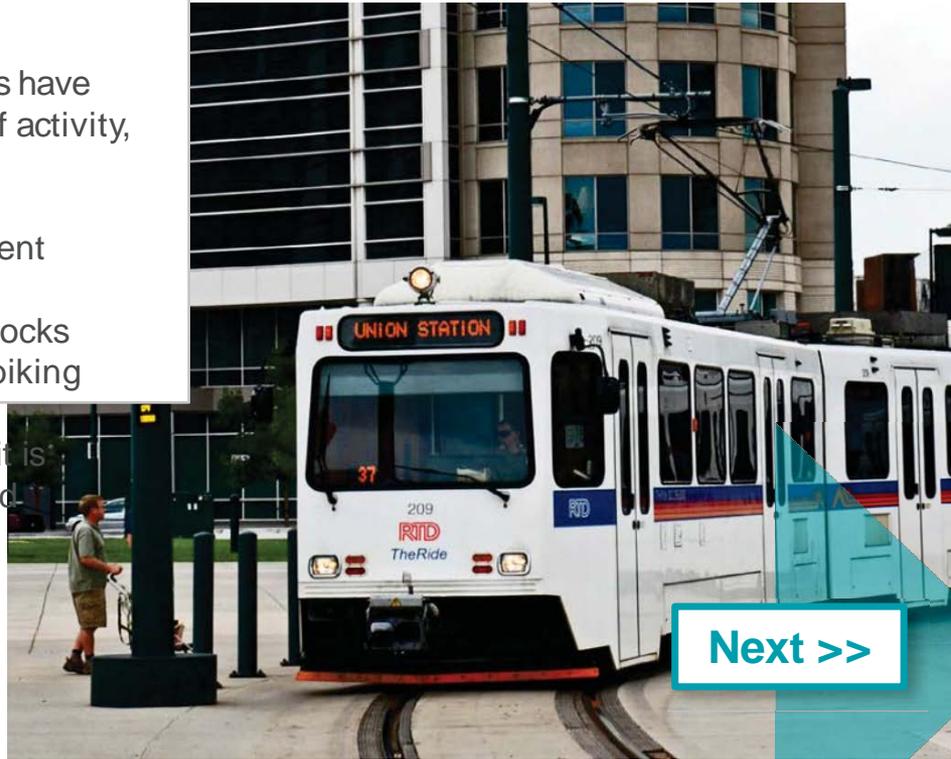
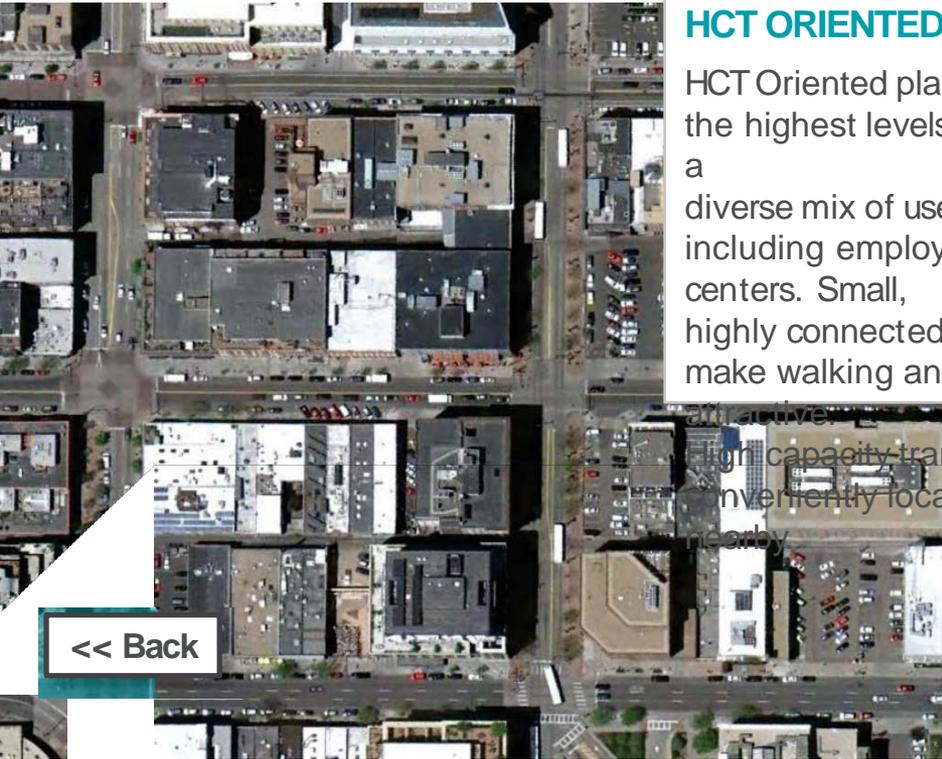
Profile: HCT Oriented



HCT ORIENTED

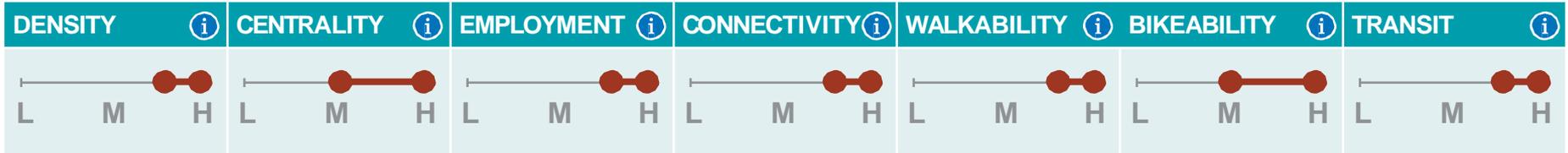
HCT Oriented places have the highest levels of activity, a diverse mix of uses, including employment centers. Small, highly connected blocks make walking and biking

attractive. High capacity transit is conveniently located nearby.



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Choose Your Pathway

PATHWAY STEPS

1. Select current Place Type row
2. Select future Place Type column and click the corresponding check box
3. Review *Conditions for Success* checklist
4. Proceed to *Implementing Actions* or review *Place Type Suitability Investigation*

FUTURE PLACE TYPE



CURRENT PLACE TYPE

	SUBURBAN	COMPACT WALKABLE	TRANSIT SERVED	HCT ORIENTED
SUBURBAN	N/A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COMPACT WALKABLE	N/A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TRANSIT SERVED	N/A	N/A	<input type="checkbox"/>	<input type="checkbox"/>
HCT ORIENTED	N/A	N/A	N/A	<input type="checkbox"/>

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Choose Your Pathway

PATHWAY STEPS

1. Select current Place Type row
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FUTURE PLACE TYPE



CURRENT PLACE TYPE

	SUBURBAN	COMPACT WALKABLE	TRANSIT SERVED	HCT ORIENTED
SUBURBAN	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COMPACT WALKABLE	N/A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TRANSIT SERVED	N/A	N/A	<input type="checkbox"/>	<input type="checkbox"/>
HCT ORIENTED	N/A	N/A	N/A	<input type="checkbox"/>

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Choose Your Pathway

PATHWAY STEPS

1. Select current Place Type row
2. Select future Place Type column and click the corresponding check box
3. Review *Conditions for Success* checklist
4. Proceed to *Implementing Actions* or review *Place Type Suitability Investigation*

FUTURE PLACE TYPE



CAUTION

The pathway from Suburban to HCT Oriented would require significant changes in your community. Be mindful of your answers to the following *Conditions for Success* checklist.

CURRENT PLACE TYPE

		SUBURBAN			
SUBURBAN	N/A	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
COMPACT WALKABLE	N/A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
TRANSIT SERVED	N/A	N/A	<input type="checkbox"/>	<input type="checkbox"/>	
HCT ORIENTED	N/A	N/A	N/A	<input type="checkbox"/>	

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Pathway to HCT Oriented



FUTURE

CONDITIONS FOR SUCCESS CHECKLIST

AREA-WIDE DENSITY

Are conditions (such as real estate market feasibility, local development regulation, land available for development or intensification, and community vision) suitable for future density of 45+ persons per acre?

YES NO

CENTRALITY

Are High Centrality locations with HCT stops existing or planned within 1/2 mile, as depicted in materials on the MAG website?

YES NO

EMPLOYMENT

Does employment in the area of analysis include a high share of transit-supportive jobs (office, university, medical)?

YES NO

ACCESS TO TRANSIT

Do street design, operations, and parking policies support the choice to take transit, walk, and bike?

YES NO

TRANSIT QUALITY

Does the location have existing or planned high capacity transit?

YES NO

WALK & BIKE

Are amenities for walking and biking, as well as 1/2 mile walk access to high capacity transit, existing or planned?

YES NO

Click if you answered "YES" to ALL conditions >>

Click if you answered "NO" to ANY conditions >>

Place Type Suitability: Investigation

IF THE PLACE TYPE PATHWAY CHECKLIST INCLUDED “NO” RESPONSES FOR:	TAKE THE FOLLOWING ACTIONS:
AREA-WIDE DENSITY	<ul style="list-style-type: none"> • Assess likely development, re-investment and intensification opportunities • Assess compatibility of appropriate density with surroundings • Conduct real estate market analysis to determine economic feasibility of development prototypes and likely investment
CENTRALITY	<ul style="list-style-type: none"> • Re-consider final Place Type if Centrality is not consistent with success factors or if development with appropriate characteristics is discontinuous (i.e., leapfrog)
EMPLOYMENT	<ul style="list-style-type: none"> • Re-consider final Place Type if existing or reasonably foreseeable employment is not consistent with elements for success
ACCESS TO TRANSIT	<ul style="list-style-type: none"> • Consult with transit operators and regional agencies to determine compatibility of plans and likely future scenarios
TRANSIT QUALITY (EFFICIENT AND PRODUCTIVE TRANSIT)	<ul style="list-style-type: none"> • Consult with neighboring jurisdictions, transit operators, and regional agencies to determine whether changes in surrounding locations will lead to support for efficient and productive transit corridors
WALK & BIKE	<ul style="list-style-type: none"> • Assess capital improvements plans; are there plans or opportunities to improve the quality and continuity of sidewalks, walking paths, trails, bike lanes, and bike paths for safe walking and biking? • Is there a Complete Streets policy and implementation plan in place that balances travel modes? • Are street design standards and block size regulations (including subdivision regulations) sufficient to achieve safe, comfortable streets for walking and biking?

[<< Back to Pathways](#)

[See Reference Materials](#)

Local Toolkit – Development Prototype Catalogue

DEVELOPMENT PROTOTYPE: 3- TO 4-STORY MIXED USE MULTI-FAMILY RESIDENTIAL



Sample Project Plan

- Mixed-Use Office
- Mixed-Use Residential
- Single Family Residential
- Multi-Family Residential
- Surface Parking
- Structure Parking
- * Public Transit Stops

Applicable Place Types

- Compact Walkable
- Transit Served
- HCT Oriented

Recommended Ranges

Percentage Open Space	10% - 15%
FAR (Office and Retail)	1.0 - 1.5
Dwelling Units per Acre	30 - 40
Average Block Dimensions	350' x 275'
Average Acres per Block	2 +/-

Elements of Success

- Buildings are designed to provide views and access to community outdoor spaces.
- Pedestrian walkways are safe and provide clear connections to transit and to adjacent properties.
- Street frontages are either active retail storefronts or ground-related residential with front doors on the street.
- Parking may be structured or surface and screened from pedestrians including consolidated access points to reduce conflicts.
- Scale and massing of buildings is modulated and varied to respond to the context and reduce the perception of mass.

Ground floor retail activates the street



Walkable, friendly streetscapes



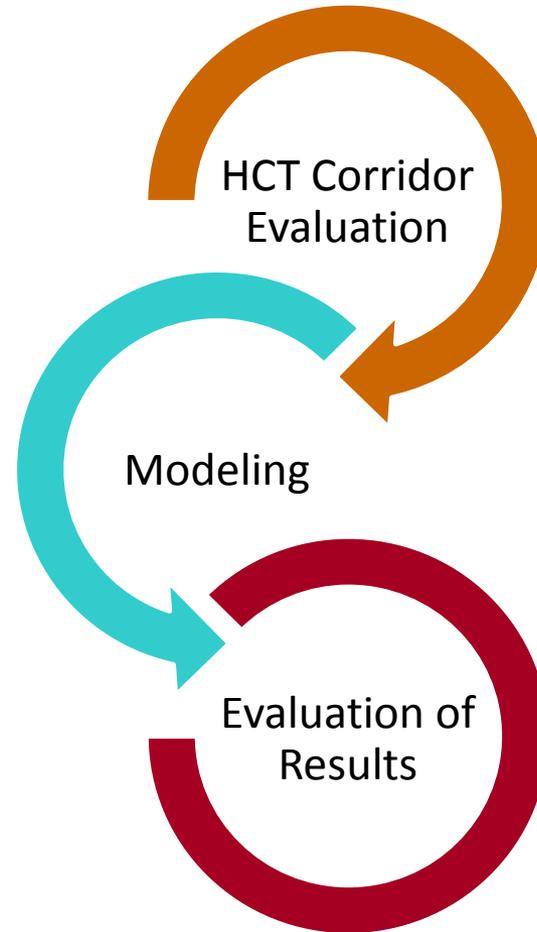
Regional HCT Corridor Evaluation and Scenario Planning Process

Existing Corridor Conditions

- Land Use
- Transit Supportive Densities (People and Jobs)
- Transit Demand

Can be used in Future Regional Planning efforts

Flexible to integrate FTA direction and evaluation criteria; and others regional criteria



Action

Information, discussion, and possible recommendation to accept the Sustainable Transportation Land Use Integration Study recommendation, key findings, and tools to be considered in future planning efforts and be consistent with the Federal Transit Administration process, including evaluation criteria as appropriate.

www.bqaz.org



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