

How Do Cities Change?



Objectives

Students will be able to:

- identify groups of stakeholders that interact in urban decision making
- describe how changes to one urban system drives further changes over time

Author:

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Time:

1 class period (60 minutes)

Grade Level

8-12

Standards:

AZ Social Studies:

Strand 3: Civics and Government,
Strand 4: Geography,
Strand 5: Economics

AZ Science:

Strand 3: Science in Personal and Social Perspective

NGSS - Core Ideas

Human Impacts on Earth Systems; Developing Possible Solutions

Practices - Constructing Explanations and Designing Solutions

Concepts - Stability and Change; Cause and effect; Scale, proportion and quantity; Influence of Science, Engineering & Technology on Society and the Natural World

Specific Standards on start on Page 2

Background

Cities are complex webs of interrelated systems. Diverse groups and individuals have different stakes in the development of cities, and even the smallest urban development decisions can have tremendous impacts over both people and places. These impacts are often even felt over long periods of time.

In this lesson, students will learn about some of the perspectives that are included in urban decision making and understand how decisions made in the past can dictate a development trajectory for future decades. Before beginning, students should: understand that cities are home to diverse populations with diverse interests. After completing this lesson students will understand how diverse stakeholders pursue unique interests and how their decisions have lasting impacts.

Vocabulary:

infrastructure - the physical structures and facilities (i.e. buildings, roads, utilities, etc.) needed for the operation of a society.

land use - the management and modification of natural land into a built environment. Uses may be categorized by the purpose for development (i.e. residential, commercial, industrial, agricultural, etc.)

urban sprawl - the uncontrolled expansion of human developments away from urban centers; often characterized by low density and reliance on personal vehicles.

Advanced Preparation:

Students should: understand that cities are home to diverse populations with diverse interests.

You will need at least 6 students to play. Students will have opportunities to work in small groups around a shared desk and also walk around the room to talk informally. Be sure to have space to accommodate both settings.

Materials:

- Print Aerial Photographs and Stakeholder cards from the Changing Landscapes Teaching Material PDF, so each group of 6 has one set of aerial photos and a corresponding set of stakeholder cards
- Changing Landscape slide show

Safety Precautions:

None

Recommended Procedure:

Engagement

- 1) Share the presentation or have students view the interactive [land use change game](#) on the Ecology Explorers website

Have students list who might be involved in making decisions about changing land use

- 2) Pass out the stakeholder playing cards and ask students to silently read their card
- 3) Instruct students to form groups with other students that have the same card

- In these groups, students discuss and interpret the stakeholder/role that is described on the card
- Encourage the students to speculate about their characters' lifestyles, values, perspectives; have the students create a tangible identify for their characters.

- 4) Organize students into new groups

- Within their groups, have students count off from 1 to 6
- Instruct students to sit in groups by number
- Within these new groupings, students explain their role to their other group members

Exploration/Explanation

- 5) Pass out aerial maps (students still in groups)
- 6) Starting with the 1970 map, have the groups first describe/discuss what they see.
 - Next students, from the perspective of the role that they are playing discuss how they would change the site
 - The assigned roles are diverse and each student should have differing interests, concerns, perspectives, etc. Encourage students to debate what would **truly be the** best development from their roles' perspectives (have students be firm about what would truly be best for their stakeholder)
- 7) Next students turn to the 1980 map

- Students describe/discuss what they see and how the site has changed over the past decade. Emphasize: *why did these change occur? How did developments/infrastructure from the past decade influence developments in this decade? Which tracts of land are now most valuable? Who benefited from these changes?*
- From their characters' perspectives, students debate whether these changes are positive
- Based on what has happened in this decade, students discuss/debate what could and should

happen next. Ask: *Considering the new infrastructure that has been introduced, what new developments might happen next?*

- 8) Repeat this process for each remaining decade

Elaboration

- 9) Instruct students to return to their seats
 - * Pass out the Blank Base Map worksheet for their area
 - * Instruct students to consider what they saw develop over time and the diverse perspective with which they were confronted in the previous exercise
 - * Have students draw their own proposal for how they think the site should have developed

Evaluation

- 10) With their neighbors, students share their plans. Students should be able to:
 - Describe what they drew
 - Justify their decisions
 - Identify groups and individuals that might be impacted by their decisions
 - Speculate on how the site might change over the coming decades based on what they have drawn

Extension

Students identify one key stakeholder that they identified as being impacted by their proposed development plan. Students write a short narrative from the perspective of that stakeholder, describing what life is like in this envisioned location.

Standards

Arizona Science Standards

S3-C1--GR7-PO1
S3-C1-GHS-PO1 & PO4
S4-C3-GR7

Arizona Social Studies Standards

Civics and Government
S3-C2-GRHS-PO9
Geography
S4-C1-GR7-PO2 & PO3
S4-C1-GR8-PO2
S4-C1-GRHS-PO2 & PO3

S4-C2-GR7-PO1, PO2, PO4

S4-C4-GR7-PO5, PO8

S4-C4-GRHS-PO5

S4-C5-GR7-PO1, PO2, PO3, PO4, PO5, PO7

S4-C5-GR8-PO1, PO2, PO3, PO5

S4-C6-GR7-PO2

Foundations of Economics

S5-C1-GR7-PO1, PO2, PO3,

S5-C1-GR8-PO1, PO2, PO3

NGSS Core Ideas

MS ESS3-3 Human Impacts on Earth Systems

HS ESS3-4 Human Impacts on Earth Systems

ET S1.B Developing Possible Solutions

NGSS Practices

Constructing Explanations and Designing Solutions

NGSS Crosscutting Concepts

Stability and Change

Cause and effect

Scale, proportion and quantity

Influence of Science, Engineering & Technology on Society and the Natural World

AZCCRS/ELA Literacy

RST1: Understand explicit text

RST7: Integration of knowledge and Ideas

SL1: Participate in collaborations and conversations

SL2: Integrate oral information

SL4: Present effectively to listeners

SL5: Strategic use of visual display to express

Student Worksheet

How Do Cities Change? (page 1)



Name: _____

My stakeholder _____

1970 Aerial Photograph:

- 1) With your group, first discuss/describe what you see
- 2) From your stake holder's perspective describe how you would change this area

- 3) Share your description with the group. Did any of the stakeholders have the same vision for the site?

1980 Aerial Photograph:

- 1) With your group, discuss/describe what has changed at this location over the past decade. Emphasize: why did these changes occur? How did developments/infrastructure from the past decade influence developments in this decade? Which tracts of land are most valuable?
 - 2) From your stake holder's perspective describe whether these changes were positive and how you would like to see development in the next decade:

 - 3) Share your perspective with the group.
- Which stakeholders felt they benefited from the changes: _____
- 4) Based on new infrastructure, how is this land likely to be developed: _____

Student Worksheet

How Do Cities Change? (page 2)



1990 Aerial Photograph:

- 1) With your group, discuss/describe what has changed at this location over the past decade. Emphasize: why did these changes occur? How did developments/infrastructure from the past decade influence developments in this decade? Which tracts of land are most valuable?
- 2) From your stake holder's perspective describe whether these changes were positive and how you would like to see development in the next decade:

3) Share your perspective with the group.

Which stakeholders felt they benefited from the changes: _____

4) Based on new infrastructure, how is this land likely to be developed: _____

2000 Aerial Photograph:

- 1) With your group, discuss/describe what has changed at this location over the past decade. Emphasize: why did these changes occur? How did developments/infrastructure from the past decade influence developments in this decade? Which tracts of land are most valuable?
- 2) From your stake holder's perspective describe whether these changes were positive and how you would like to see development in the next decade:

3) Share your perspective with the group.

Which stakeholders felt they benefited from the changes: _____

4) Based on new infrastructure, how is this land likely to be developed: _____

Student Worksheet

How Do Cities Change? (page 3)



2010 Aerial Photograph:

- 1) With your group, discuss/describe what has changed at this location over the past decade. Emphasize: why did these changes occur? How did developments/infrastructure from the past decade influence developments in this decade? Which tracts of land are most valuable?
- 2) From your stake-holder's perspective describe whether these changes were positive and how you would like to see development in the next decade:

3) Share your perspective with the group.

Which stakeholders felt they benefited from the changes: _____

4) Based on new infrastructure, how is this land likely to be developed: _____

Blank Base Map:

- 1) Taking into account the diverse perspectives of city dwellers, draw your own proposal for how you think this site should have been developed.
- 2) Justify your decisions. Which stakeholder will benefit the most? Which stakeholder will benefit the least?
- 3) How will the design and infrastructure you have chosen impact the development of this site over the next 40 years?

Homework:

Identify one key stakeholder that is impacted by your proposed development plan. Write a short narrative from the perspective of that stakeholder describing what life is like in this envisioned location.

Teaching Material

- There are two sets of photographs from two different locations in the Phoenix metro area, both cities are in Maricopa County.
 - The first set at McKellips and Stapley is within the city of Mesa.
 - The second set at Union Hills and 75th Ave is within the city of Phoenix
- There are two sets of “stakeholder cards”, one for Mesa and one for Phoenix
- There is a “blank” photo for students to design their own square mile had they been in charge in 1970.

McKellips Rd. & Stapley Rd. 1970



McKellips Rd. & Stapley Rd. 1980



McKellips Rd. & Stapley Rd.

1990







McKellips Rd. & Stapley Rd. Blank Base Map



City of Mesa Stakeholder Cards

Farmer



You are a farmer with a young family. Your family has been working this land for two generations. You enjoy the work and lifestyle, and agriculture is all that you know. You hope to raise your family on the same land on which you grew up.

You are also concerned with earning enough money to raise your family, and you feel a strong need to provide for your children.

Mesa City Councilmember



You hold a seat on the City of Mesa City Council. You are a native of Central Phoenix and are proud of your home town.

You are concerned about a population decline near your city's center and are afraid that jobs and other amenities will leave the city as well. You hope to attract development close to Mesa's urban core.

Resident



You are a parent of three children, and you currently live near downtown Mesa. Your home is fairly small and you don't think the yard is big enough for your children to play.

You are concerned about the quality of local schools and wonder if the City is an appropriate place to raise your children. At the same time, you don't want to lose amenities like shopping and restaurants.

City of Mesa Stakeholder Cards

Developer



You are a land developer. Your business purchases affordable land at low costs and builds new communities. Your projects include residential, commercial, and industrial uses.

You are concerned with running a profitable business. You make the most money by turning low-value land into high-value property and selling it.

Environmental Advocate



You represent an organization that advocates for the protection of natural resources, open space, and Sonoran ecosystems.

You are concerned with the pressure that urban expansion is applying to both desert and farmland. You feel strongly that open space is a treasured resource and are afraid of losing the city's open space and its agricultural heritage.

County Commissioner



You serve on the County Commission, and you have lived in this rural community your entire life. You relate to agriculture, but it is becoming financially challenging to provide the services and infrastructure your community needs.

You are concerned with raising revenue in rural communities through increased property and sales taxes that are promised with new development.

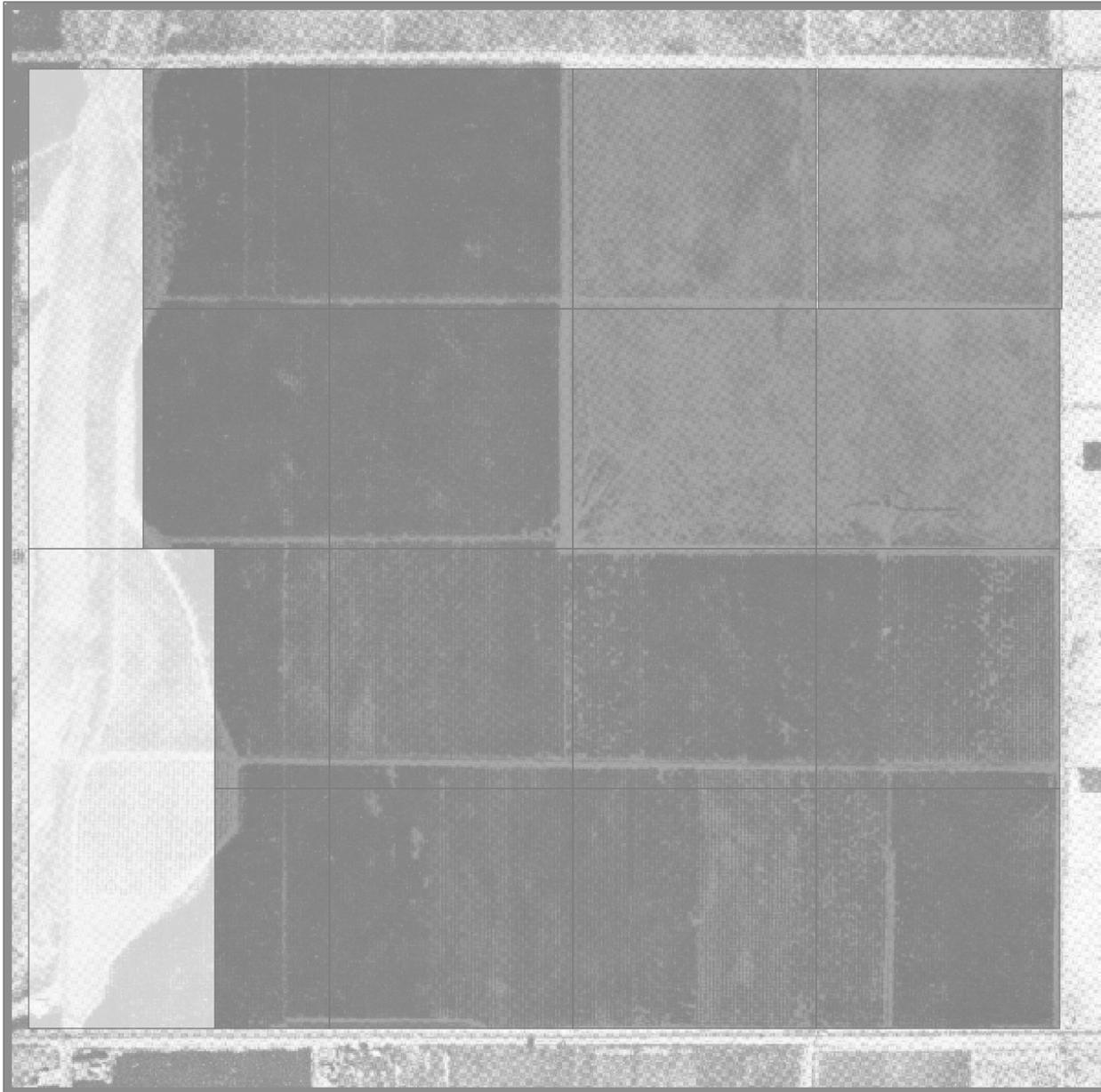












City of Phoenix Stakeholder Cards

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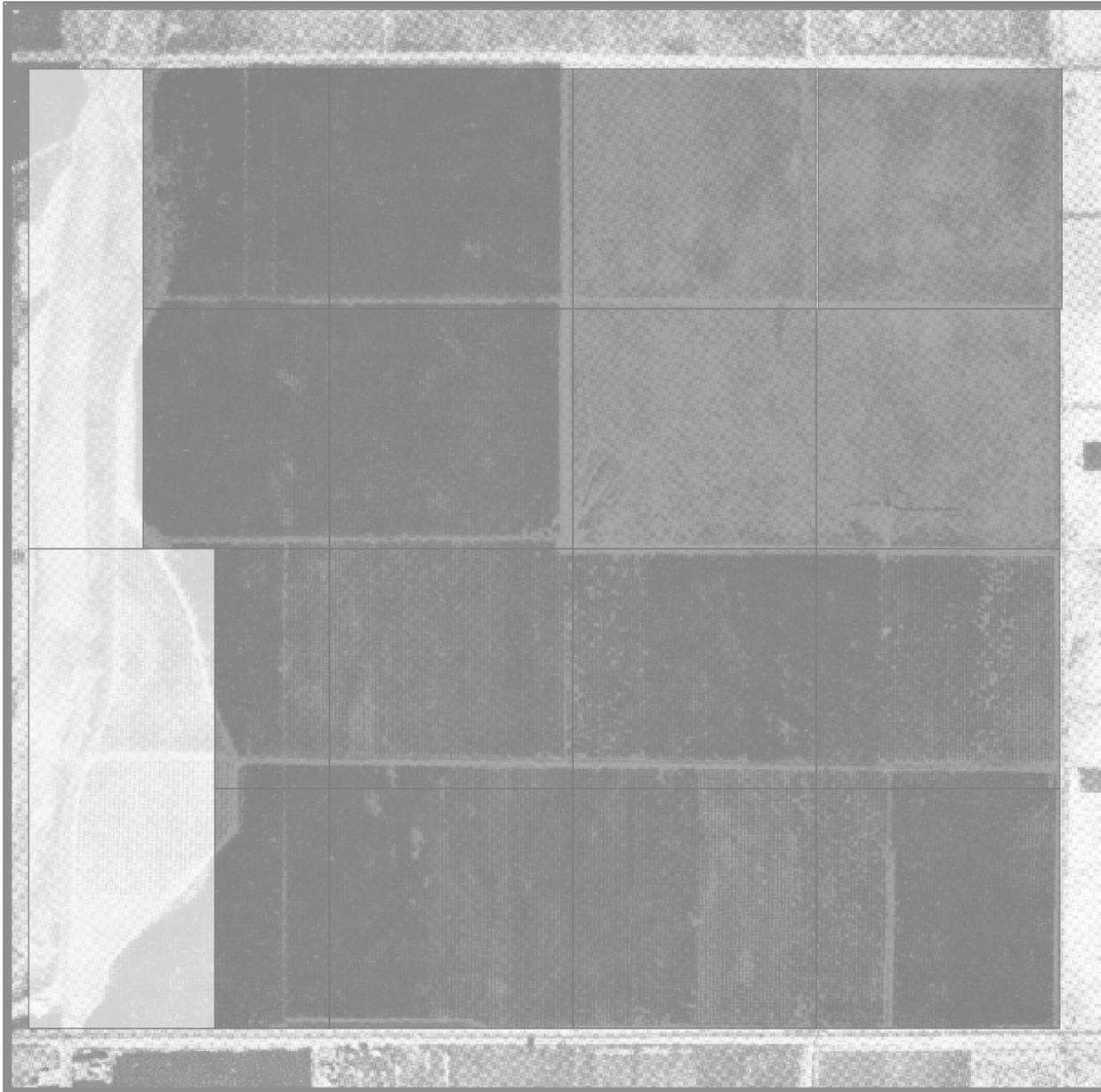












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How Has The Phoenix Metropolitan Area Grown?

And what are some of the
impacts?



Central Arizona - Phoenix Historic Land Use

Data courtesy of MAG

1912

- Urban
- Agriculture
- Recreation

10 km



Central Arizona - Phoenix Historic Land Use

Data courtesy of MAG

1934

- Urban
- Agriculture
- Recreation

10 km



Central Arizona - Phoenix Historic Land Use

Data courtesy of MAG

1955

- Urban
- Agriculture
- Recreation

10 km



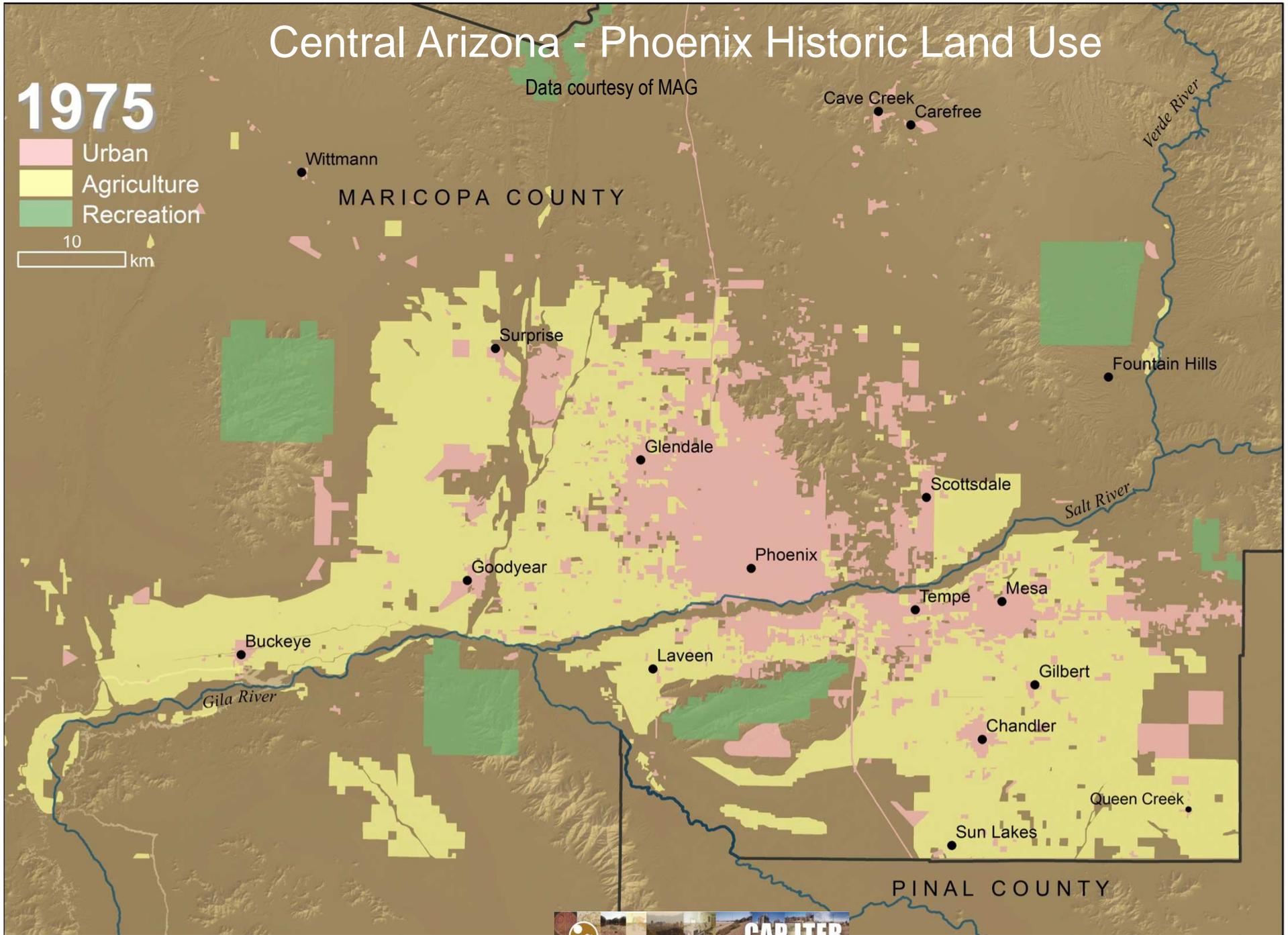
Central Arizona - Phoenix Historic Land Use

Data courtesy of MAG

1975

- Urban
- Agriculture
- Recreation

10 km



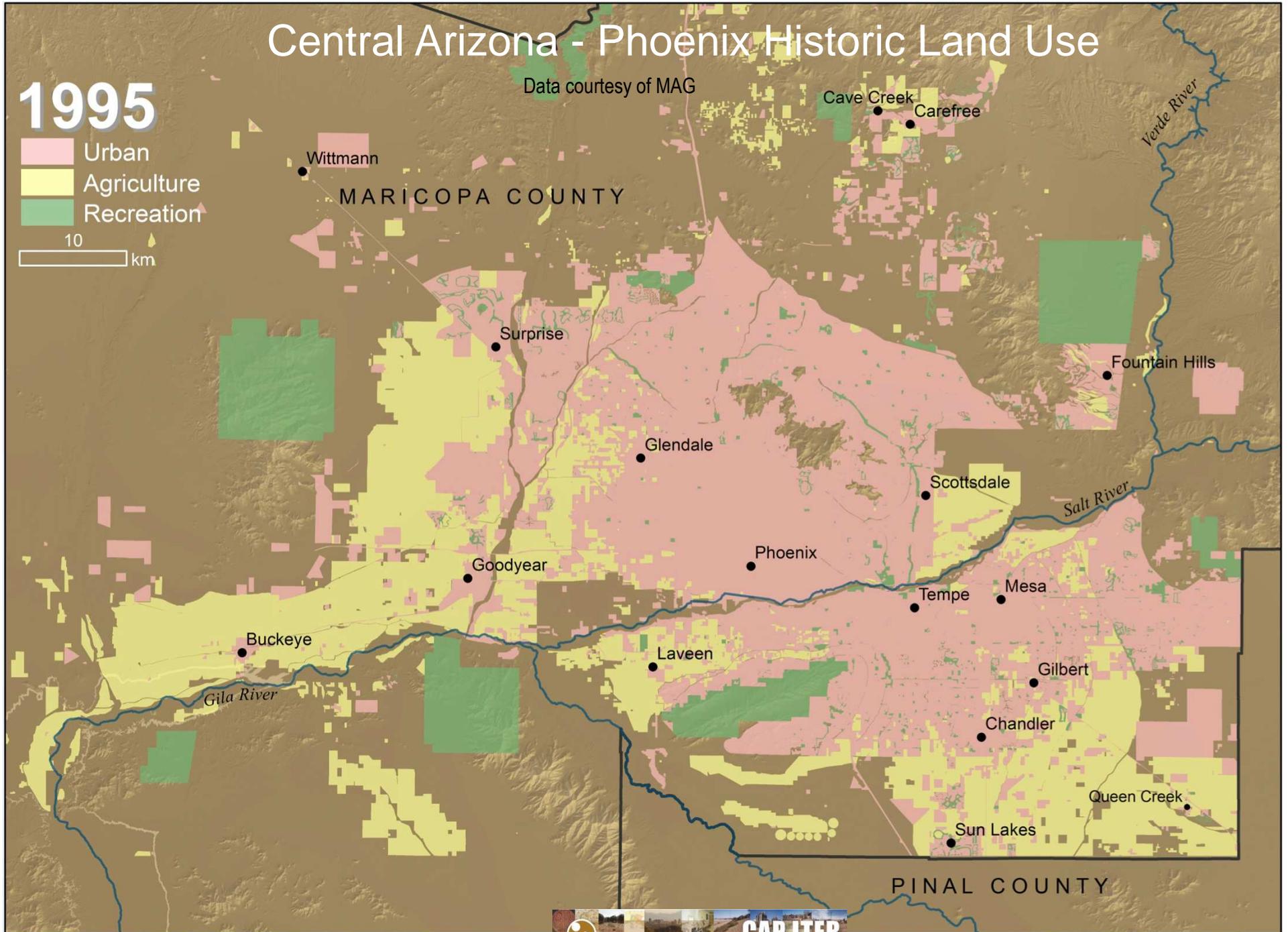
Central Arizona - Phoenix Historic Land Use

Data courtesy of MAG

1995

- Urban
- Agriculture
- Recreation

10 km



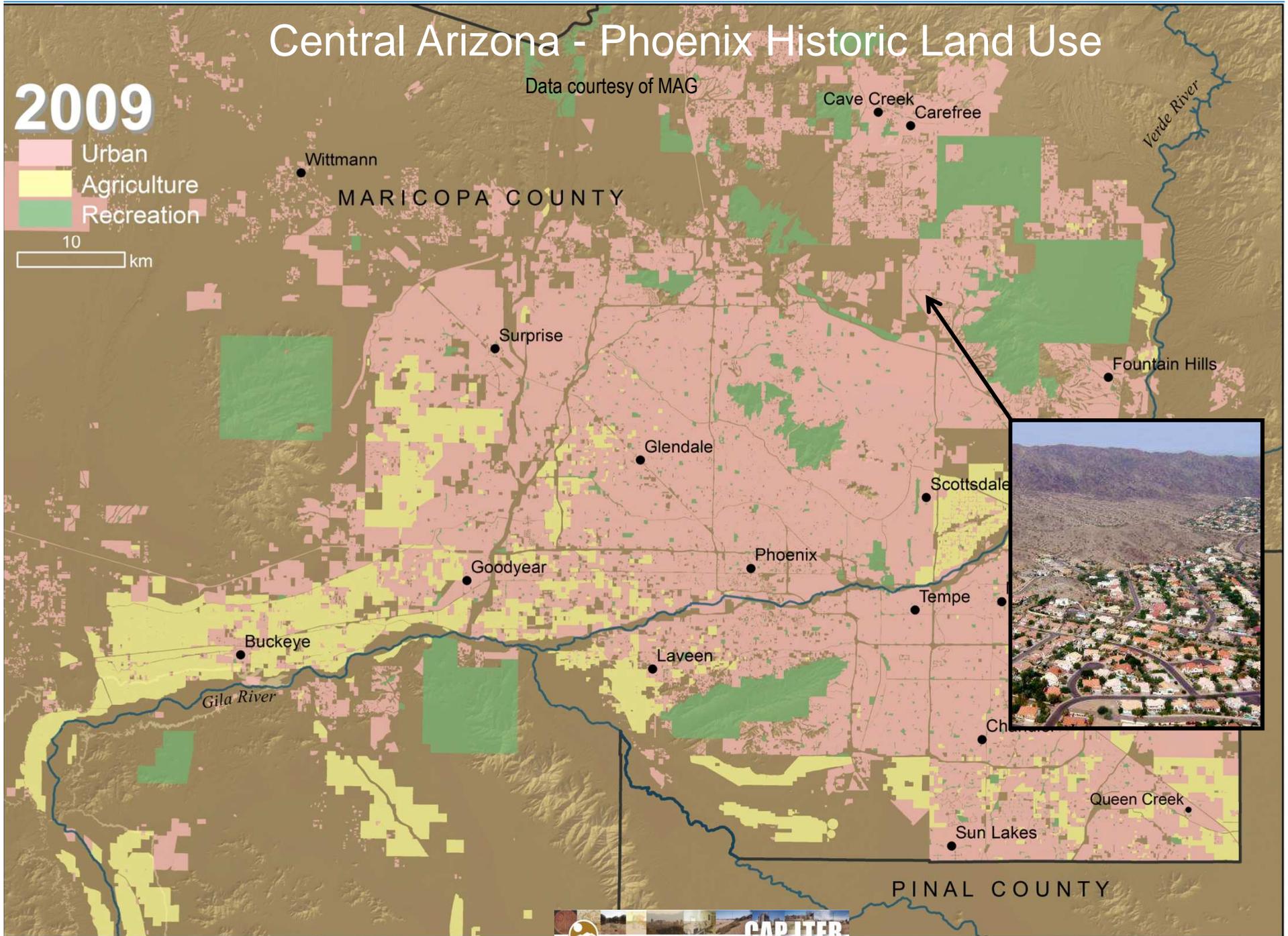
Central Arizona - Phoenix Historic Land Use

Data courtesy of MAG

2009

- Urban
- Agriculture
- Recreation

10 km



History of Metro-Phoenix Neighborhoods

- Who makes decisions about land development?
- How do these decision continue to influence urban development?



Stakeholders

- Groups of six
- Each individual will receive a stakeholder card
 - Read card silently
 - Think about the characters' lifestyles, values, perspectives; create a tangible identity for your character.
- Introduce your stakeholder to the other group members



1970

- Describe the area's current features and land-use
- Each stakeholder shares their ideas about how the site should be developed
 - i.e. what is truly best use of this land for your stakeholder



1980

- How did this location actually develop over the last 10 years
 - *Why did these changes occur?*
 - *How did developments/infrastructure from the past decade influence developments in this decade?*
 - *Which tracts of land are now most valuable?*
 - *Who benefited from these changes?*
- From your characters' perspectives, were these changes positive?
- Based on what has happened in this decade, what could and should happen next.
 - *Considering the new infrastructure that has been introduced, what new developments might happen next?*



1990

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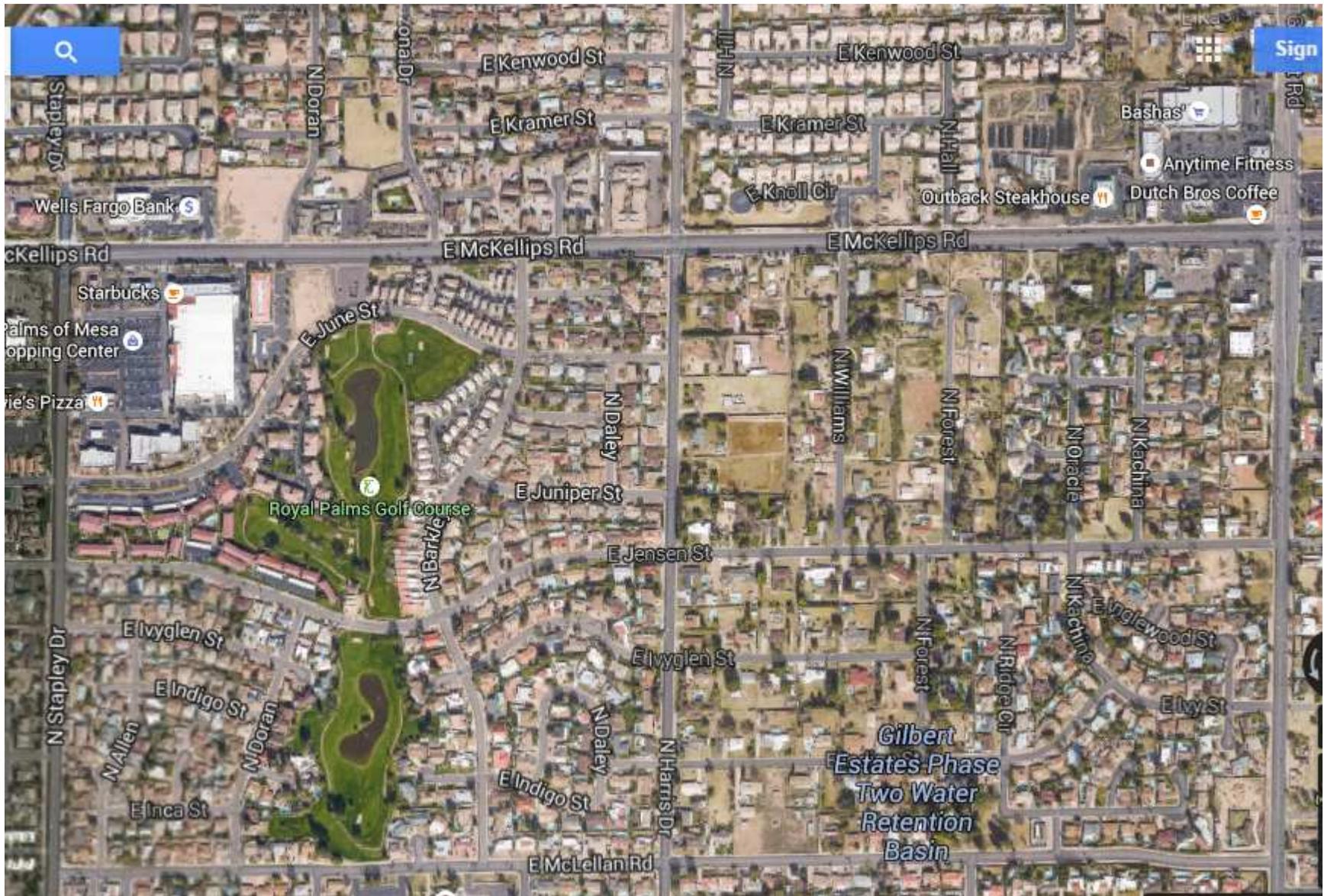
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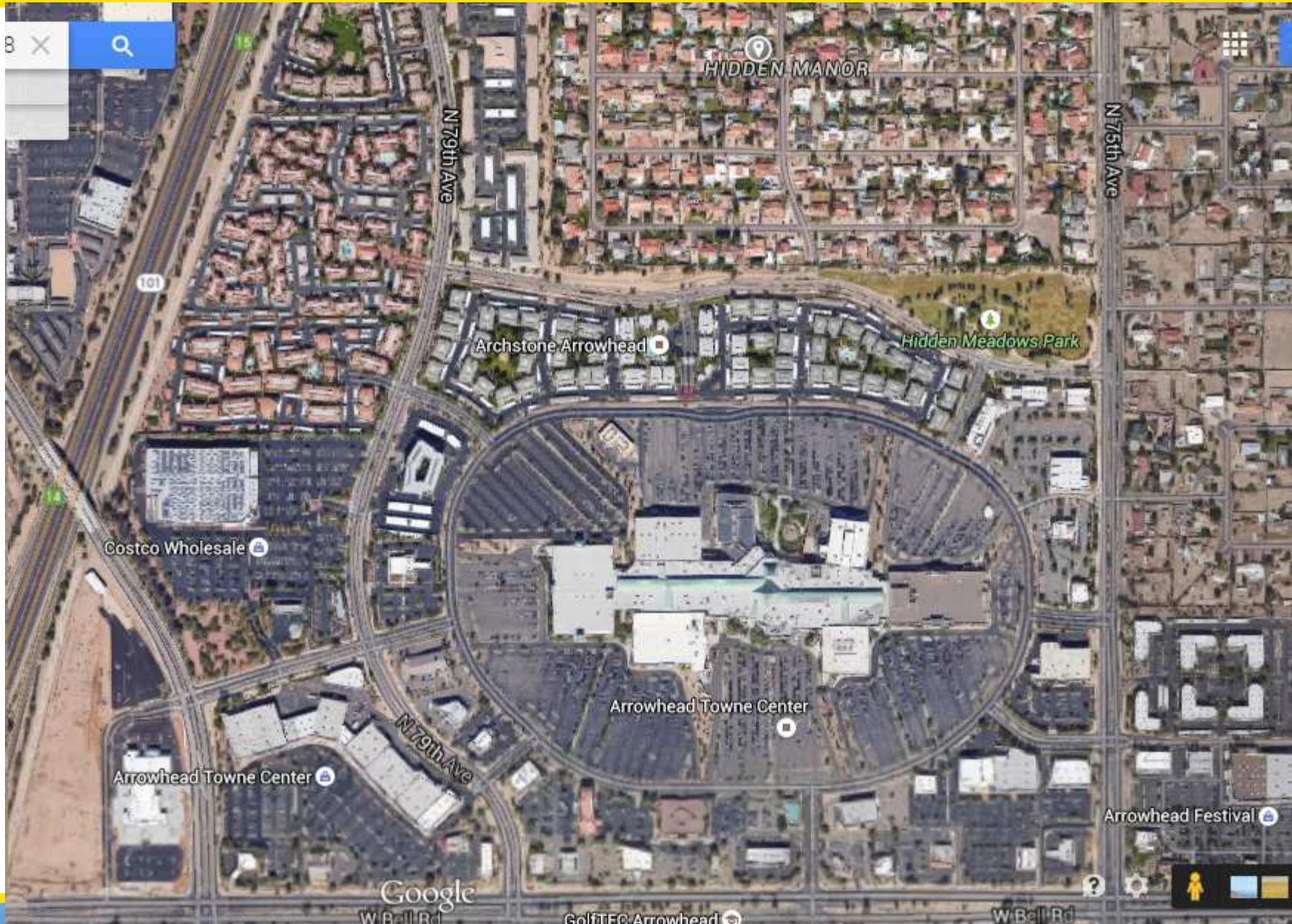


2010

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Other Impacts

- Biodiversity?
- Microclimates?
- Food System?
- Economic?

