

# TRANSPORT 2040: MOBILITY ZONES



LAS CRUCES METROPOLITAN PLANNING  
ORGANIZATION (MPO)

SGC 2012

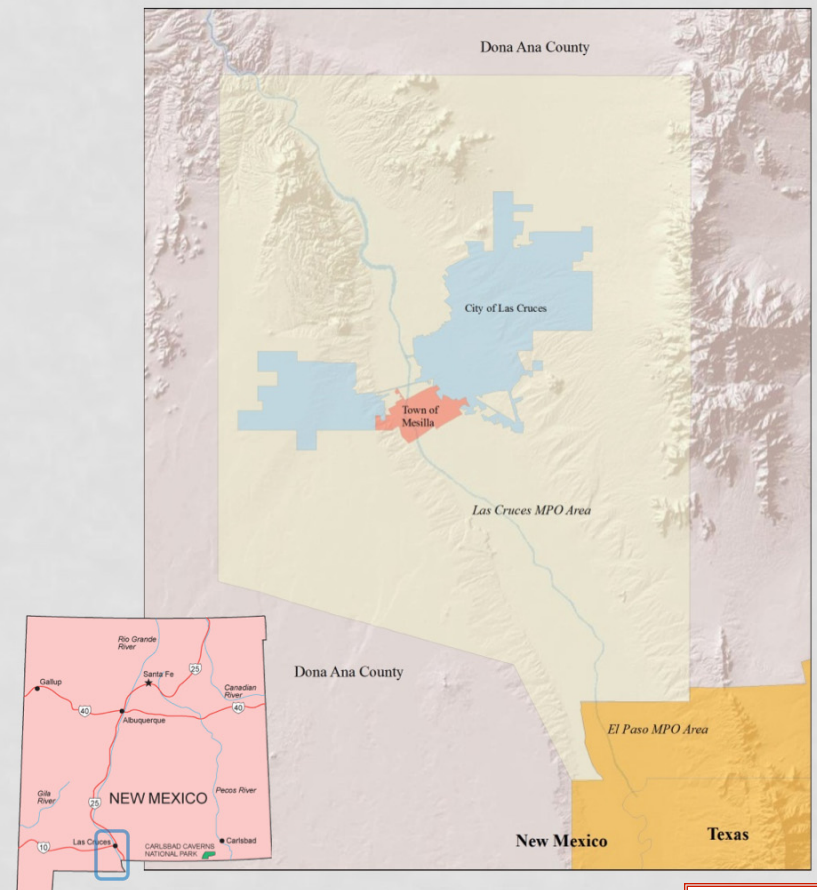
# TOPICS FOR CONSIDERATION

- Las Cruces Metropolitan Planning Organization Introduction
- Mobility Zone Basics
- Mobility Zone Data
- Uses for Mobility Zones



# ABOUT THE MPO AREA

- Medium-sized MPO
  - 157,000 residents within planning area
- MPO area includes
  - City of Las Cruces
  - Central and southern portions of Doña Ana County
  - Town of Mesilla
  - New Mexico State University
- City of Las Cruces
  - 76.31 mi<sup>2</sup>
  - Population: 97,618 (2010 Census)
  - Experienced 31.44% increase in population since 2000



Serving Las Cruces, Doña Ana County and Mesilla



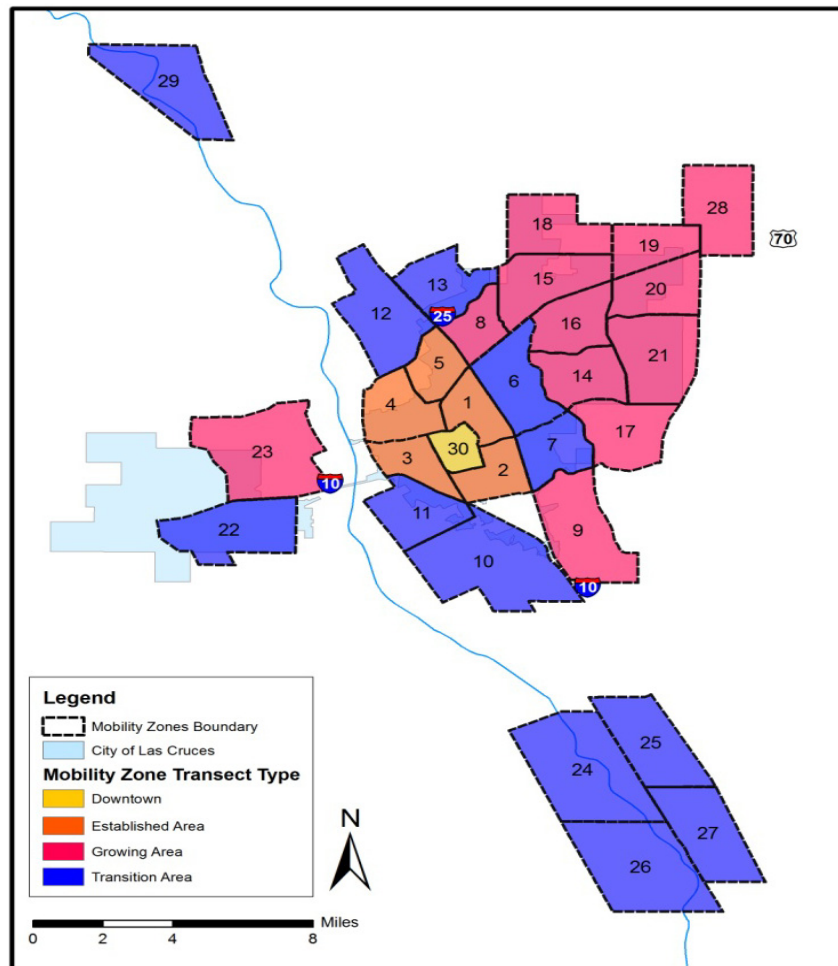
# MOBILITY ZONE GOALS

Planning tool used to identify and assess transportation and land use data

- Provides a detailed understanding of how the transportation network and the built environment interact and change across the metropolitan area – “the space between”
- Establishes local baseline data providing for a range of performance measures
- Allows for better coordination efforts with residents and stakeholders
- Provides spatial analyses to develop strategies, visualize concepts, and make comparisons



# MOBILITY ZONE CHARACTERISTICS



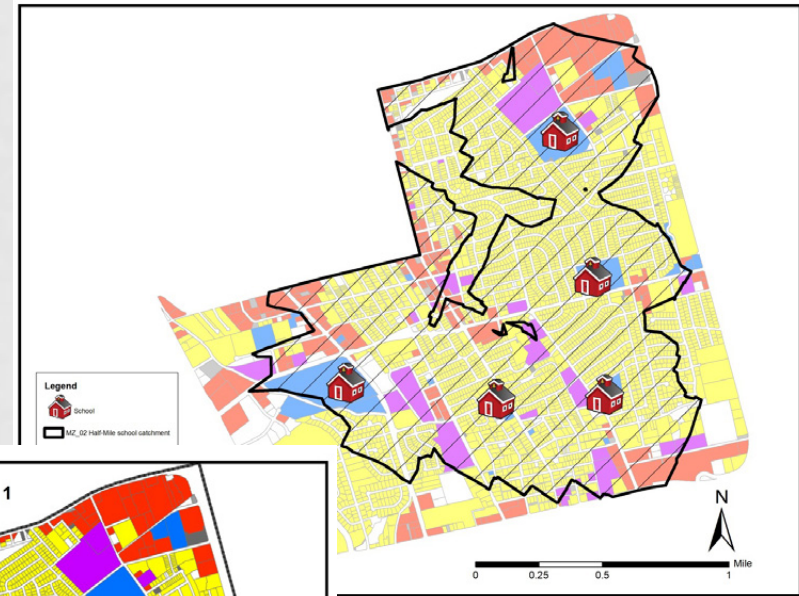
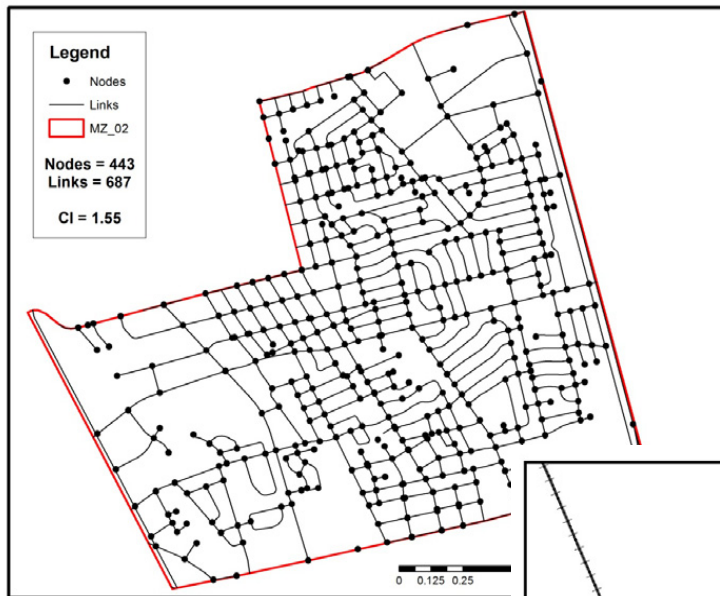
- Boundaries created by obstacles to mobility (i.e. arterials, rail lines, highways)
- Zone size designed to be walkable, bikeable distance
- Account for many factors affecting transportation
  - Any single factor can be misleading



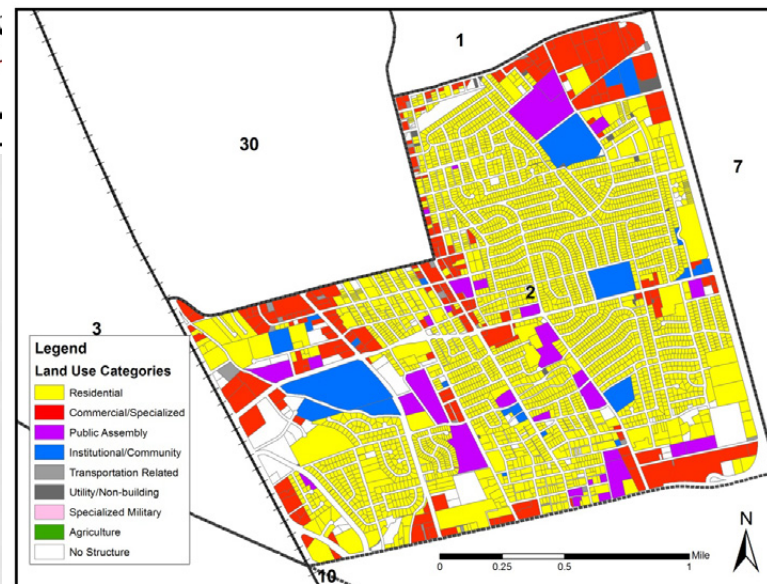


# MZ ASSESSMENTS

## MOBILITY ZONE 2 – 3.06 SQ. MI.



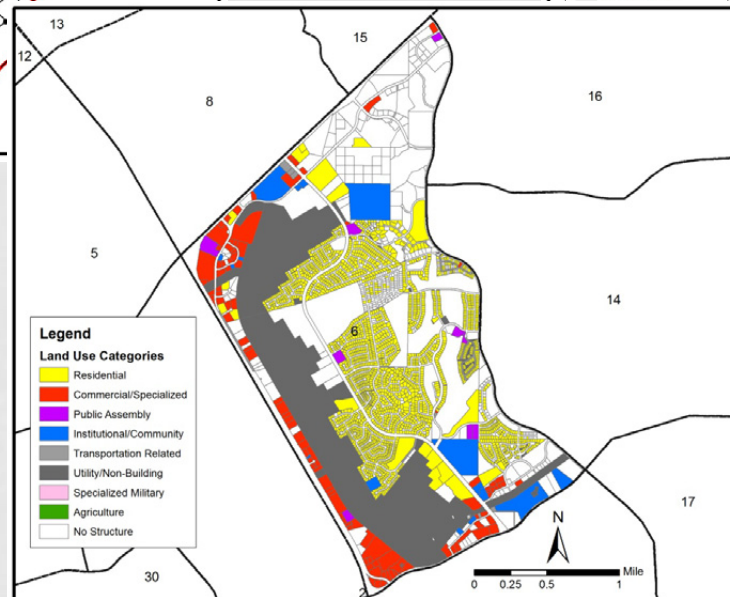
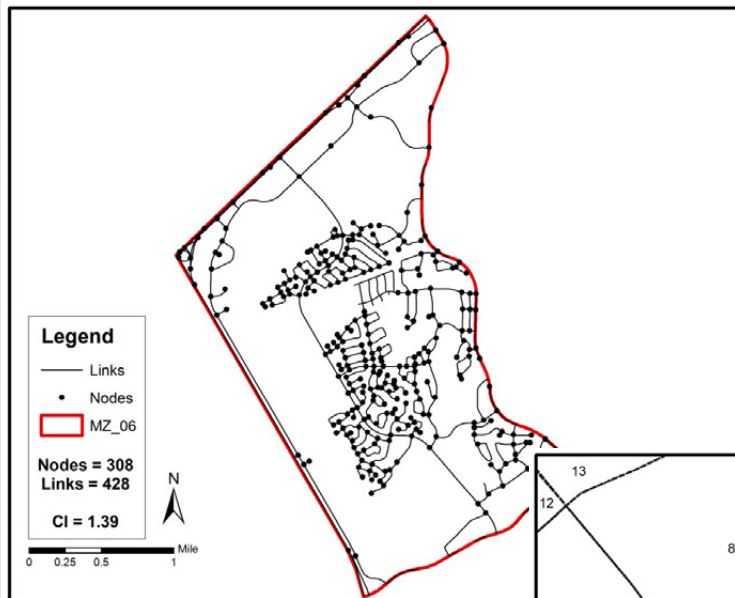
- Connectivity Index: 1.55
- ½ Mile Walk to School: 61%



- Local Transect: *Established*
- Population Density: 9.3/acre

# CONNECTIVITY INDEX

## MOBILITY ZONE 6 – 5.03 SQ. MI.



- Connectivity Index: 1.39
- ½ Mile Walk to School: 8%

- Local Transect: *Growing*
- Population Density: 3.3/acre

# MOBILITY ZONE USES

- Provide policymakers with a toolkit with which they can make responsible decisions
  - Mobility Zones are designed to reflect the reality “on-the-ground”
  - Limit optimism bias in planning, policy, and projects
- Assists in further defining an area’s identity
- Assist grant writers
- Answer many other questions, such as...





# OTHER QUESTIONS

## MOBILITY ZONES CAN HELP ANSWER

$$\text{corr}(X, Y) = \frac{E[(X - \mu_X)(Y - \mu_Y)]}{\sigma_X \sigma_Y}$$

Are CI and mode choice correlated?

$$y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n + \epsilon_i$$

How do the various mobility zone attributes interact with one another?

$$P_T = \frac{e^{\beta_T(\text{LogSum}_T)}}{e^{\beta_T(\text{LogSum}_T)} + e^{\beta_A(\text{LogSum}_A)} + e^{\beta_N(\text{LogSum}_N)}}$$

How are people choosing to travel?

$$T_{ij} = P_i \times \frac{e^{U_{ij}}}{\sum_j e^{U_{ij}}}$$

Where are people going?

$$I = K \times \ln \left[ \frac{C}{\sum \frac{1}{e^{A_i}}} \right]$$

How accessible are our road ways?

$$P_{gr2} = \int_{-\infty}^{-\Delta_{gr}} n(s) ds = \Phi(-\Delta_{gr})$$

What routes are people deciding to take?



# RECAP

- Las Cruces MPO Introduction
  - Welcome to southern New Mexico
- Mobility Zone Basics
  - New way of looking at your city layout
- Mobility Zone Case Studies
  - Well-connected, diverse land uses
- Mobility Zone Uses
  - Improve policies; Locate projects to benefit people



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Questions during  
discussion

