

Our transportation system today



The I-81 Physical Conditions Analysis

The I-81 Physical Conditions Analysis is one piece of *The I-81 Challenge*. It includes:

- A technical analysis of the highway’s existing physical and operational conditions
- A review of the existing land use, economic, and environmental context

MAP OF STUDY AREAS



WHY IS THERE MORE THAN ONE STUDY AREA?

The primary study area provides a narrow focus for the analysis of physical infrastructure (e.g. roadways, bridges, ramps) of I-81 and adjacent sections of I-690.

A broad view will help us understand I-81’s role and function in our region. We need to consider land use, economic development, and environmental issues within this broader regional context.

? The I-81 Traffic Challenge

Since 2003, traffic volumes on I-81 have grown at what annual rate?



- A: Little to no growth
- B: Between 2 and 5%
- C: Between 5 and 10%
- D: Greater than 10%

Answer: A

Available data indicates that there has been little to no growth in traffic volumes since 2003

During peak commute hours, trucks and buses make up what percent of total traffic on I-81?



- A: Less than 5%
- B: Between 5 and 10%
- C: Between 10 and 25%
- D: More than 25%



Answer: B

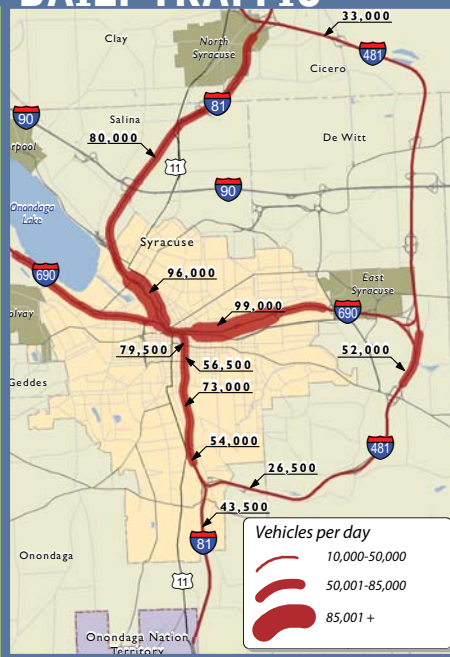
Trucks and buses make up 8.8% of total traffic during the morning rush hour and 7.5% during the evening rush hour

Traffic volumes on I-81

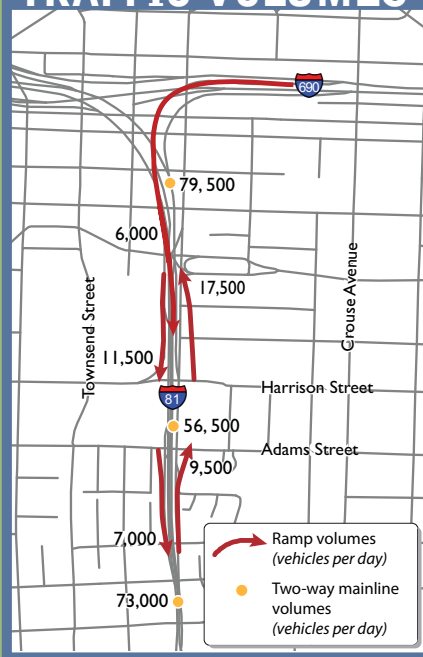


To determine how busy I-81 is, we calculate traffic volumes using vehicle counting stations

ANNUAL AVERAGE DAILY TRAFFIC



VIADUCT AREA TRAFFIC VOLUMES



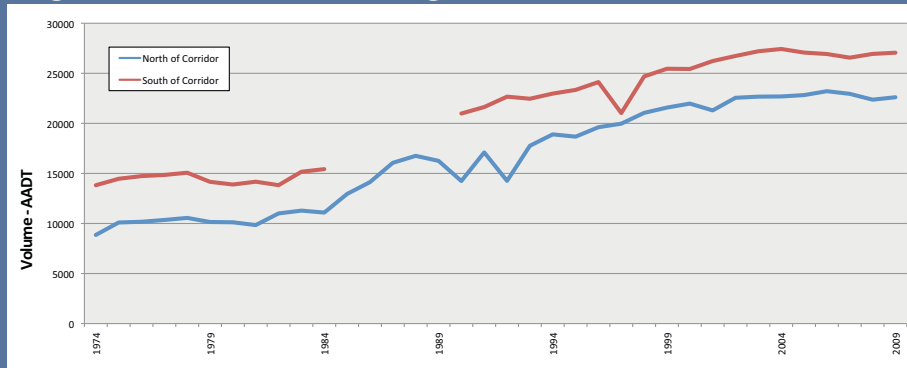
DID YOU KNOW?

- Between 1974 and 2003 traffic increased at an annual rate of 3.3 - 5.4%.
- Since 2003 there has been little if any growth in traffic volumes.
- July and August have the highest traffic volumes, while January and February have the lowest.
- Heavy vehicles (trucks with at least 4 axles and buses) account for 9% of total traffic during the morning rush hour and 8% during the evening rush hour.

WHAT IS AADT?

- Average Annual Daily Traffic—referred to commonly as AADT—is calculated by measuring the total number of vehicles passing a point or segment of a highway, in both directions, for one year, divided by the number of days in the year.

I-81 YEARLY TRAFFIC—2-WAY AADT



Note: No data available between 1985 and 1990 at the south station.

Data was collected at continuous count stations located approximately 15 miles north and approximately 10 miles south of the corridor.

? The I-81 Bridge Challenge

What percent of the 76 bridges in the I-81 corridor are not designed to current bridge standards or are in need of rehabilitation?



- A: Under 10%
- B: Between 10 and 30%
- C: Between 31 and 60%
- D: More than 60%

Answer: D

Forty-six of these bridges have lane widths, load carrying capacity, clearance, or approach-roadway alignments that do not meet current bridge standards. Seven bridges are in need of rehabilitation or replacement.

In 40 years, what percent of all bridges in the primary study area will have exceeded their expected service life?



- A: Under 25%
- B: Between 25 and 50%
- C: Between 51 and 75%
- D: More than 75%

Answer: D

By 2050, over 80% of the bridges in the study corridor will have met or exceeded their expected service life.

Highway & bridge conditions

NYS DOT conducts periodic inspections to determine pavement and bridge conditions

HIGHWAYS

A surface rating survey completed in 2008 found:

- The majority of the pavement in the primary study area to be in "good" condition
- However, given their age, the majority of the highways will need either a major rehabilitation or reconstruction by 2040

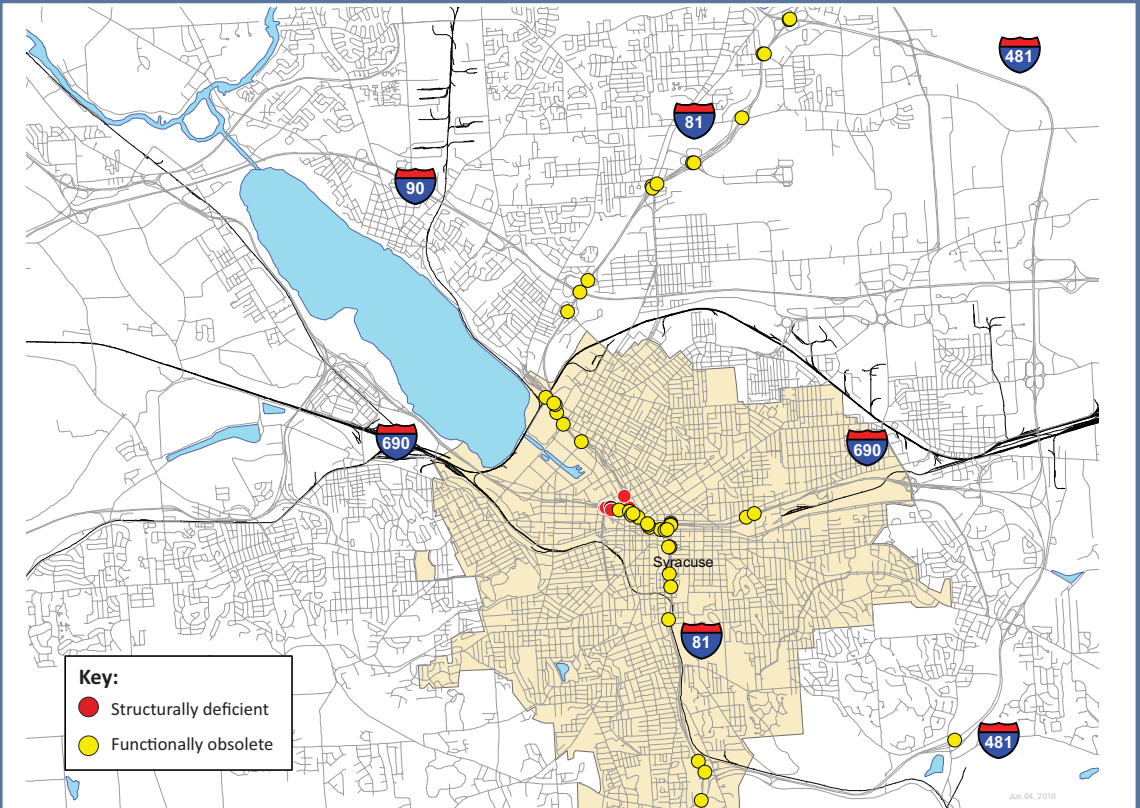
BRIDGES

Recent inspections of the 76 bridges in the primary study area showed that:

- 46 bridges classified as functionally obsolete do not meet current bridge design standards
 - 18 of these bridges are located in the viaduct section of I-81
- 7 bridges classified as structurally deficient are in need of major rehabilitation or replacement
 - 1 of these bridges is located in the viaduct section of I-81

Assuming only routine maintenance, most of these functionally obsolete and structurally deficient bridges will be in a state of serious deterioration by 2020

BRIDGE CONDITIONS



? The I-81 Safety and Congestion Challenge

Along the I-81 viaduct section in the northbound direction, how does the vehicle accident rate compare with the statewide average for similar expressways?

- A: Less than the statewide average
- B: The same as the statewide average
- C: Twice the statewide average
- D: More than 3 times the statewide average



Answer: D

The accident rate on the northbound Viaduct section is more than three times the statewide average

During the morning and evening peak hours, what is the average speed in either direction along the I-81 viaduct section?

- A: < 15 mph
- B: 15 - 25 mph
- C: 26 - 40 mph
- D: > 40 mph



Answer: B

Average speeds on the viaduct section of I-81 range between 18 and 23 mph during both the AM and PM rush hours

Design, congestion & safety deficiencies

SAFETY, CONGESTION, & DESIGN DEFICIENCIES



DESIGN

When I-81 was constructed in the 1950s and 1960s, highway design standards were different from today.

Significant portions of I-81 do not meet today's design standards. These areas have:

- poor sight distances
- sharp curves
- limited ramp spacing

CONGESTION

Highways within the Syracuse region generally have sufficient capacity for current traffic volumes.

Certain areas along I-690 and I-81 in the downtown area experience congestion and slow travel speeds during peak periods. Any disruption due to maintenance or accidents can cause severe traffic congestion.

SAFETY

Highways in the primary study area have a relatively high rate of accidents when compared to statewide averages.

Section of Highway	Accident rate compared to statewide average
Northbound viaduct	300%
I-81 through I-690 interchange	500%
81 north of I-690 (Carousel Center area)	200%

LOOK AT THE MAP

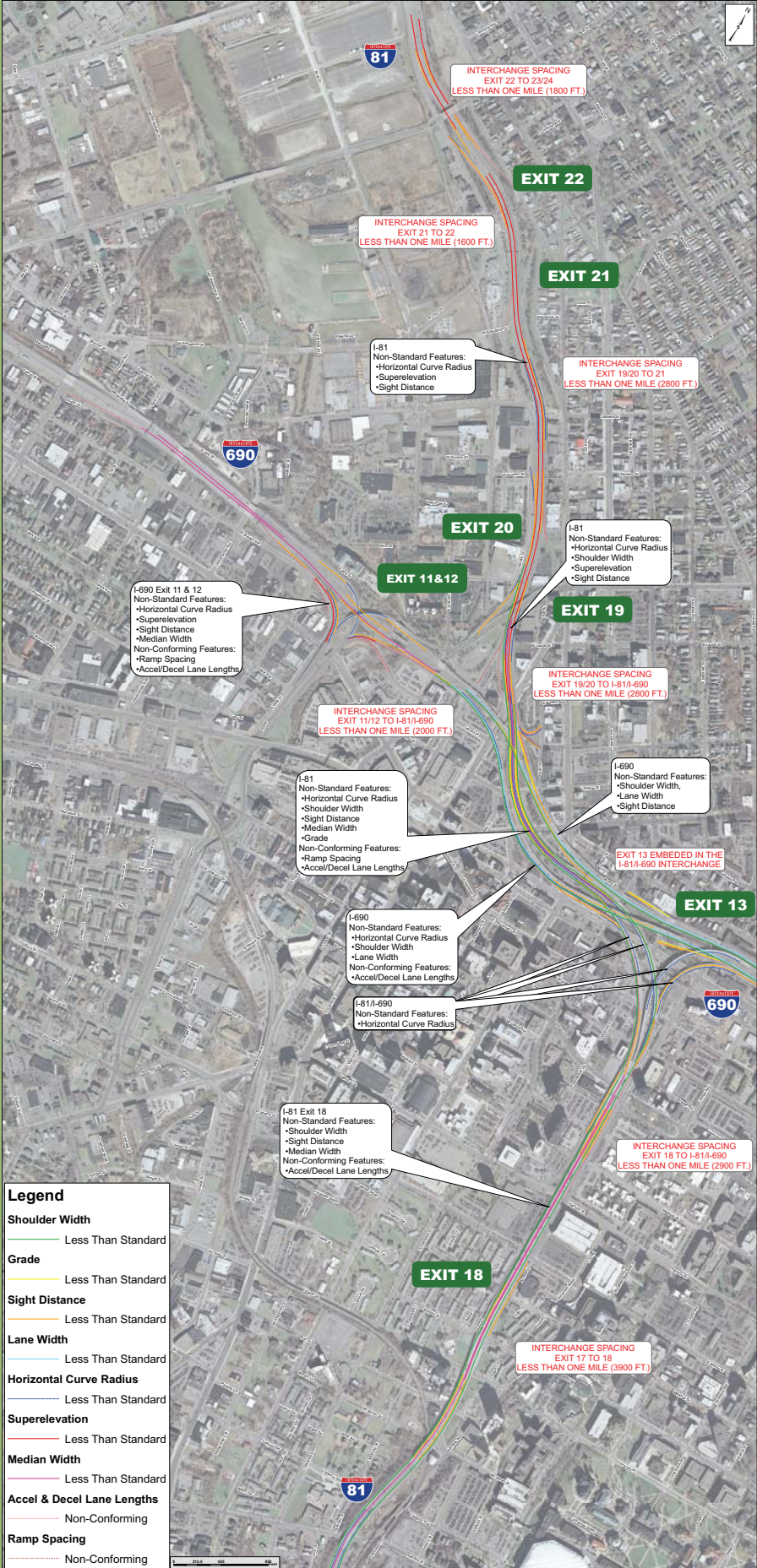
Do you see any correlation between design deficiencies, accident rates, and congestion? Highway sections not meeting current design standards generally coincide with areas of increased congestion and high accident rates.

WHAT IS LEVEL OF SERVICE?

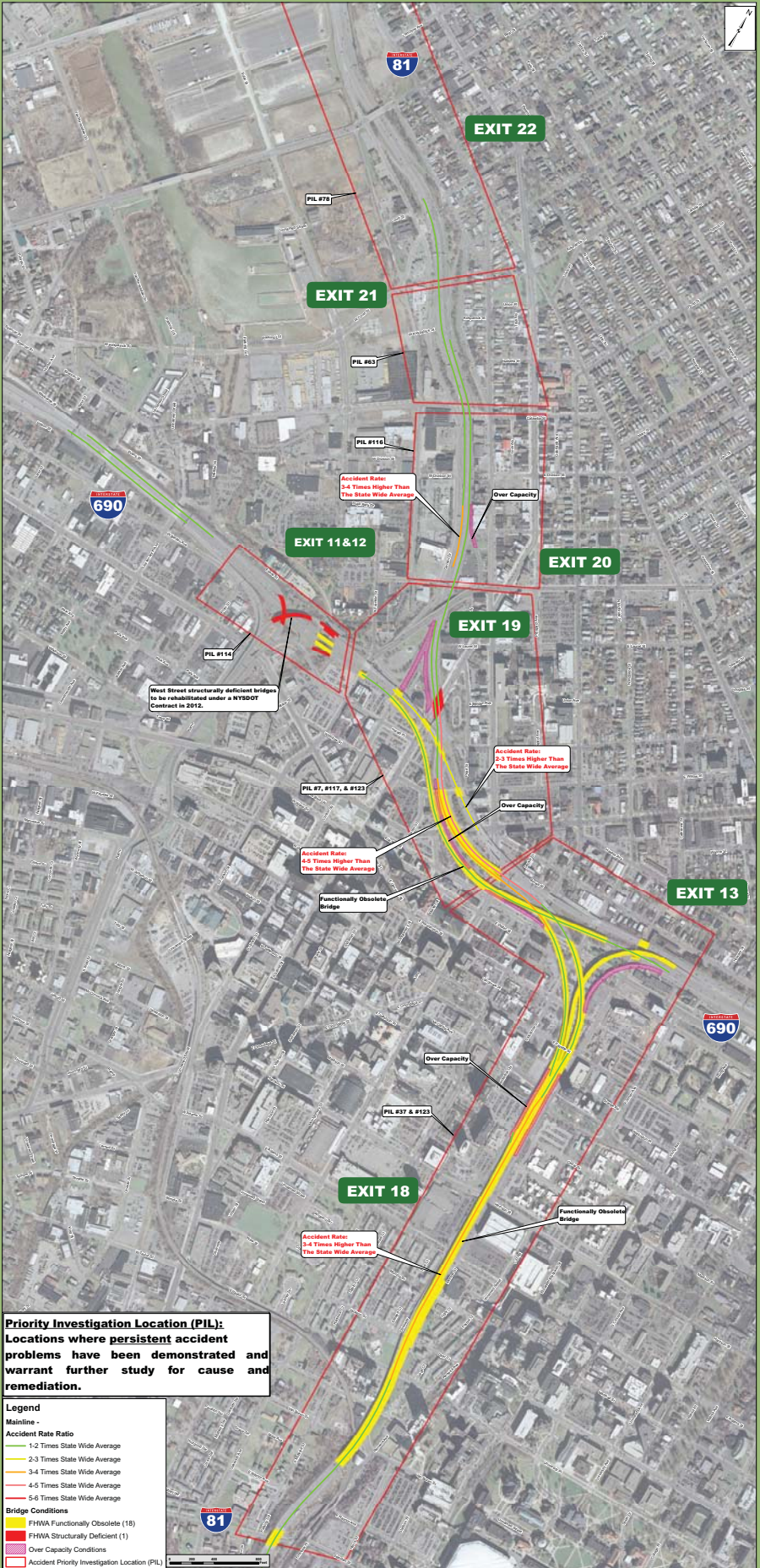
Level of Service (LOS) is a way of measuring how well traffic moves along a highway or through an interchange. Letter grades (A-F) are used to designate LOS. LOS A, B or C means there is sufficient highway capacity for the current traffic. Traffic flows well. LOS D, E or F means that traffic volume is approaching or exceeding capacity. Traffic slows down and delays occur.



Roadway deficiencies



Bridge, traffic and safety deficiencies



? I-81 Regional Traffic Challenge

On a typical day, 44,000 total vehicles travel on I-81 south of the southern I-481 interchange. What percent of this traffic, on average, passes through the Syracuse area on I-81 alone without stopping?



- A: Less than 10%
- B: Between 11 and 20%
- C: Between 21 and 30%
- D: More than 30%

Answer: A

About 6% (2,760 vehicles) of the 44,000 total vehicles pass through without stopping

Regional interstate traffic on I-81

INTERSTATE THROUGH TRAFFIC



In April 2010, an analysis was done to understand how much I-81 traffic is passing through our region without stopping along 3 possible routes: I-81, I-81 to I-90 (Thruway) via I-690, and I-481

The data were collected on a typical weekday using Automated License Plate Reader cameras

The analysis revealed:

- 44,000 total vehicles per day on I-81 south of the southern I-481 interchange
- Of these 44,000 vehicles, 12% (5,400 vehicles per day) are currently traveling through the region without stopping

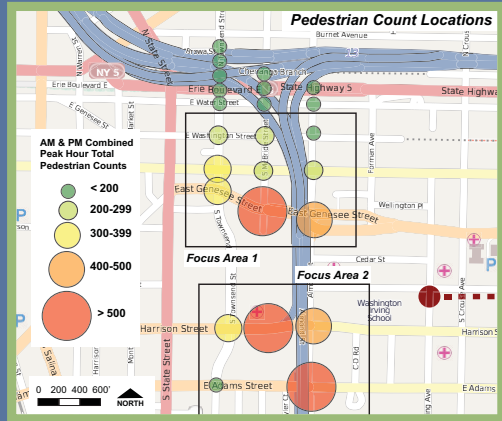
The results suggest that diverting regional interstate through traffic to I-481 or other alternative interstate routes will have little impact on I-81 through Syracuse



Additional traffic data is likely to be collected to assist in the assessment of different options for I-81

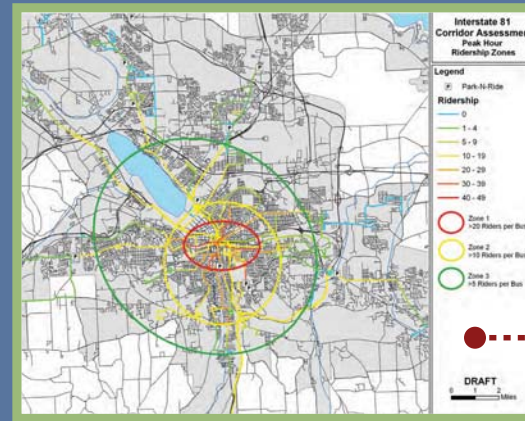
Planning for more than just cars

Networks of local streets, paths and trails provide space for pedestrians and bicyclists



Some of the busiest pedestrian areas are the Upstate Medical Center, Syracuse University, and the commercial, residential, and office area on East Genesee Street

Centro provides transit service for those without or who choose not to use a car



Centro operates almost 100 bus routes in Syracuse and Onondaga County

Our airport serves long distance travelers and allows for the shipment of goods



Hancock International Airport



Our rail system brings passengers and freight into and out of our region



Syracuse Regional Transportation Center

