The I-81 Challenge

May 2013 Public Meeting

Appendix B – Informational Boards

Prepared for: Syracuse Metropolitan Transportation Council

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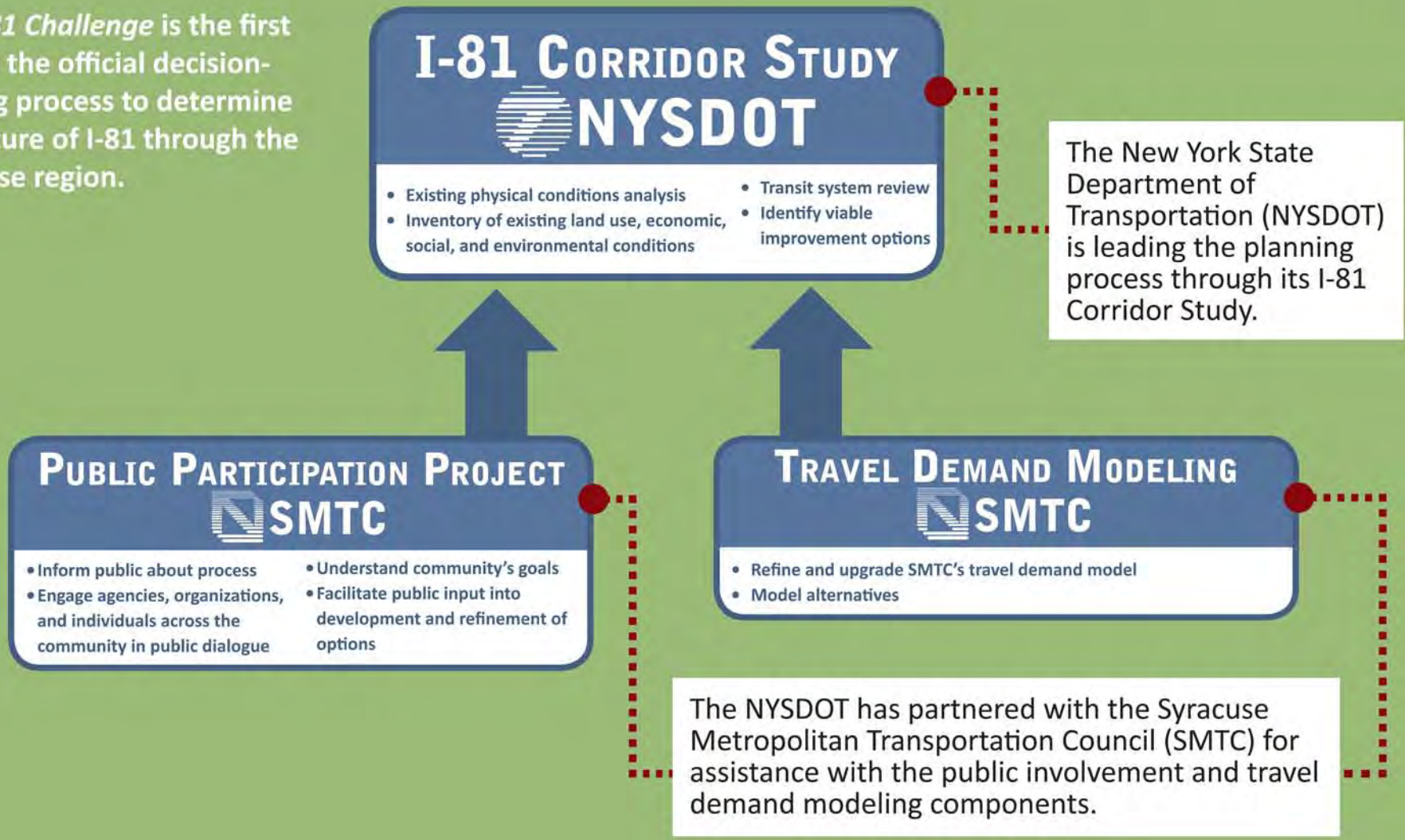
STATION 1

The I-81 Challenge

What is *The I-81 Challenge*?

The I-81 Challenge **is the first step in the official decision-making process to determine the future of I-81 through the Syracuse region.**



Why is *The I-81 Challenge* needed?

AGING INFRASTRUCTURE

Sections of I-81—particularly sections of the viaduct in downtown Syracuse—are nearing the end of their lifespan.

LOOKING FORWARD

Over the coming decades, portions of the highway will need to be replaced, reconstructed, removed, or otherwise changed.

What will *The I-81 Challenge* accomplish?

UNDERSTANDING

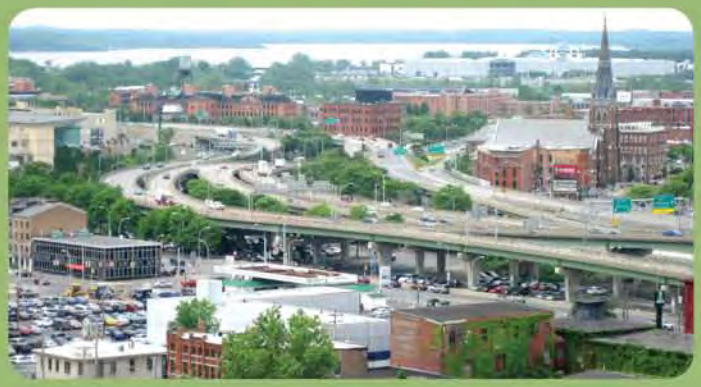
A clear understanding of our collective transportation needs and problems.

GOALS

A set of goals that identify what we want to accomplish with I-81 and the measures by which we will know we have succeeded.

OPTIONS

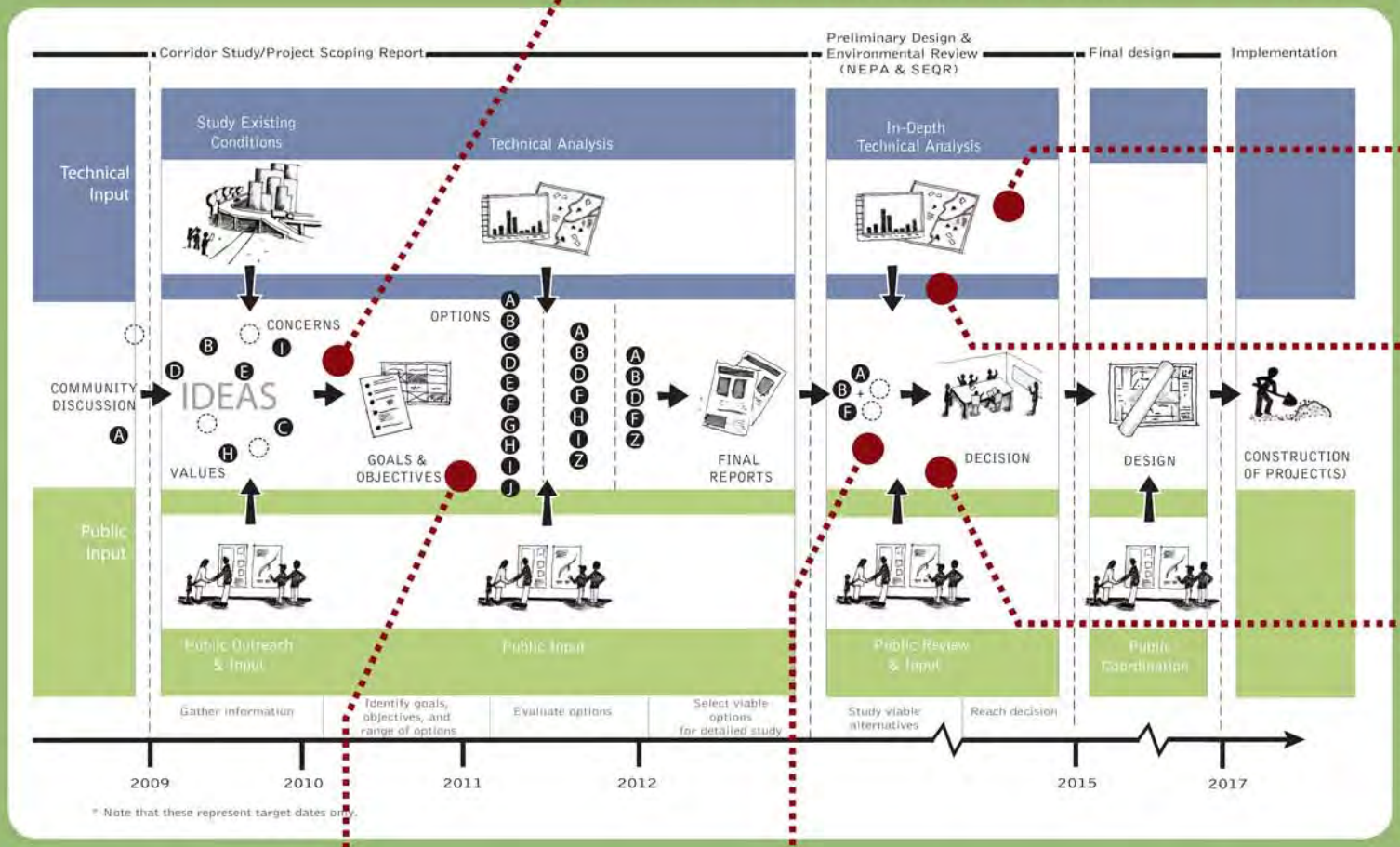
A short list of viable future options that will go through a formal environmental review.



SOLUTION(S)

Transition to the formal environmental review process. The environmental review will result in a project or projects that could be implemented as funding is available.

How will *The I-81 Challenge* lead to a decision?



PUBLIC + TECHNICAL INPUT

Generate a wide range of options for the future of I-81 as well as a set of criteria to narrow down options based on broad public participation and technical analysis.

REASONABLE ALTERNATIVES

Narrow the alternatives through technical analysis, agency, and public review and comment.

ENVIRONMENTAL ANALYSIS

Identify reasonable range of alternatives for formal environmental review required by federal and New York State law.

REFINING ALTERNATIVES

Refine alternatives through a formal environmental review process— lead to a decision and a project or projects to be implemented.

VIABLE OPTIONS

Narrow the options through more public involvement and technical analysis.

NEPA SCOPING

Develop purpose and need.

Who makes the final decision?

The decision about what happens to I-81 involves many parties:

The New York State Department of Transportation (NYSDOT):

The NYSDOT owns the road and will therefore have ultimate responsibility for any decision about the future of I-81. NYSDOT will be responsible for overseeing the decision-making process and, eventually, construction.

The Syracuse Metropolitan Transportation Council (SMTC):

The SMTC is the federally designated agency responsible for planning and allocating federal funding for transportation projects in our region. Based on current Federal transportation legislation, project(s) that emerge from *The I-81 Challenge* requiring federal funds will have to be included in the SMTC's Transportation Improvement Program (TIP) of regional improvement priorities. Approval of the TIP requires a consensus of SMTC member agencies. The TIP is also made available for public comment prior to approval.

Federal Highway Administration (FHWA):

Because federal money will be expended, the federal government, through the Federal Highway Administration (FHWA) and other federal agencies, will also have a role in the I-81 decision-making process. The FHWA will oversee the adherence to federal transportation planning and design regulations throughout the process as well as ensuring that the environmental review is conducted in accordance with the National Environmental Policy Act (NEPA).

Centro, the City of Syracuse, Onondaga County, and others:

Any decisions that involve transit solutions and/or alterations to local streets will involve Centro, our local transit agency, and our local municipalities. These entities have ultimate responsibility for transportation decisions within their jurisdictions.

You (the public):

Because this project has the potential to profoundly impact everyone who lives in the Syracuse metropolitan area, the public will also play a role in the ultimate decision about I-81. The public will be involved in the development of options for the future of the highway, as well as the iterative process to narrow those options down to the preferred solution(s).

STATION 2

The I-81 Challenge to Date

Technical analysis

Technical work for *The I-81 Challenge* has focused on:

- **Collecting and analyzing data to identify the needs and condition of I-81 and the Syracuse region's transportation system and the environment in which they operate**
- **Identifying potential strategies to address the needs for I-81 that are worthy of detailed evaluation**

PHYSICAL CONDITIONS ANALYSIS

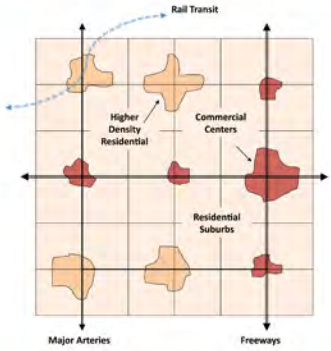
To date, the technical effort has resulted in a Physical Conditions Analysis, which analyzed:

- Critical highway design elements
- Highway and bridge conditions
- Traffic volumes and interstate through traffic
- Congestion
- Accident rates
- Land use
- Demographic and economic trends
- Pedestrian and bicyclist system and safety
- Transit conditions and needs

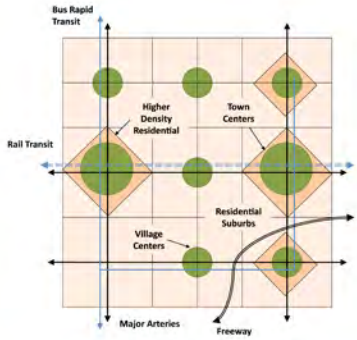
The results of this analysis are documented in Technical Memorandum #1

Transportation modeling

You've probably seen or heard about models throughout your life – whether physical models such as a train or a building or more abstract models like those used to give us weather forecasts. What they have in common is that they represent real world objects or processes.



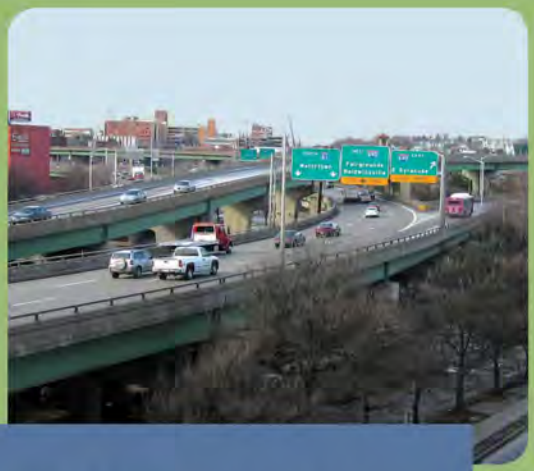
We also use models in transportation planning. These models are a series of complex mathematical equations that represent the choices, decisions, and behavior of thousands (or millions) of individual travelers.



HOW DO THEY KNOW?

Ever heard that new transit service will take *X* number of cars off the road? Or that building a new road will cut travel time by *X* minutes? Ever wondered how planners know that?

It all comes from a model...



MODELS HELP US:

- Know where, when and how people are traveling
- Understand what and where our transportation needs are now and in the future
- Evaluate different strategies and investments to meet those needs
- Determine the impacts of strategies and investments on system performance, air quality, travel time, and land use, just to name a few

Public involvement for *The I-81 Challenge*

Throughout *The I-81 Challenge,* community input will help guide the development and refinement of options for the future of I-81. The SMTC and the NYSDOT have used a wide variety of tools and techniques to disseminate information and facilitate input into *The I-81 Challenge* process.

EDUCATION AND INFORMATIONAL MATERIALS

- Fact sheets and newsletters
- Website and social media
- Educational videos

STUDY COMMITTEES

- Study Advisory Committee
- Community Liaison Committee
- Municipal Liaison Committee

ELECTED OFFICIAL OUTREACH

- Notification to local, state, and federal elected officials

LIMITED ENGLISH PROFICIENCY AND ENVIRONMENTAL JUSTICE OUTREACH

- Translation and interpreters
- Targeted outreach

Public involvement for *The I-81 Challenge*

Input directly from the public has been critical for the progress of *The I-81 Challenge* since its inception in 2009. More than 2,000 people have participated through their comments and involvement. To date, our work has included:

PUBLIC MEETINGS

- In May 2011 and 2012, the SMTC and NYSDOT hosted a series of public events
- Nearly 1,200 people participated in person, and more than 450 participated in the "virtual" meetings on the project website
- The meeting summaries are available on the project website: *http://www.thei81challenge.org*

FOCUS GROUPS

- The SMTC and the NYSDOT convened 23 focus groups throughout our region
- A total of 176 stakeholders participated

COMMUNITY EVENTS

- The SMTC and the NYSDOT have presented or distributed project information at community events throughout the region

SMALL GROUPS, COMMUNITY MEETINGS

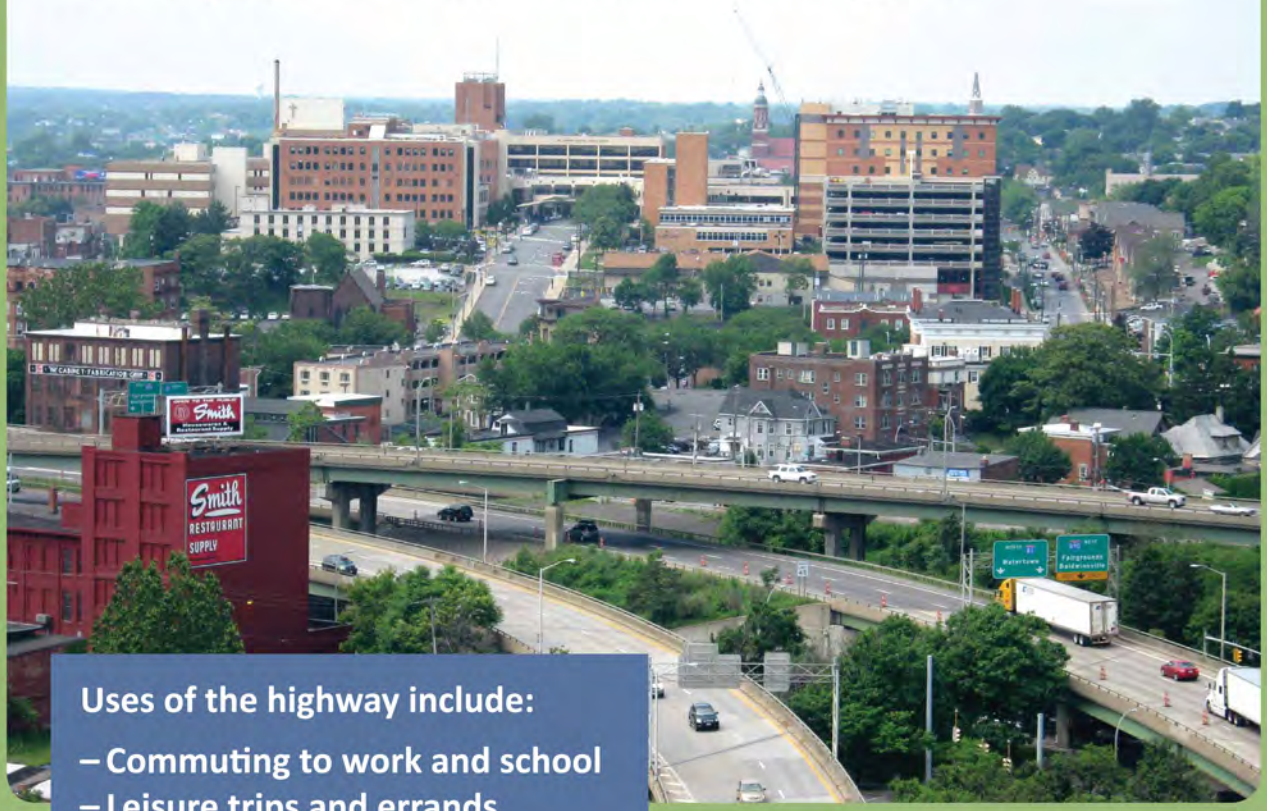
- 21 organizations accepted the SMTC's and NYSDOT's offer to discuss *The I-81 Challenge* at community meetings

QUESTIONNAIRES

- Two questionnaires gathered information from more than 1,000 people about numerous topics, including their use of I-81 and desired goals for the future of the highway
- The questionnaire summary is available on the project website: *http://www.thei81challenge.org*

Public involvement key findings: I-81 and the Syracuse region

I-81 is part of what defines the region



Uses of the highway include:

- Commuting to work and school
- Leisure trips and errands
- Long-distance travel

I-81's negative impacts on our region include:

- Perceived barrier and visually unappealing
- Source of pollution and promotes car-centric culture

I-81's positive impacts on our region include:

- Connections to key destinations
- Mobility and quick access
- Support for regional economy

Public involvement key findings: deficiencies and needs

Major public concerns about I-81:

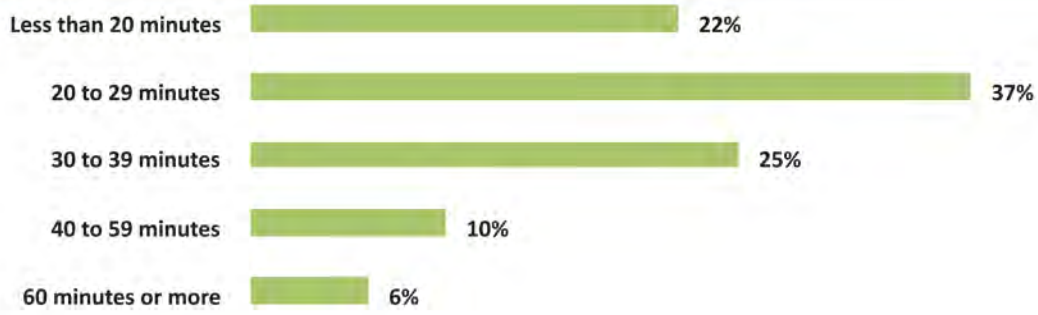
- Substandard ramps and merge lanes
- Sharp curves
- Left-hand entrances/exits
- Dangerous merges
- Dangerous and/or congested intersections
- Congestion
- Pedestrian and bicyclist safety
- Barrier to access
- Downtown and neighborhood connectivity

Public input corroborated technical analysis in Technical Memorandum #1: Physical Conditions Analysis

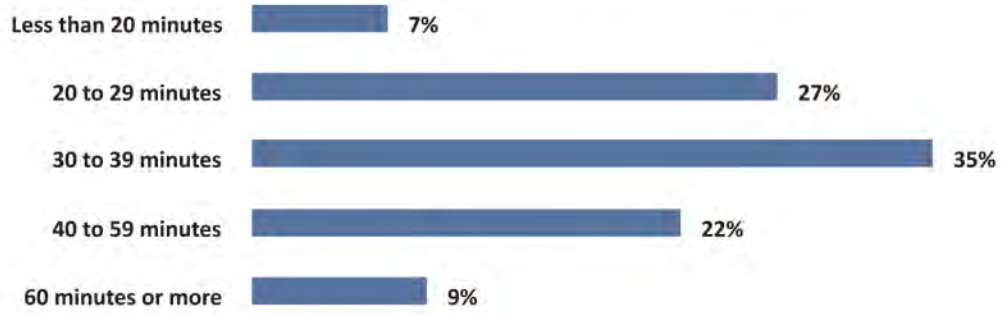
Public involvement key findings: travel time tolerance

We often refer to Syracuse as a "20-Minute City," but our 2011 questionnaire showed that is only true for less than 25% of us and that overall, the residents of our region could support a slight increase in overall travel time in the Syracuse region in the future.

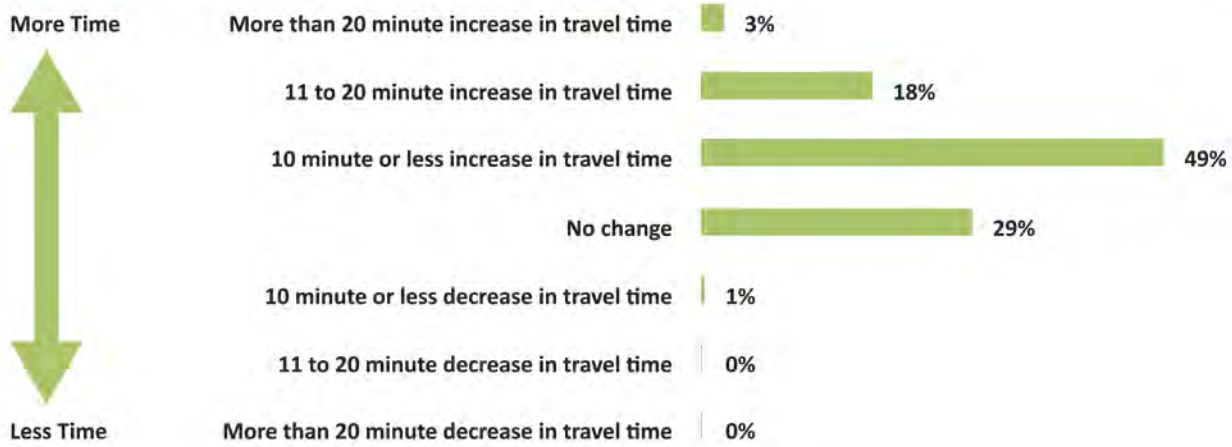
Current travel time in the Syracuse region



Tolerable future travel time



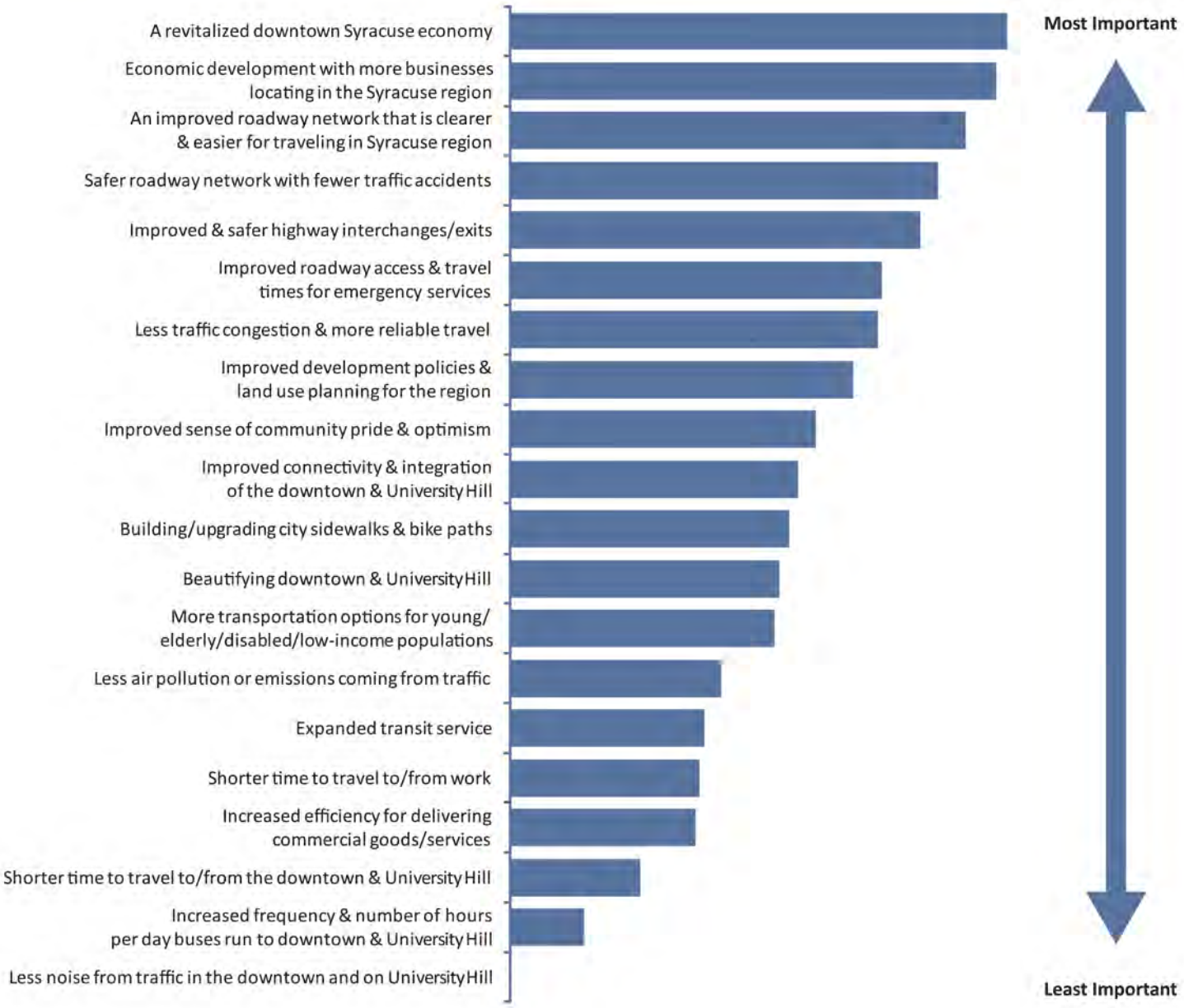
Tolerable change in travel time



Public involvement key findings: benefits of an improved I-81 corridor

Our 2011 questionnaire presented respondents with 20 possible benefits that could be realized from an improved I-81 corridor (irrespective of the specific future option selected). The graph below shows how residents of our region prioritized these benefits.

Prioritization of potential benefits

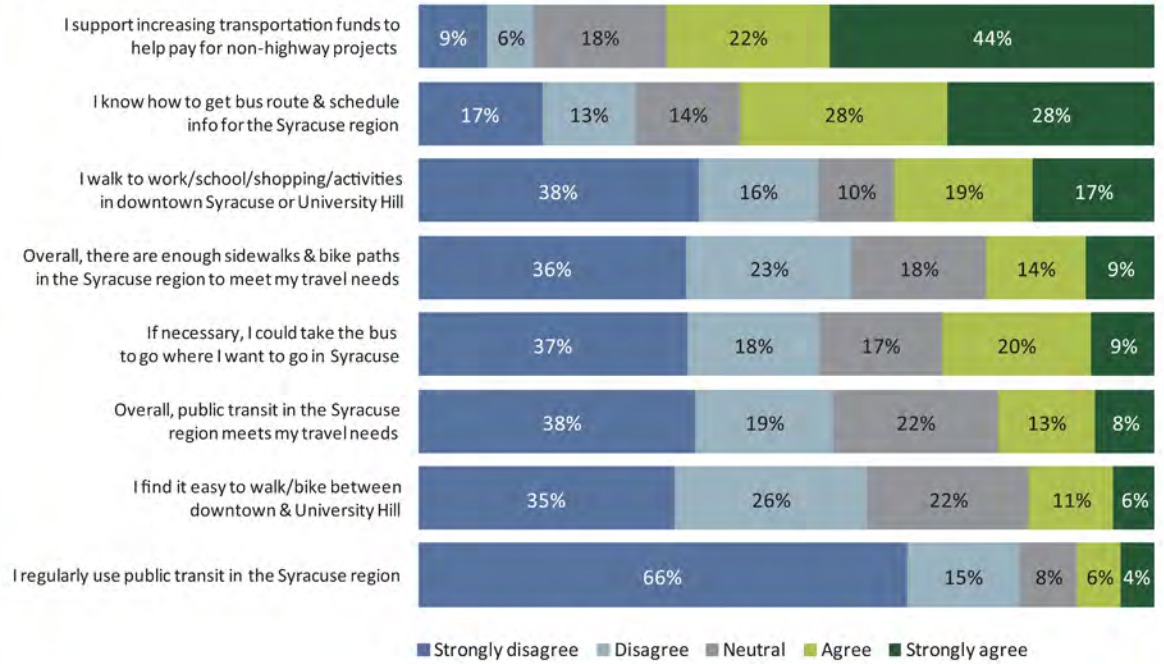


Public involvement key findings: the role of transit

Many of the visions developed at the 2011 Workshops emphasized the importance of transit to our region – from improving our current bus service to re-establishing commuter rail service to new services such as bus rapid transit and light rail.

From our questionnaire, we learned that while only a small fraction of us use public transit regularly, we are largely supportive of increasing funding for non-highway projects.

TRANSIT OPINIONS



NEXT EXIT

Review of
previous meetings

Your Visions

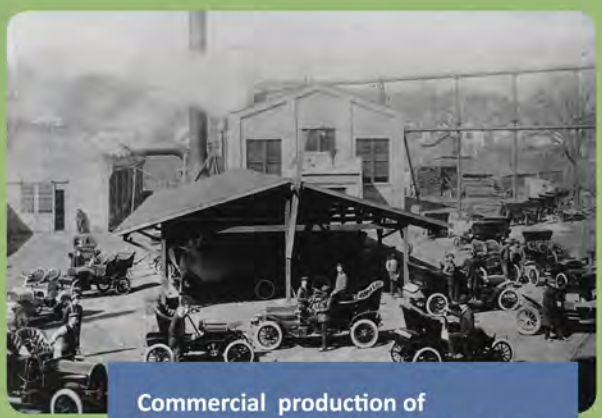
Our early transportation system

Before canals were built, rough trails, roads and natural waterways were the only ways to travel

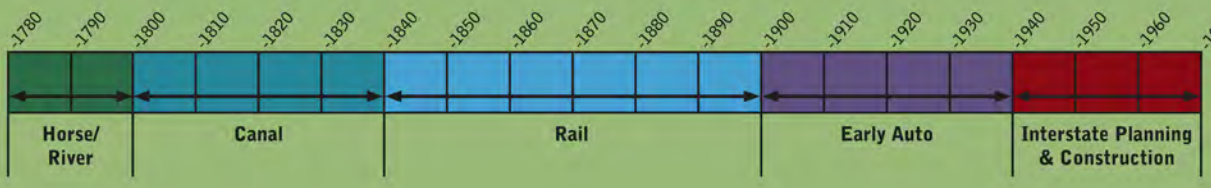
The Erie Canal, completed in 1825, ran through Syracuse and spurred economic development in the region

Today's transportation system was influenced by the location of the canals and railways of the past

By the late 1830s, steam powered railroads had come to Syracuse



Commercial production of automobiles began in the early 1900s



A Century of Transition

Junction of the Erie Canal and the Oswego Canal - circa 1912

THE ERIE CANAL

The Erie Canal created a major economic corridor that sparked canal building across the nation. It established New York as a leader in transportation development.

RAILROADS & STREETCARS

Railroads began to operate in the 1830's and soon became the preferred method for shipping. Rail was also important for moving people. Up to 1941, Syracuse operated a dense network of streetcars and interurban trains connecting neighborhoods and other towns with downtown.

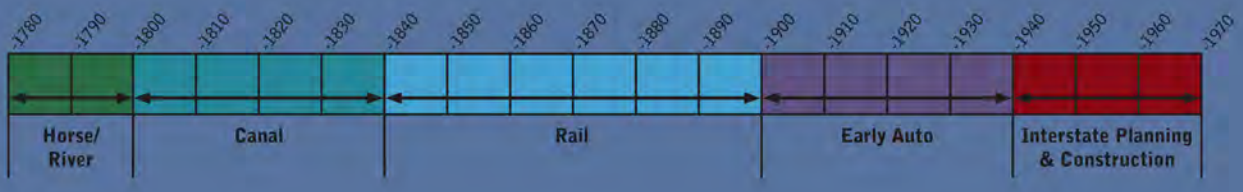

Empire State Express crossing South Salina


Early H. H. Franklin Truck - circa 1905


Salina Street - 300 block - circa 1912

EARLY AUTO

By the early 1900s, Syracuse streets began to experience congestion associated with the railroads, streetcars and newly introduced automobiles. To improve road conditions the Delaware & Lackawana Railroad began operating on an elevated structure and the New York Central Railroad was shifted north and elevated along the alignment of today's I-690.



Interstate highway planning

1944 FEDERAL HIGHWAY ACT

- Began a new era of highway building
- Provided significant federal funding for new highway construction across the nation

THE 1955 YELLOW BOOK

- Mapped out what became the interstate highway system
- Located interstate highways through and near major urban centers

FEDERAL-AID HIGHWAY ACT OF 1956

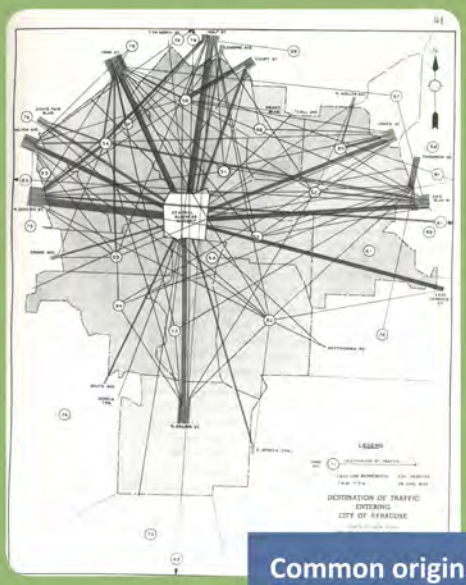
- Authorized $25 billion dollars to construct 41,000 miles of the original interstate system
- Provided federal funds for majority of construction costs

Highway routing

While the federal government laid out general locations of highways, it was up to state and local officials to determine the exact alignment of the new highways.

Key factors that influenced the routes of our current highways:

Location of existing transportation rights of way



Common origins and destinations

Location of areas identified for urban renewal

WHAT WAS URBAN RENEWAL?

Urban renewal refers to efforts to revitalize what were considered blighted city areas during the 1940s-1970s.

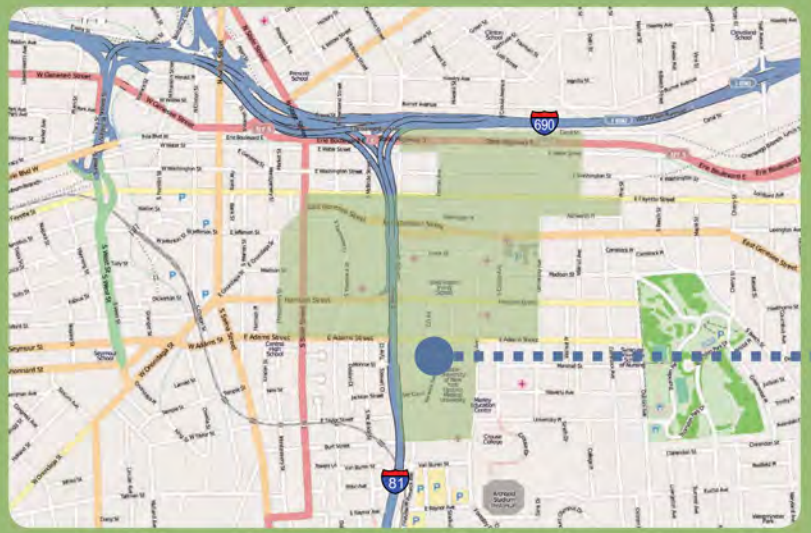
Urban renewal usually included:

- Relocation of businesses
- Demolition of buildings
- Displacement of people

I-81 was aligned along Almond Street. This alignment allowed for an elevated structure and coincided with the location of the Near East Side Urban Renewal Area.

I-81 and the 15th Ward

Syracuse, like many cities, experienced controversy around the locations of the highways built during this era. In Syracuse, the controversy involved a variety of concerns including environmental protection, historical and neighborhood preservation, race, and class.



15th Ward

I-81 is often cited as the primary force in the loss of the 15th Ward neighborhood. However, it is important to understand that I-81 is only part of the story.

In 1963, Syracuse Mayor William F. Walsh began a major urban renewal effort in the 15th Ward that displaced 1,300 residents and would ultimately make way for a museum, a new police headquarters, a state hospital, a middle-income housing complex and the I-81 viaduct.*

* Source: The Post-Standard, syracusethenandnow.org

The construction of I-81

I-81 was completed in 3 segments, over a ten-year period from 1959-1969

The first segment, completed in 1959, stretched from Brewerton to the northern end of downtown Syracuse

The southern segment north to Adams Street opened in 1962

The last link, which included the viaduct, opened in 1969

1964 - Townsend Street

1966

1967

1965

Cars on I-690 near I-81 interchange after construction

The Evolution of Transportation in the Syracuse Region

This video is about 17 minutes long

The video will be shown on the hour and at :20 and :40 past each hour

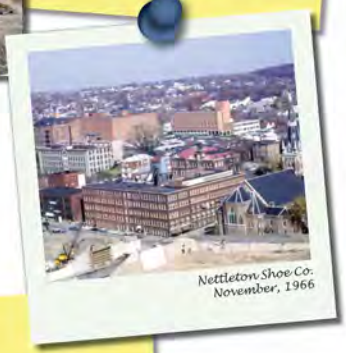
Your stories about I-81

Some of the stories you told us about I-81 at the 2011 workshops.

When the plans for I-81 were proposed, we were told that this would be a "boon" to the city, because Syracuse would be the only city in the path of the road that would have exits allowing easy access to the Syracuse business district. No other city, Watertown, Binghamton etc. would have such an advantage. This was the "way of the future" for Syracuse; the end to all our problems.

I moved to Syracuse a year and a half ago and the elevated section of I-81 is a constant part of my life. I live on one side of the highway and walk under it everyday to go to school at Upstate Medical University in addition to driving on it at least once a week. In my opinion, it is outdated and an awful eyesore that divides the city in half. The street design around the aging sections is terrible, with little thought given for pedestrian crossings and safe vehicle merging. I have personally come very close to being hit by cars exiting and entering the highway due to bad lines of sight and terrible road layout. In addition, nearly every week I have witnessed some close call involving a pedestrian and a vehicle in the areas around the highway. If the highway was removed, life around the Upstate campus would be greatly improved, both in safety and in the aesthetics of the area.

When I was 12 my family moved to Syracuse around 1964. My dad worked on I-81. He would drive us down to see the piles and piles of debris that used to be people's homes. At the time, Salina Street and Warren Street had stores like K-mart, Grants, Woolworths, Dey Brothers and many more retail. After they opened I-81 the city of Syracuse became a virtual ghost town for retail.



My earliest memories of I-81 were seeing the blinking lights of Syracuse as we crested the hill by the Onondaga Nation returning from some hockey game/tournament down south. It was a nice feeling, knowing we were just about home. A nice view.

I remember driving down Pulaski to Little York for my family reunion when I was young, 12 or 13 years old. My aunt and uncle "oohed" and "aahed" about how much easier the trip became.

I remember the protests and court battles by people in the 15th Ward trying to save not only their neighborhood, but also the strong culture that bonded them together. The city and the Governor succeeded in demolishing and dividing the [city] in half to make way for I-81. Your narrative points out that since the project was completed, there have been several important buildings added to that area. It fails to say that those buildings were not part of the original plans for the 15th Ward. Only the right-of-way for I-81 was the center of the construction plan. Those new buildings existed only in wishful drawings at City Hall. There was no funding available for any of those buildings in 1963-1966.

I was born and raised in a suburb of Buffalo, NY. I first encountered I-81 as I traveled back and forth to SUNY Delhi in the mid-1970s. To reach Syracuse meant we were half way home. Yet I was always drawn to the beauty of the hills south of this city. Eventually I chose to make Central New York my home.

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 existing land use and the social, 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.

Traffic volumes on I-81

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

DID YOU KNOW?

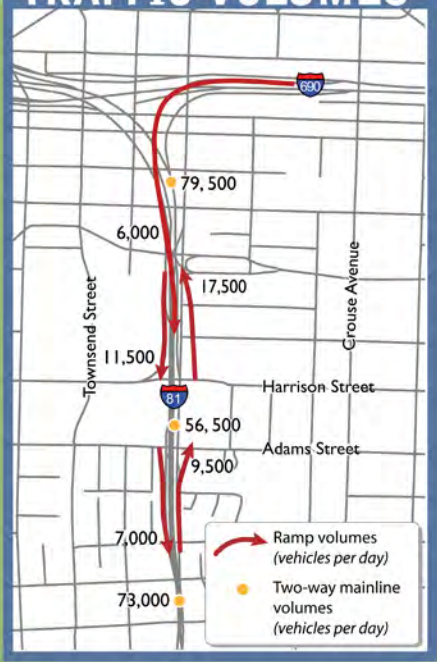
- Between 1974 and 2003 traffic increased at an annual rate of 3.3 - 5.4%.
- Since 2003 there has been little if any growth in traffic volumes.
- July and August have the highest traffic volumes, while January and February have the lowest.
- Heavy vehicles (trucks with at least 4 axles and buses) account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

ANNUAL AVERAGE DAILY TRAFFIC

VIADUCT AREA TRAFFIC VOLUMES



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.

Highway & bridge conditions

NYSDOT 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

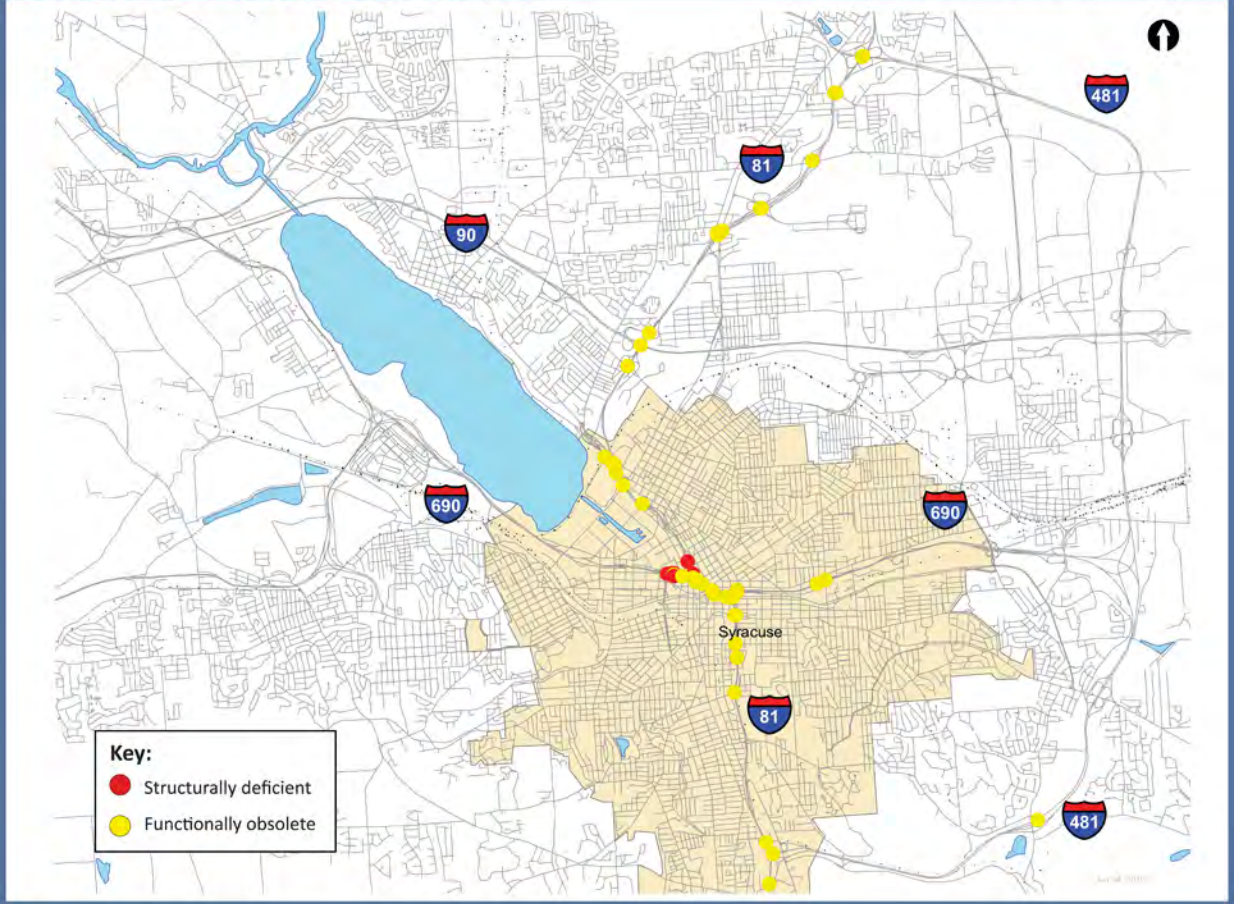
Recent inspections of the 76 bridges in the primary study area showed that:

- 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 structurally deficient bridges shown on this map have been/ or are scheduled to be repaired/ replaced



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%

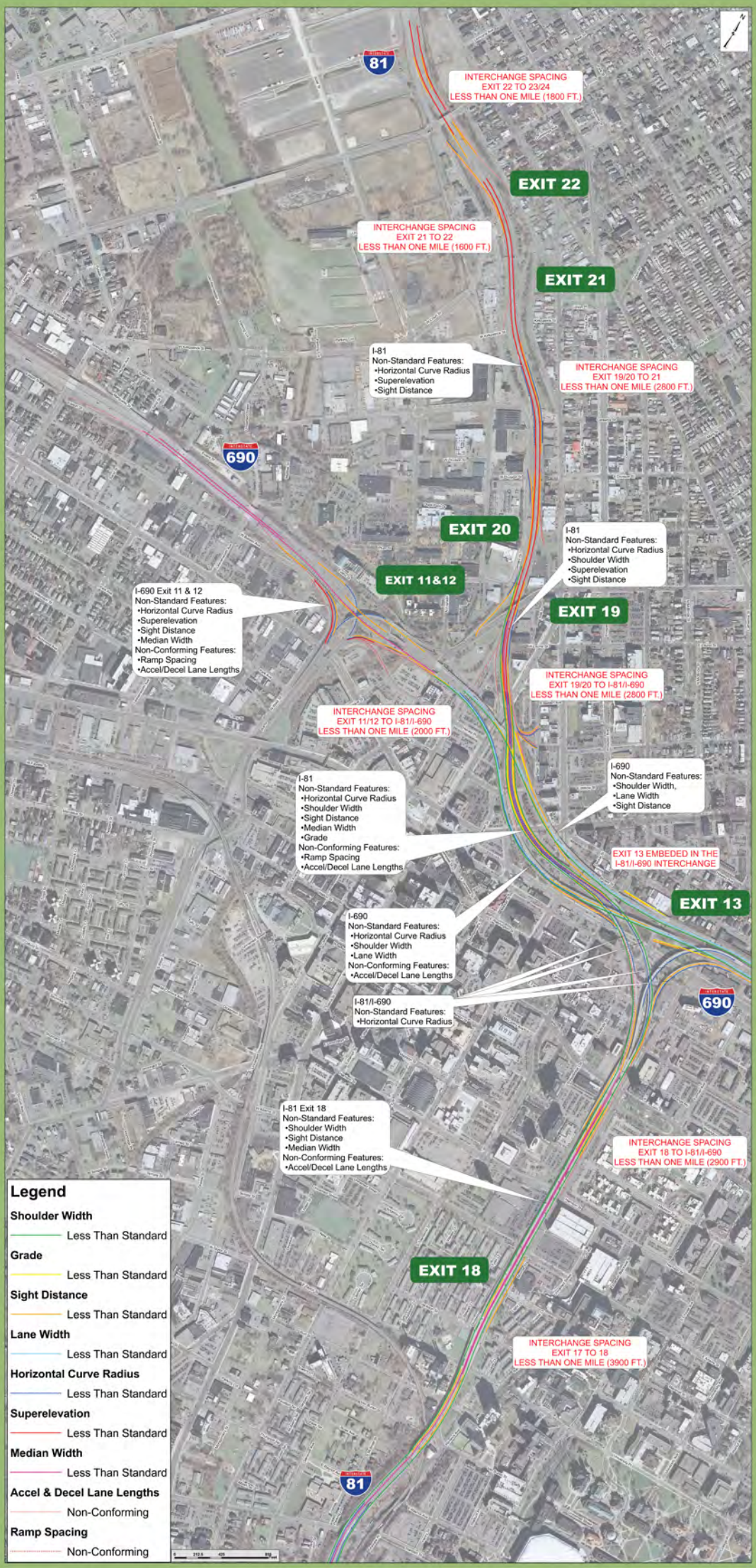
LOOK AT THE MAP

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

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:

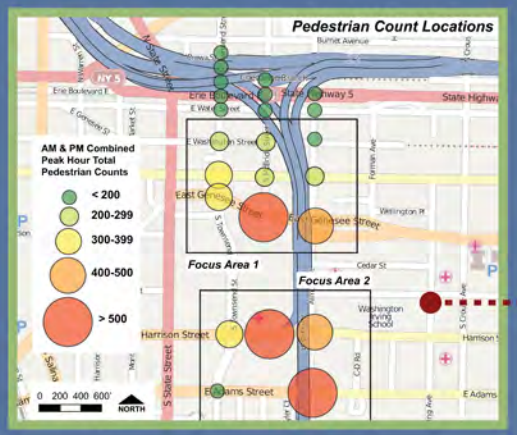
- 44,000 total vehicles per day on I-81 south of the southern I-481 interchange
- Of these 44,000 vehicles, 12% (5,400 vehicles per day) are currently traveling through the region without stopping

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

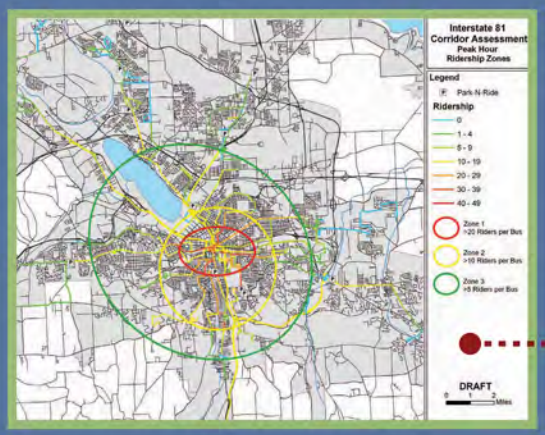
Planning for more than just cars

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

How we got here

Transportation often defined towns

Streetcars helped turn towns to cities

Transit fueled larger cities' growth

And then...our love affair with the car

GROWTH OF CITIES AND TOWNS

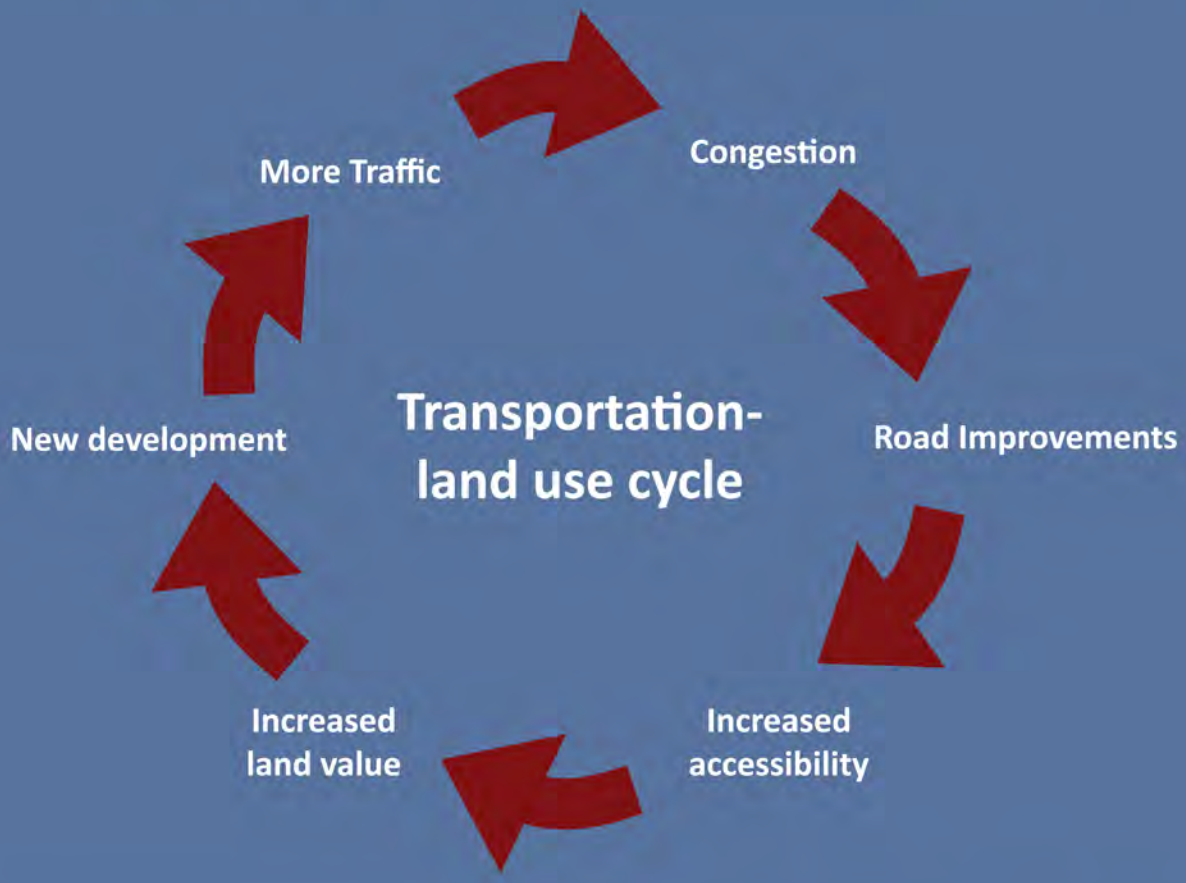
- The American city emerged from changes in the economy and means of travel
- Transportation allows access to development opportunities
- Transportation defined the location – and form - of our cities and towns

Unprecedented growth

And the Post World War II Interstate System led to...

Cities began to see the effects

The transportation-land use cycle



THE CYCLE RESULTS IN:

- Unanticipated sprawl
- Decentralization
- Auto dependency
- Overabundance of parking
- Loss of green space and farmland

RECENT CHANGES IN PERSPECTIVE:

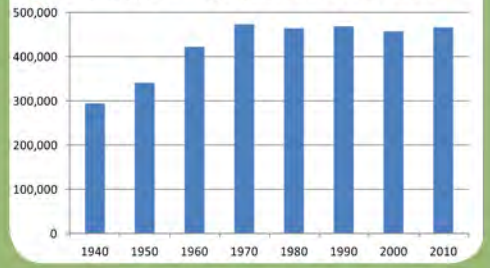
- Re-balancing community and mobility needs
- Changing settlement patterns and travel modes
- Focusing on walkable, urban places

Regional trends

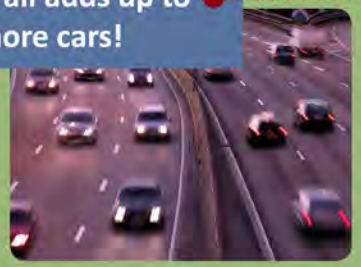
CHANGING DEMOGRAPHICS

- Steady population
- Fewer persons per household
- More households
- More vehicles per household
- Fewer transit and walking trips

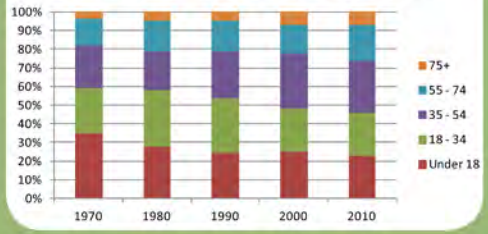
Onondaga County Population 1940-2010



It all adds up to more cars!



Age Breakdown of Onondaga County Population 1970-2010

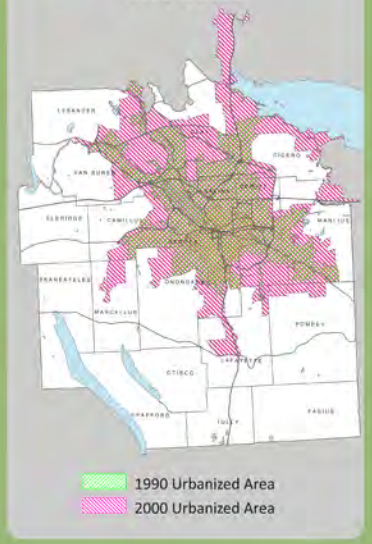


EXPANDING URBANIZED AREA

- Urban land increased 92% since 1970
- 50 square miles added in the 1990s
- City out-migration accelerated
- Rural towns began to suburbanize

US Census Syracuse Urbanized Area

Syracuse Urbanized Area 1990 & 2000



UPS AND DOWNS IN THE REGION

Towns 1970-2010

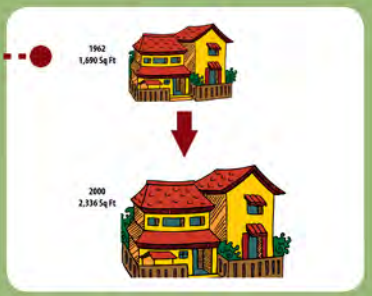
Population up 42,000
Households up 50,000
Housing Units up 56,000

City of Syracuse 1970-2010

Population down 47,000
Households down 14,000
Housing Units down 7,000

IMPACT ON TRANSPORTATION AND LAND USE

- Regionally, vehicle miles traveled are rising
- Average commute time has risen to 20 minutes
- Trend toward suburbanization
- Home size up 40%



Charts and Data taken from: Onondaga County Sustainable Development Plan Presentation, prepared by SOCPA; Transportation and Land Use Presentation prepared by SMTC
Updated with 2010 Census data where available

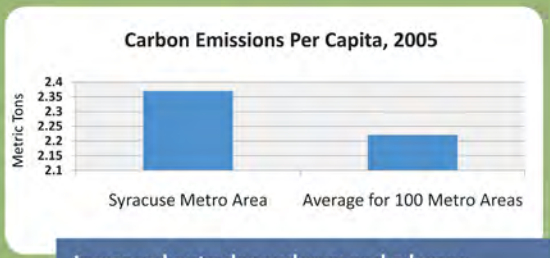
Regional challenges and opportunities

Challenges

A reduction in farmland

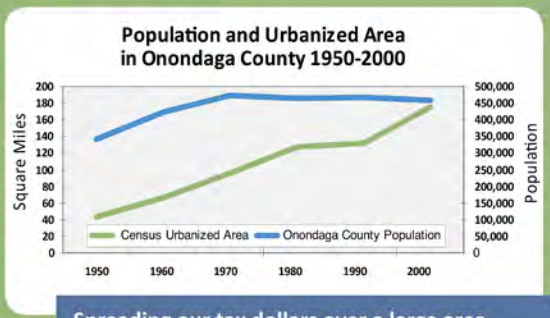
An inability to support mass transit

Demand for facilities and public services in new areas



Increased auto dependency and a larger carbon footprint

Abandoned neighborhoods and buildings



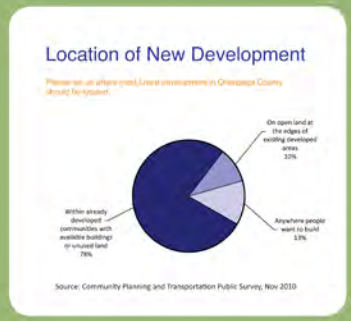
Spreading our tax dollars over a large area

Economic competitiveness

Opportunities

Focus on climate change and reducing pollution

Rising fuel cost = more interest in other modes/fuel efficiency

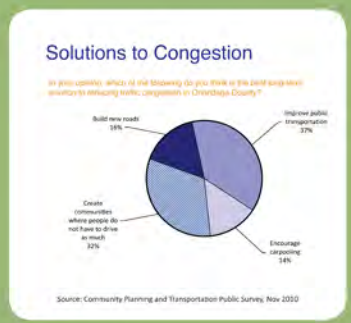


Connections between land use and public health

Government modernization and efficiency

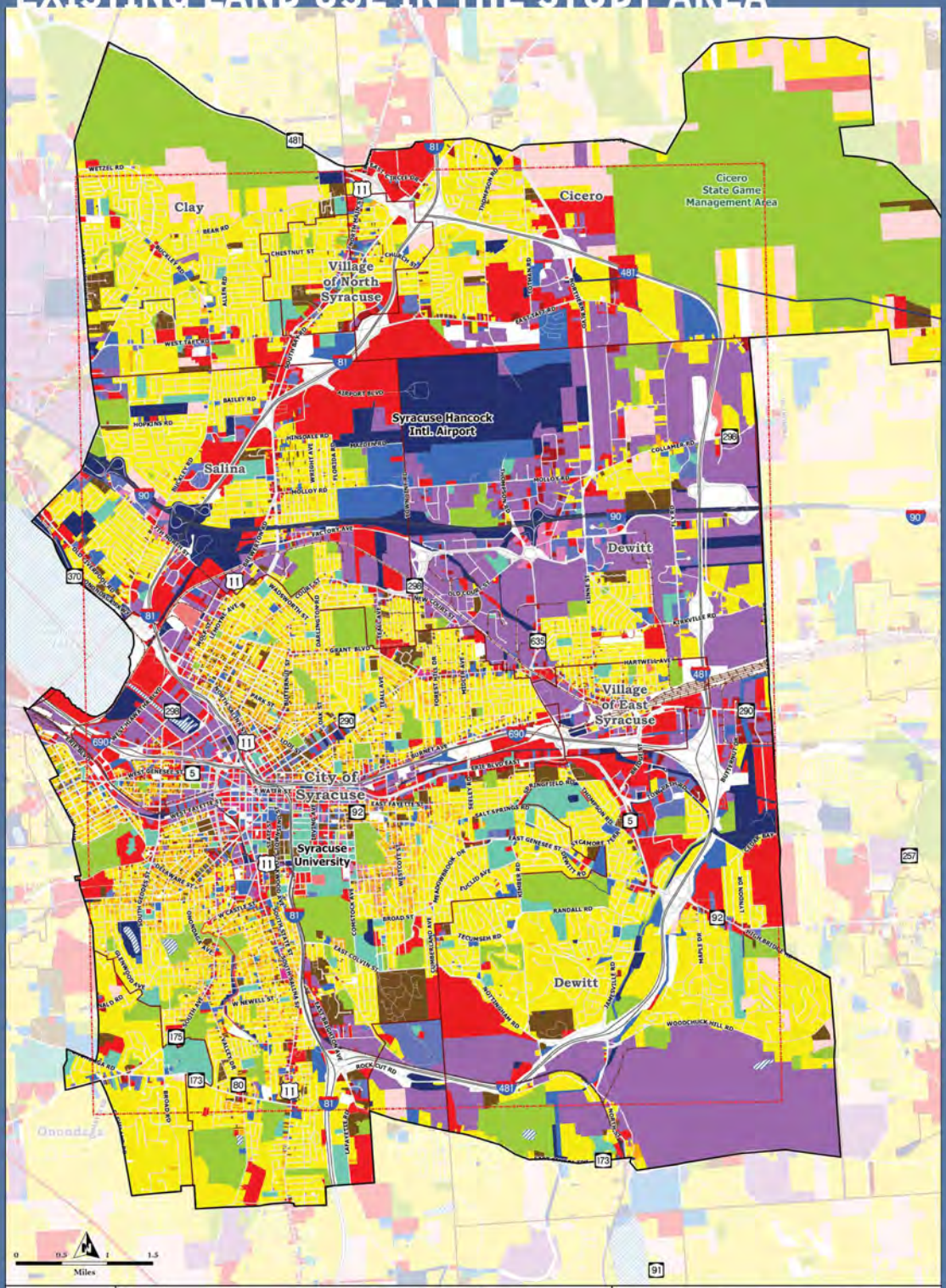
Smart growth

Protection of natural resources



Current land use

EXISTING LAND USE IN THE STUDY AREA



Legend

- Residential (Low Density)
- Residential (Medium Density)
- Residential (High Density)
- Downtown Commercial
- Commercial
- Neighborhood Commercial
- Tourist Commercial
- Large Scale Entertainment
- Industrial
- Institutional
- Transportation, Communication & Utilities
- Medical & Educational
- Agricultural
- Office
- Recreation / Open Space
- Water Body
- Social, Economic and Environmental Study Area
- Municipal Boundary
- Limits of Demographics and Population
- Railroads

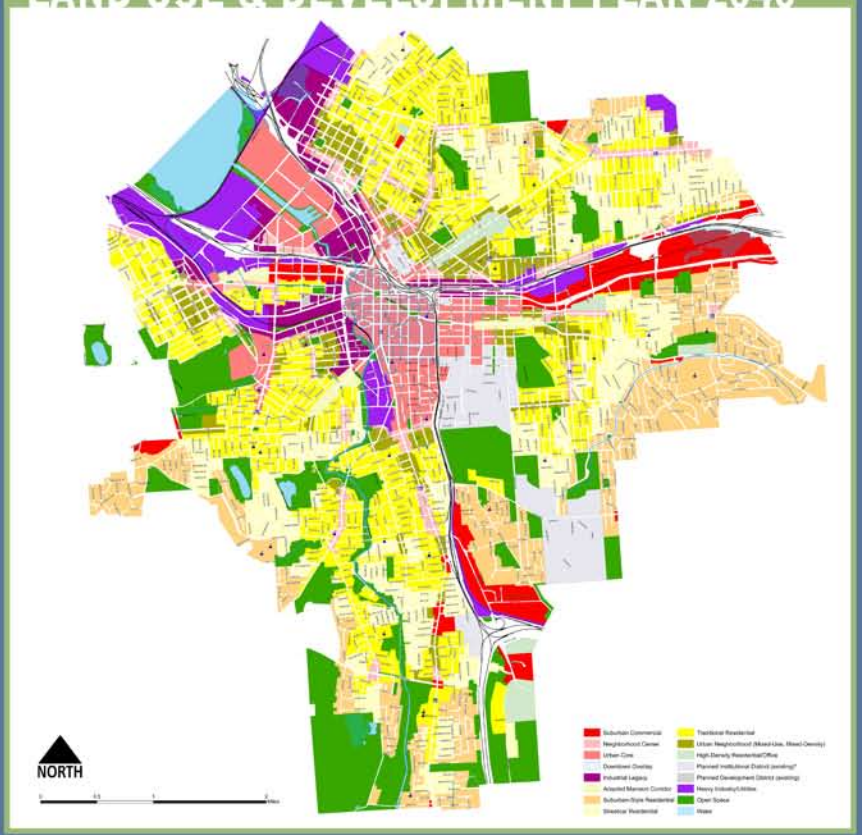
New York State Department of Transportation

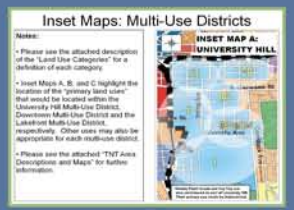
New York State DOT I-81 Corridor Study

Study Area Boundary and Existing Land Use Map

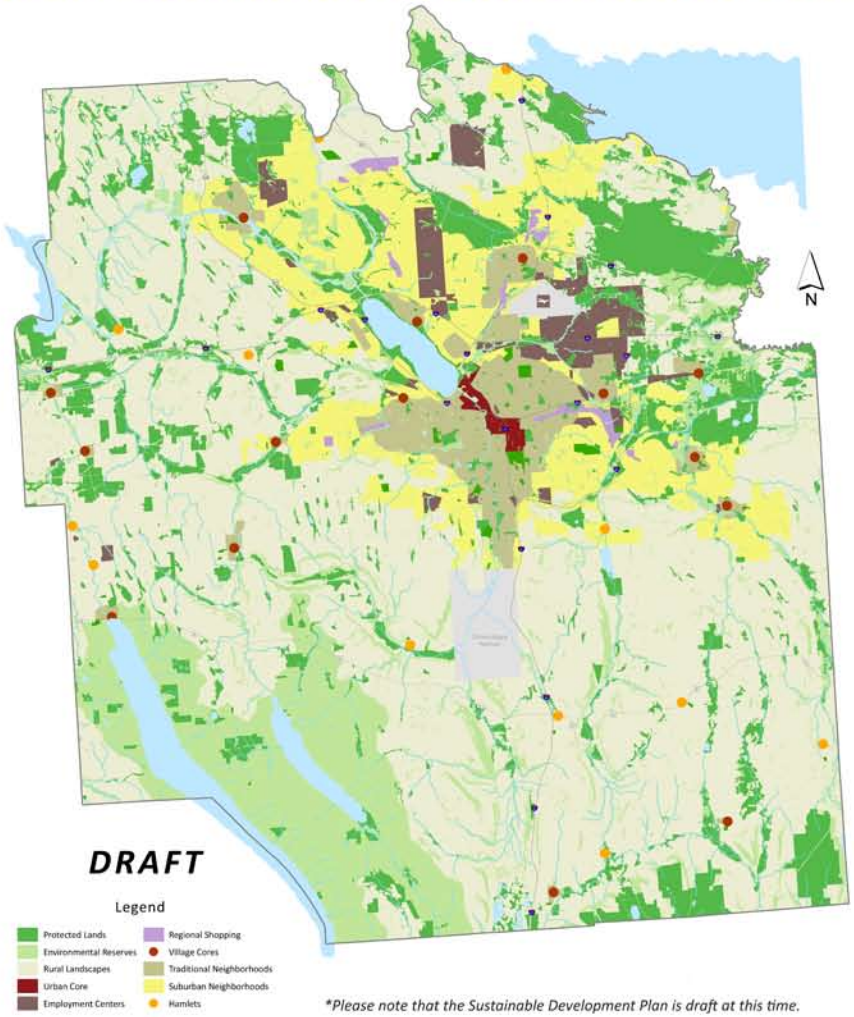
Future land use

CITY OF SYRACUSE
LAND USE & DEVELOPMENT PLAN 2040





ONONDAGA COUNTY
DRAFT SUSTAINABLE DEVELOPMENT PLAN



Population & employment

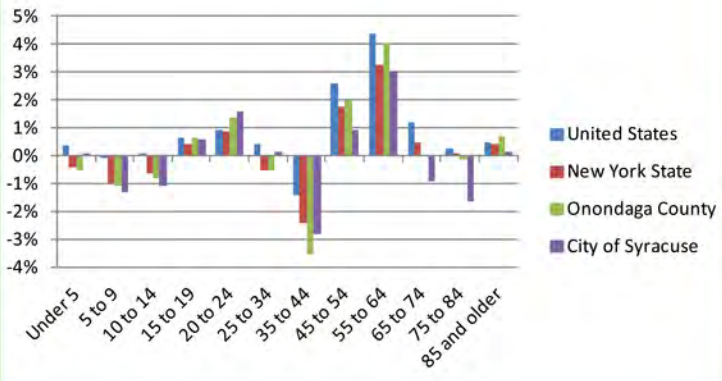
POPULATION

- Between 1980 and 2010, Onondaga County lost roughly 23% of its people aged 18 to 34
- The largest increase in population for City of Syracuse is among 55 to 64 year olds, up 3% since 2000
- 29% of City of Syracuse's population is under 19 years old
- According to the 2010 Census, Onondaga County population increased 1.9% since 2000, while the City of Syracuse decreased less than 1%

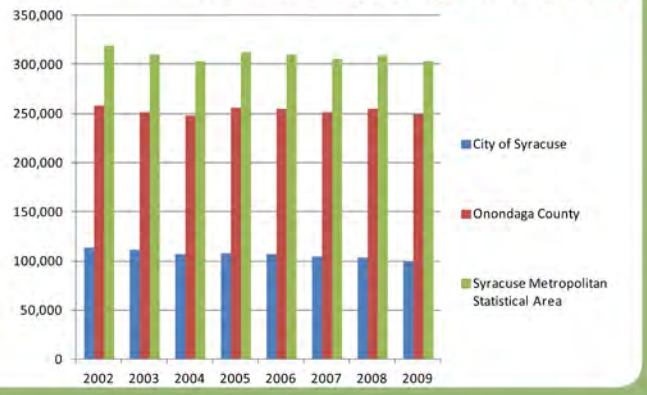
Population

	1990	2000	2010	% Growth from 1990 to 2010
United States	248,709,873	281,421,906	308,745,538	19.4%
New York State	17,990,455	18,976,457	19,378,102	7.2%
Onondaga County	468,973	458,336	467,026	-0.4%
City of Syracuse	163,860	147,306	145,170	-12.9%

Population Change by Age 2000-2010



Total Employees



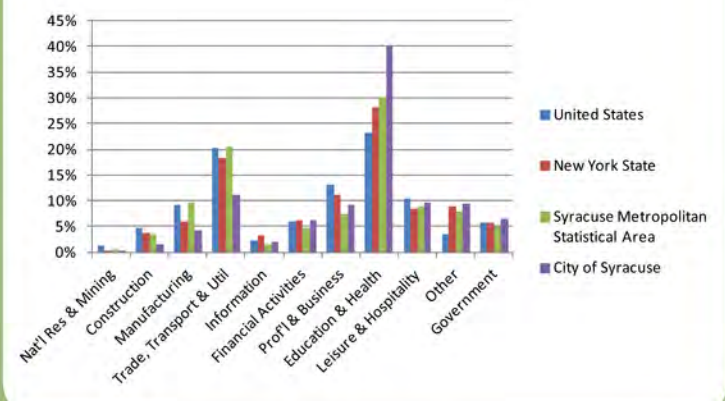
TOTAL EMPLOYEES

- Total employment in the City of Syracuse has decreased 13% between 2002 and 2009, from 114,134 to 99,169
- More than 94% of Onondaga County's working residents also work in the county

PERCENT OF EMPLOYMENT BY INDUSTRY

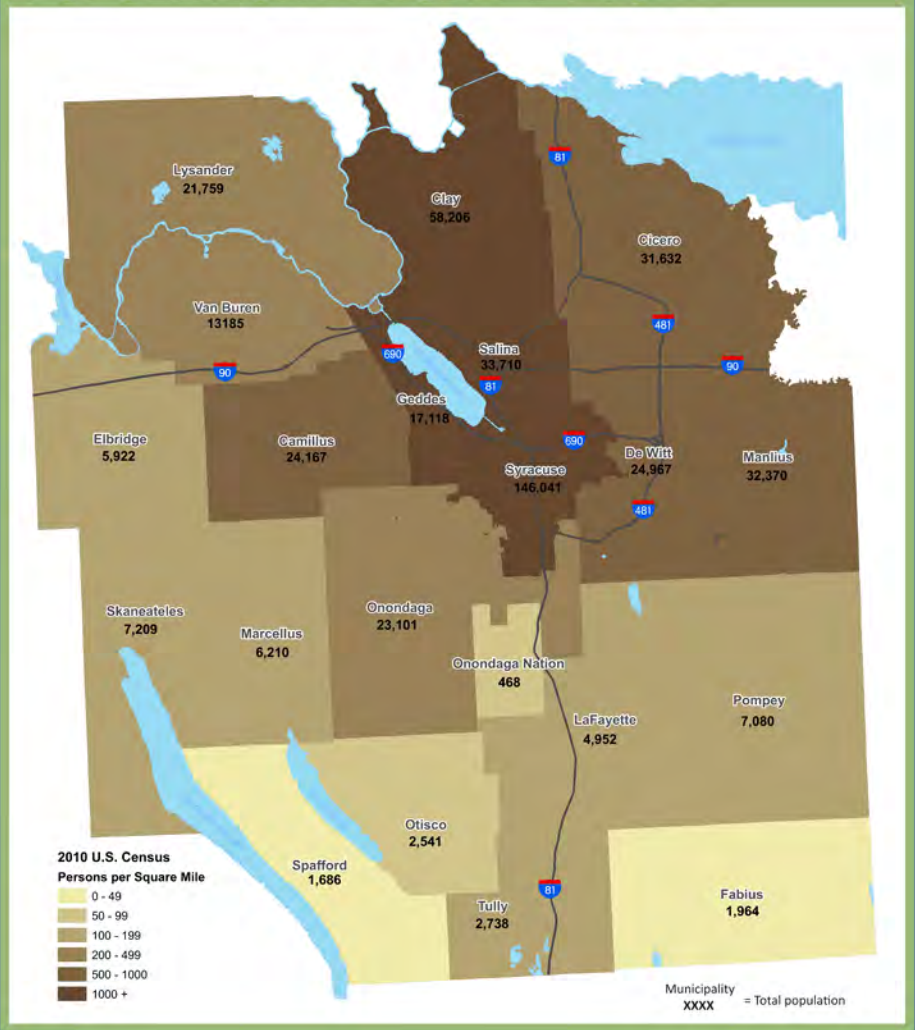
- Education and health sector represents 17% of total employment in Syracuse MSA, or 44,544 employees
- Syracuse University and the State University of New York (SUNY) Upstate Medical University, alone employ more than 12,500 people

Percent of Employment by Industry 2009



A closer look at population

POPULATION DENSITY BY TOWN



MEDIAN HOUSEHOLD INCOME BY TOWN

Regional commuting patterns

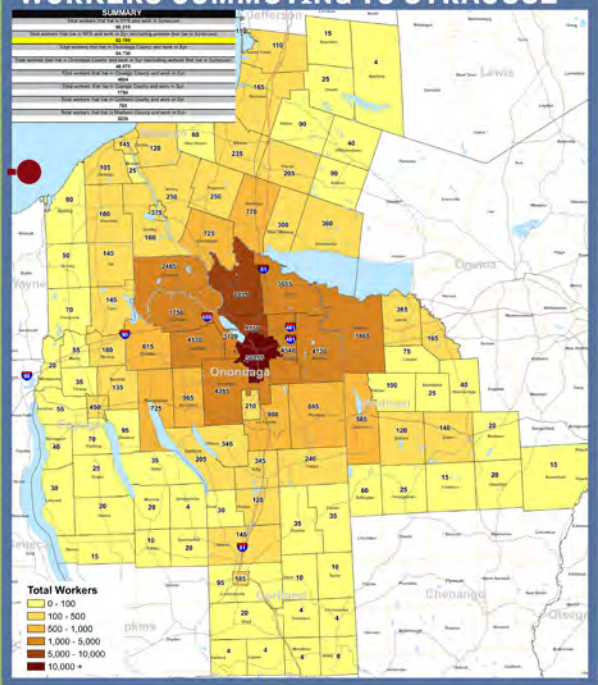
WORKERS COMMUTING TO ONONDAGA COUNTY

2008 ACS 3-Yr Data

COMMUTE PATTERNS

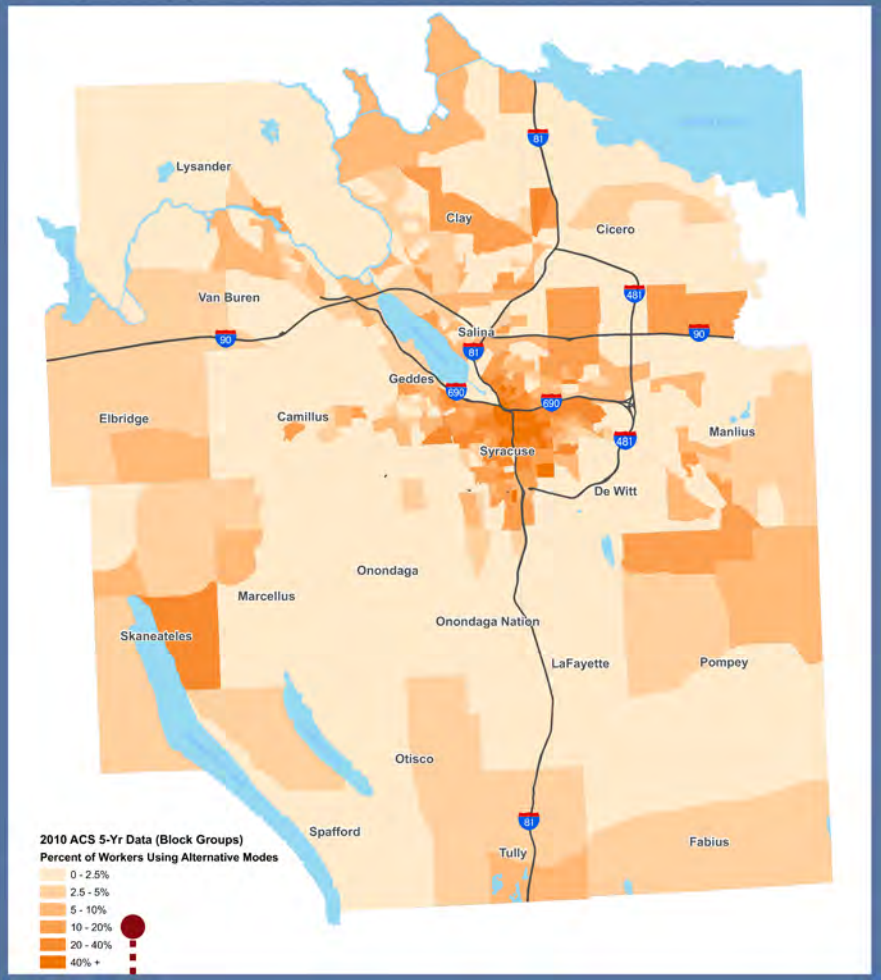
Onondaga County is a regional employment hub, and many of Onondaga County's jobs are located in the City of Syracuse.

WORKERS COMMUTING TO SYRACUSE



2000 Census

PERCENT COMMUTING BY ALTERNATIVE MODES



USE OF ALTERNATIVE MODES

In 2010, the highest percentages of commuters using alternative modes (i.e., biking, walking, riding a motorcycle, or taking transit) were found in the City of Syracuse.

Learning from other urban highway projects

Cities across the nation have faced similar challenges:

These projects' outcomes can offer insights for *The I-81 Challenge*

Reconstruct the highway

THE MARQUETTE INTERCHANGE: I-794/I-43/I-94

MILWAUKEE, WI

SIMILARITIES TO I-81

- Designated as an interstate highway
- Carried through and local traffic
- Did not meet design standards
- Included an interchange with other interstate highways
- Located in a similar climate

DIFFERENCES FROM I-81

- Project focused primarily on an interchange
- Major alterations of highway network not considered

SO WHAT HAPPENED?

- Complete reconstruction of Marquette Interchange in downtown Milwaukee
- Project emphasized community involvement to develop a community-sensitive solution
- The new design is considered more attractive and traffic flow has improved

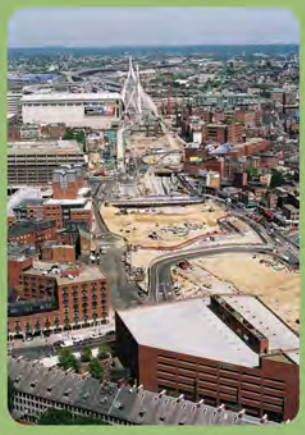
Lessons learned

- Project benefited from strong public outreach effort that included neighborhood committees
- Visual impacts can be mitigated through aesthetically pleasing design – clean lines, narrow piers, bright colors and decorative features

Bury the highway

CENTRAL ARTERY - THE BIG DIG: I-93

BOSTON, MA



SIMILARITIES TO I-81

- Designated as an interstate highway
- Carried through and local traffic
- Perceived as a barrier between neighborhoods

DIFFERENCES FROM I-81

- Carried twice the traffic volumes
- Located in an older and more densely populated city with greater development pressures
- Separated sections of the city from the waterfront

SO WHAT HAPPENED?

- I-93 was torn down and an expanded interstate was relocated under the same footprint
- The elevated section of the highway was replaced by public space, improving connectivity to the waterfront and North End neighborhood
- The project also focused on upgrading and expanding public transit

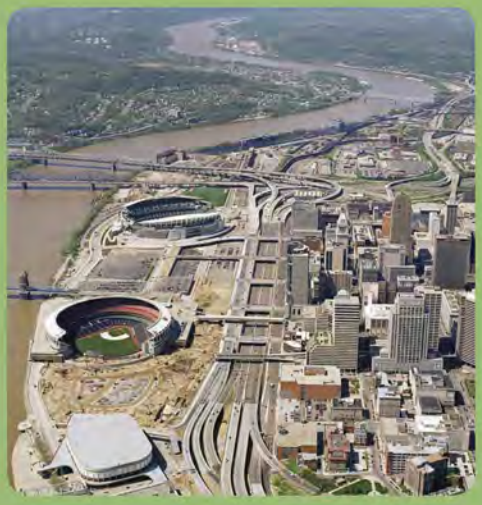
Lessons learned

- Cost of burying a highway were significant - final costs of the project were 5 times the original estimate
- Payoffs of burying a highway were also great:
  - Improved connectivity between neighborhoods
  - Improved traffic circulation
  - Enhanced urban environment and stimulated economic development

Depress the highway

FORT WASHINGTON WAY: I-71

CINCINNATI, OH



SIMILARITIES TO I-81

- Designated as an interstate highway
- Carried through and local traffic
- Carried comparable traffic volume
- Perceived as a barrier between neighborhoods

DIFFERENCES FROM I-81

- Existed as a depressed rather than elevated highway
- Separated downtown from the riverfront

SO WHAT HAPPENED?

- The project included highway widening and the elimination of several exits and entrances to simplify and improve traffic flow
- The total right-of-way width was substantially reduced
- Reclaimed space was developed as a waterfront park and professional sports venues
- Streets crossing the highway were redesigned to include broad sidewalks and landscaping

Lessons learned

- Project benefited from effective stakeholder involvement
- Project benefited from extensive planning - 25 alternatives were explored
- Integration of economic development and improved riverfront access contributed to broad support

Relocate the highway

THE "I-WAY": I-195

PROVIDENCE, RI

Lessons learned

- Relocation allowed for existing road to remain operational, minimizing traffic disruptions
- Project benefited from extensive public outreach – media, websites and podcasts
- Focus on urban design, riverfront connections, and redevelopment opportunities fostered public support

SIMILARITIES TO I-81

- Designated as an interstate highway
- Carried through and local traffic
- Included an interchange with another interstate highway

DIFFERENCES FROM I-81

- Carried higher traffic volumes
- Did not include regional alternatives or bypasses
- Separated sections of city from a waterfront area

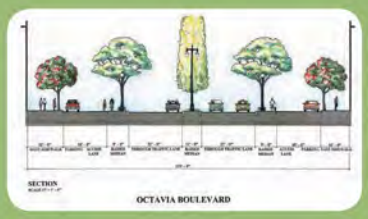
SO WHAT HAPPENED?

- The elevated I-195 highway was relocated from downtown Providence to a nearby industrial corridor
- The project opened up valuable redevelopment areas and allowed the city to reconnect parts of the downtown street grid

Remove the highway

CENTRAL FREEWAY - OCTAVIA BOULEVARD

SAN FRANCISCO, CA



Lessons learned

- Surrounding street and transit network was able to absorb significant traffic
- A boulevard can:
  - Carry high traffic volumes
  - Spur development
  - Provide a pedestrian and bicycle-friendly environment

SIMILARITIES TO I-81

- Carried comparable traffic volumes
- Existed as an elevated freeway in an urban area

DIFFERENCES FROM I-81

- Not designated as an interstate highway
- Carried no through traffic (spur to downtown)
- Previously closed due to earthquake

SO WHAT HAPPENED?

- In 1989, an earthquake damaged the freeway forcing it to close temporarily
- In 1996, the freeway was repaired and reopened
- Ultimately, a proposal to replace the freeway with a boulevard gained support, and it was redesigned as Octavia Boulevard
- At its opening, the new boulevard carried about half the volume of the freeway it replaced

Reactions to what others have done

At the 2011 workshops, we presented five case studies about how other cities have addressed urban highway issues similar to what we face now. Despite the fundamental differences between the outcomes, several important themes emerged from your comments and are reflected in the goals for *The I–81 Challenge*. We heard a desire to:

- Improve the aesthetics and design of infrastructure and neighborhoods
- Enhance mobility, access, and connectivity
- Improve safety
- Improve quality of life
- Find solutions that are "outside the box"
- Promote economic development
- Support alternative modes of transportation
- Make effective use of limited financial resources
- Ensure proper maintenance of infrastructure
- Preserve neighborhoods and homes

Case Study Likes and Concerns

Case Study	What people liked	Concerns if applied to Syracuse
Milwaukee **Reconstruct the highway** 	• Improved aesthetics and design • Maintained the function of the interstate • Increased safety • Cost-effective • Less disruptive to local communities • Significant public involvement	• Maintenance of the status quo • No significant aesthetic improvement • Significant impacts on surrounding neighborhoods • No improvement in quality of life • No focus on economic development • Cost
Boston **Bury the highway** 	• City beautification • Inclusion of a "signature project" • Access and connectivity • Removal of the highway as a barrier • Improved highway function • Emphasis on alternate modes • Potential for economic development	• Cost • Not appropriate for Syracuse • Potential maintenance problems • Continued emphasis on cars • Time needed for construction • Safety and security • Limited connectivity
Cincinnati **Depress the highway** 	• Reconnection and reintegration of the city • Improved aesthetics and design • Quality of life improvements • Cost • New development opportunities • Maintained the function of the highway	• Drainage and maintenance issues • Minimal or no improvement over the existing condition • Cost • Potential negative impacts on economy, environment, and neighborhoods • No significant safety improvements • Not a pedestrian friendly environment
Providence **Relocate the highway** 	• Redevelopment and reintegration of downtown • Removal of the highway from downtown • Maintained function of the highway • Quality of life improvements • Minimal disruption during construction	• Potential negative local impacts • Might shift the problem to another neighborhood • Cost • Possible negative impact on traffic and congestion • Less convenient
San Francisco **Remove the highway** 	• Promotion of alternative modes of travel • Improved aesthetics and design • Opportunity for economic development and neighborhood reintegration • Removal of the highway as a barrier • Cost-effective	• Loss of the highway function downtown • Increased traffic congestion on local streets • Would shift traffic to other regional highways • Would discourage people from going downtown and encourage people to leave the city • Would reduce walkability and provide a less safe environment for pedestrians

Lessons Learned: Case Studies of Urban Freeways

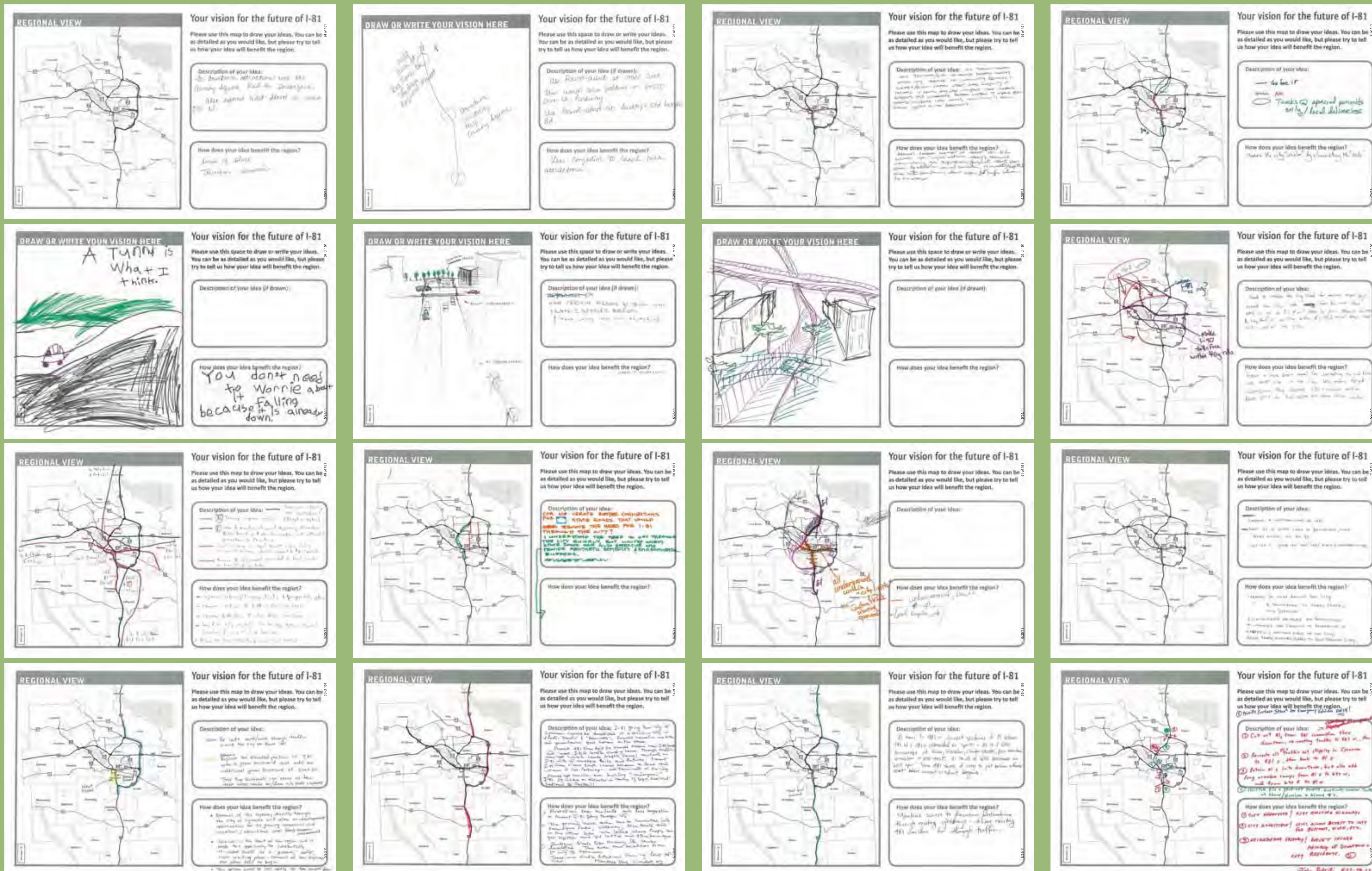
This video is about 21 minutes long.

The video will be shown on the hour (:00) and half hour (:30)

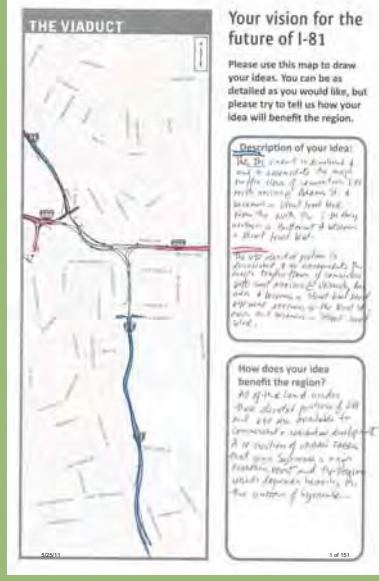
STATION 3

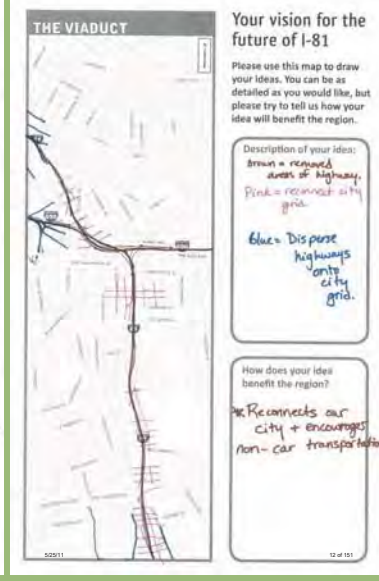
Your Visions

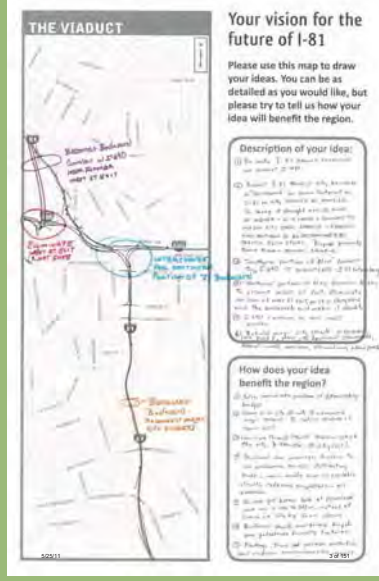
Your visions for I-81

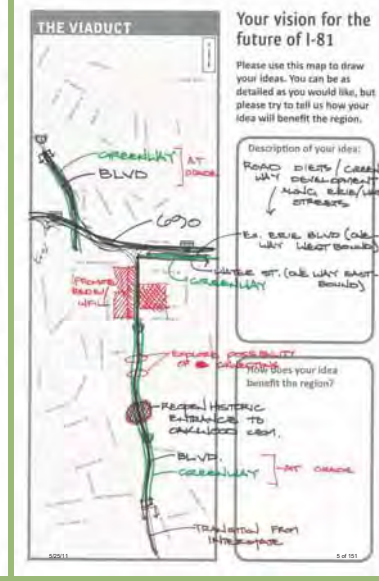


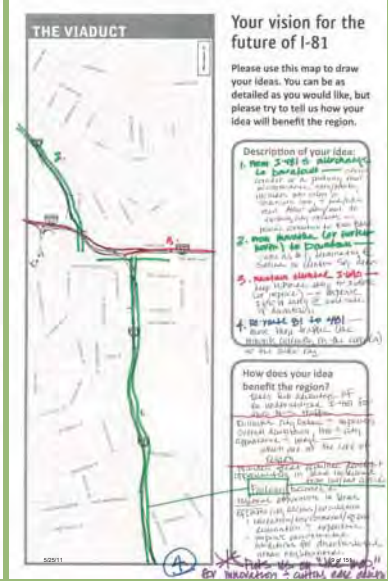
Your visions for I-81

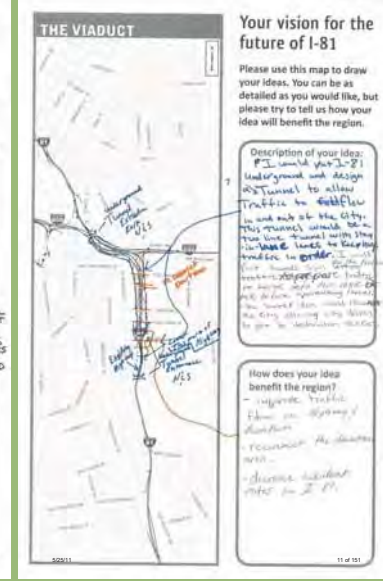




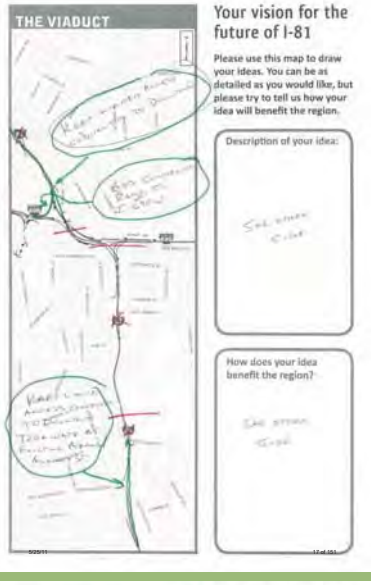


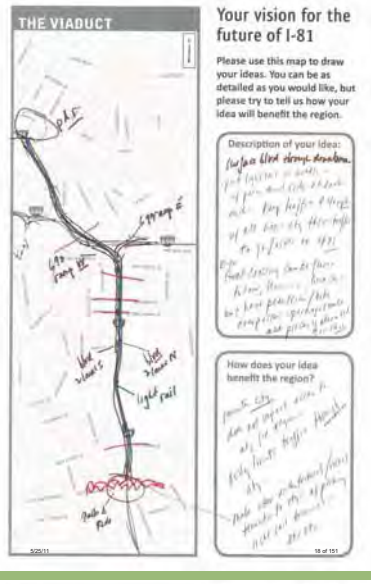


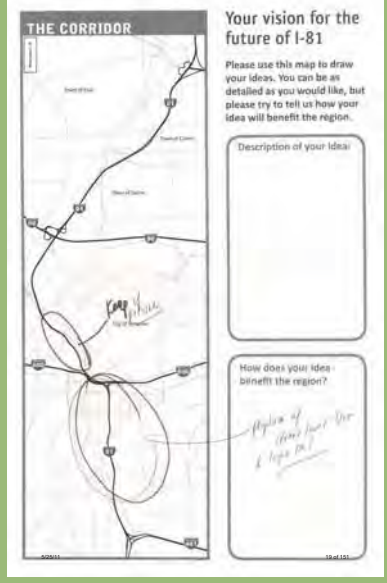


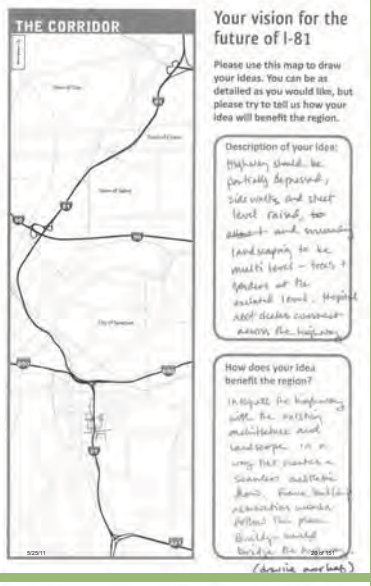


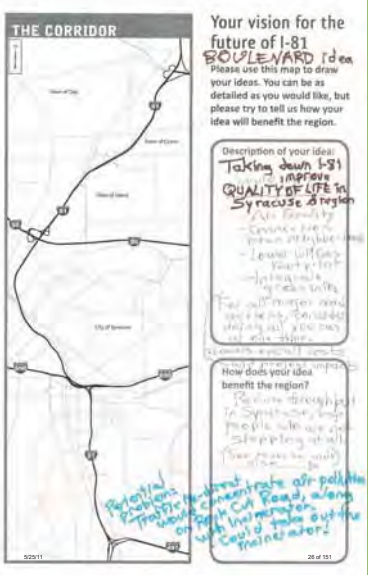
Your visions for I-81

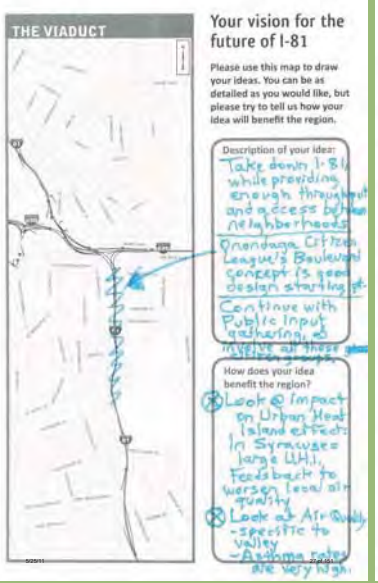




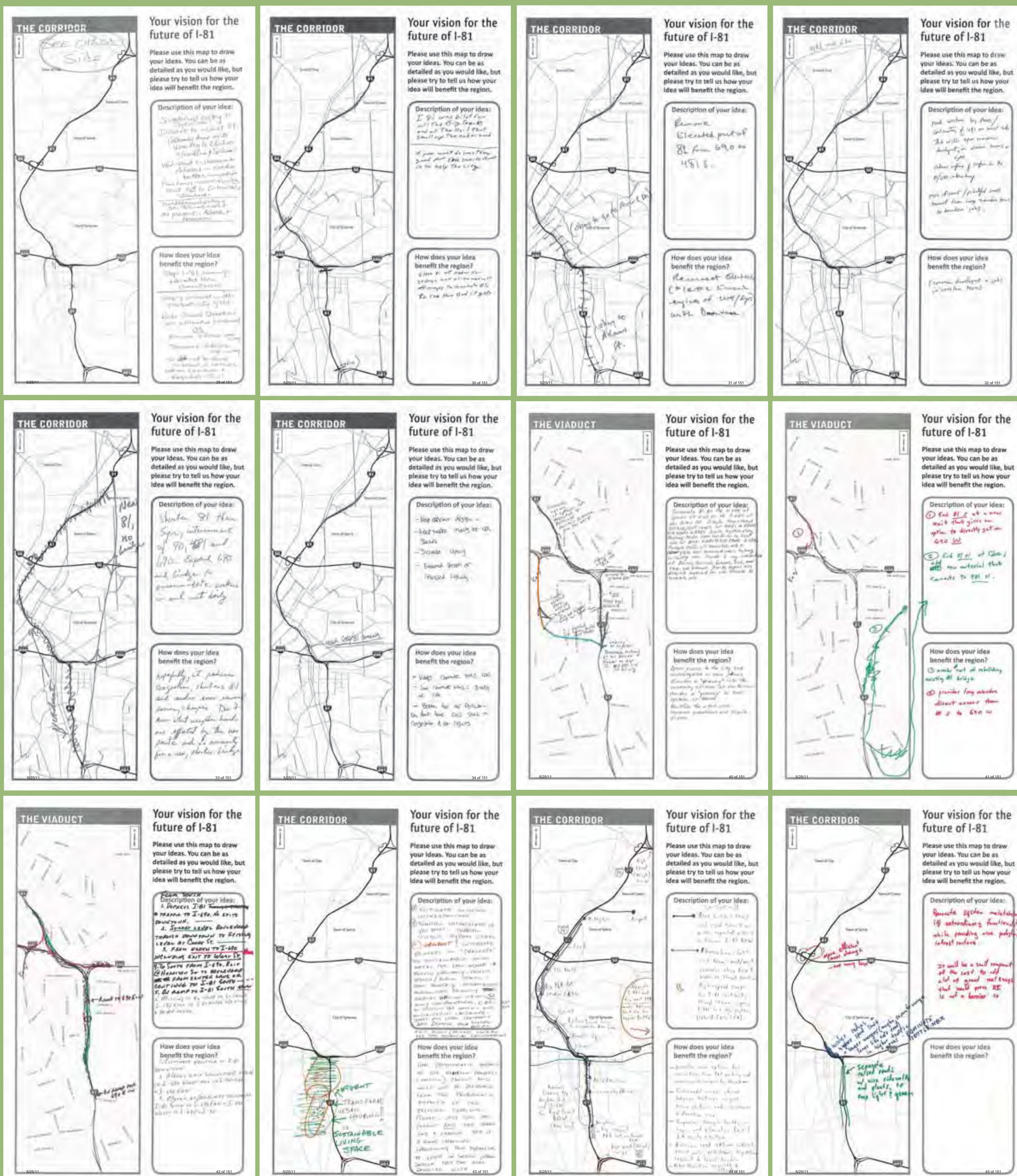




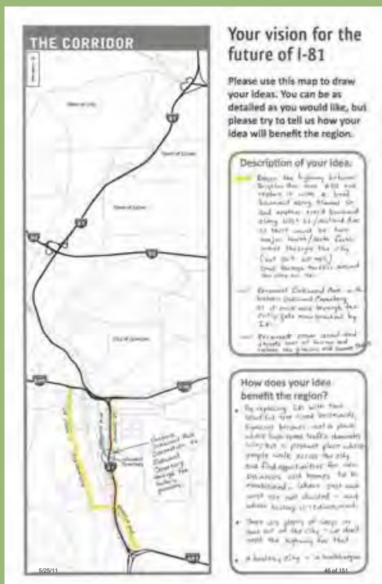


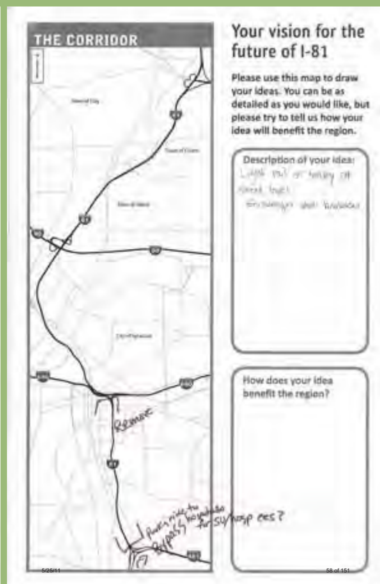


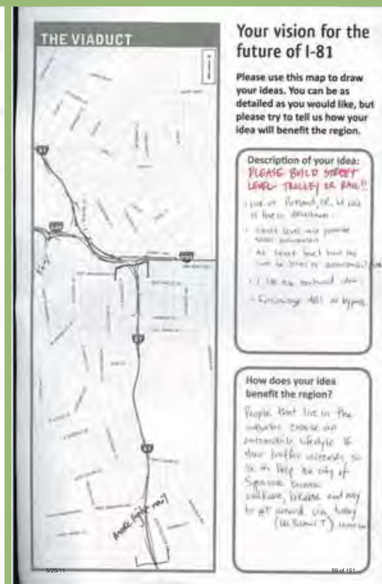
Your visions for I-81

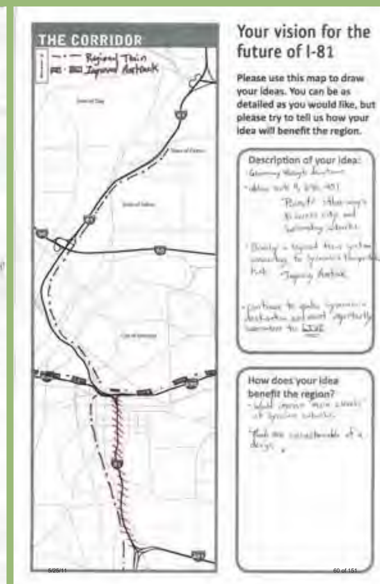


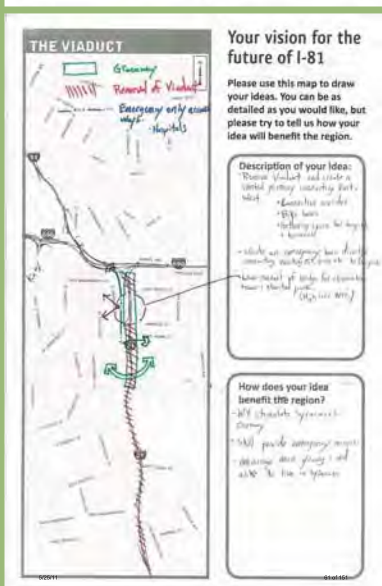
Your visions for I-81

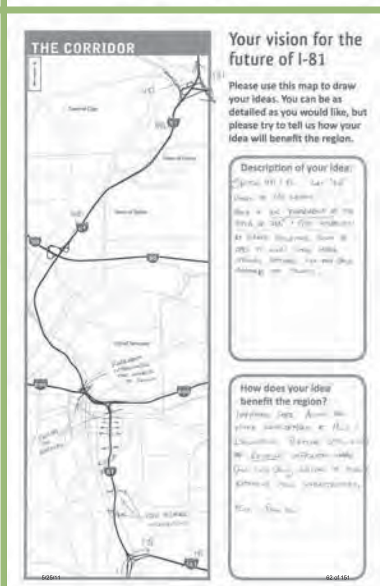


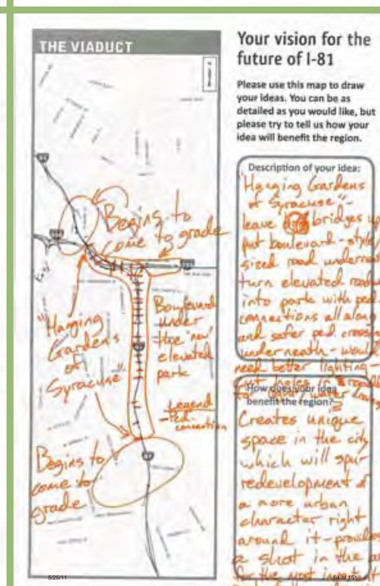


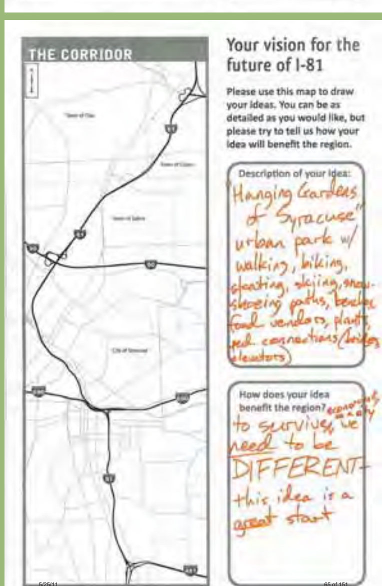


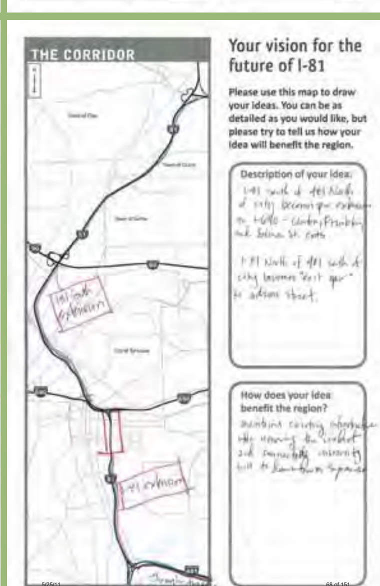


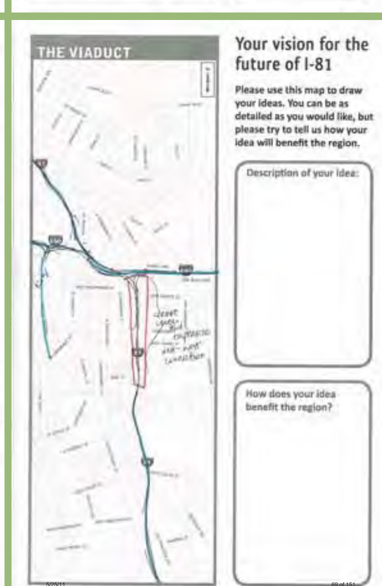


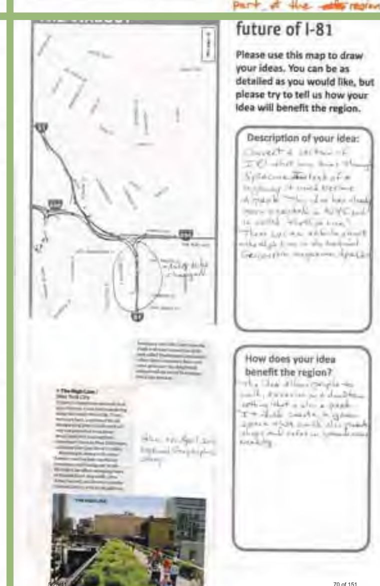




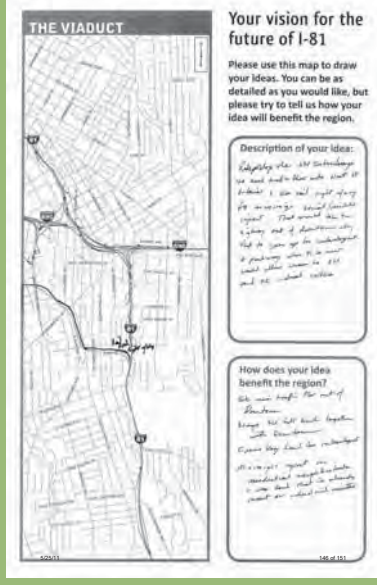


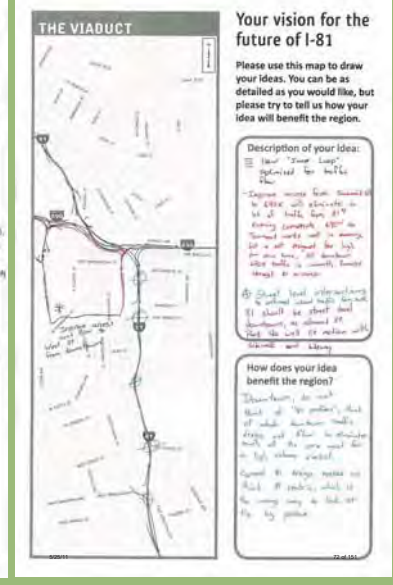


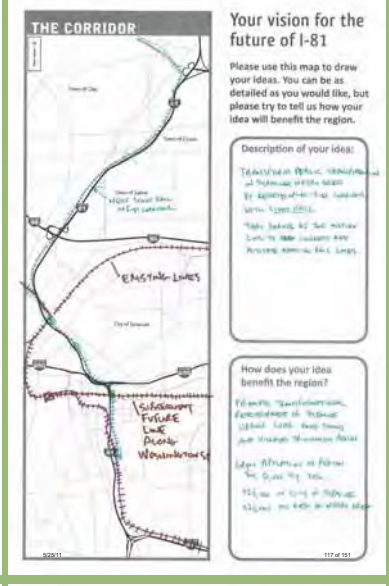


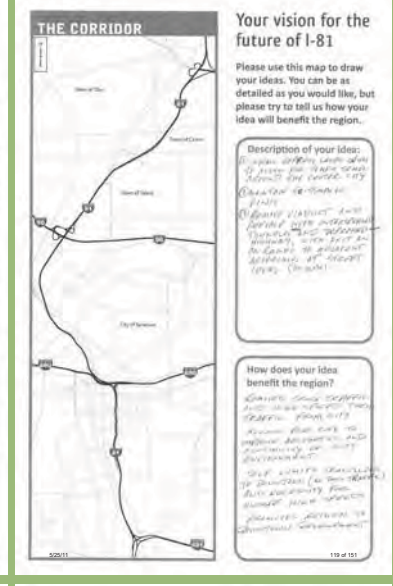


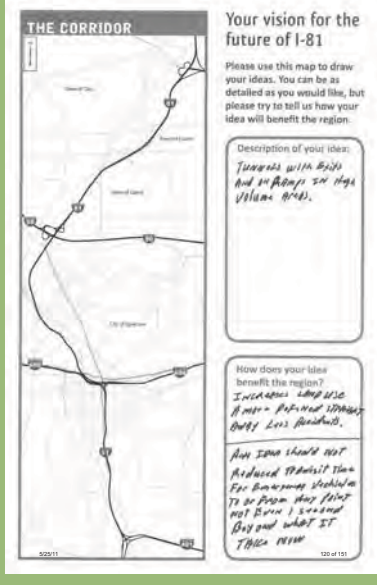
Your visions for I-81

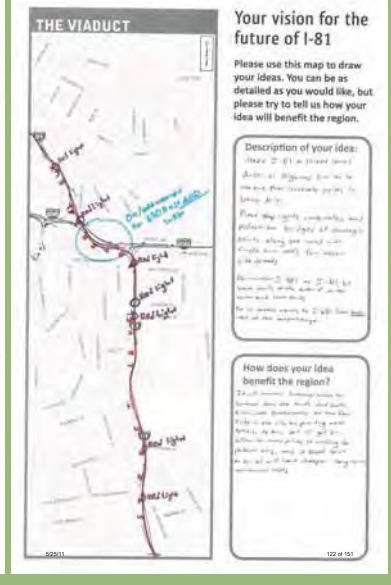




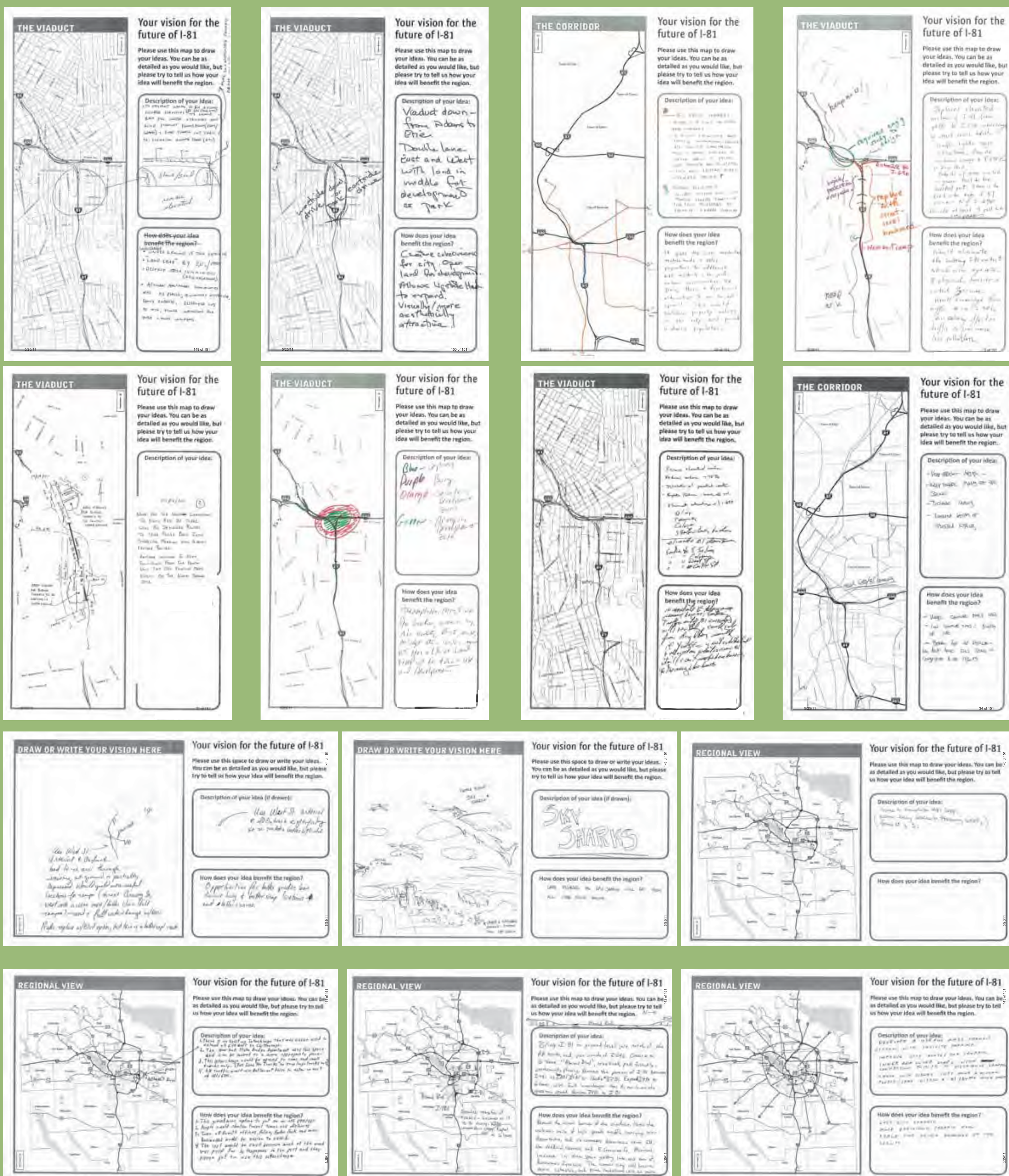




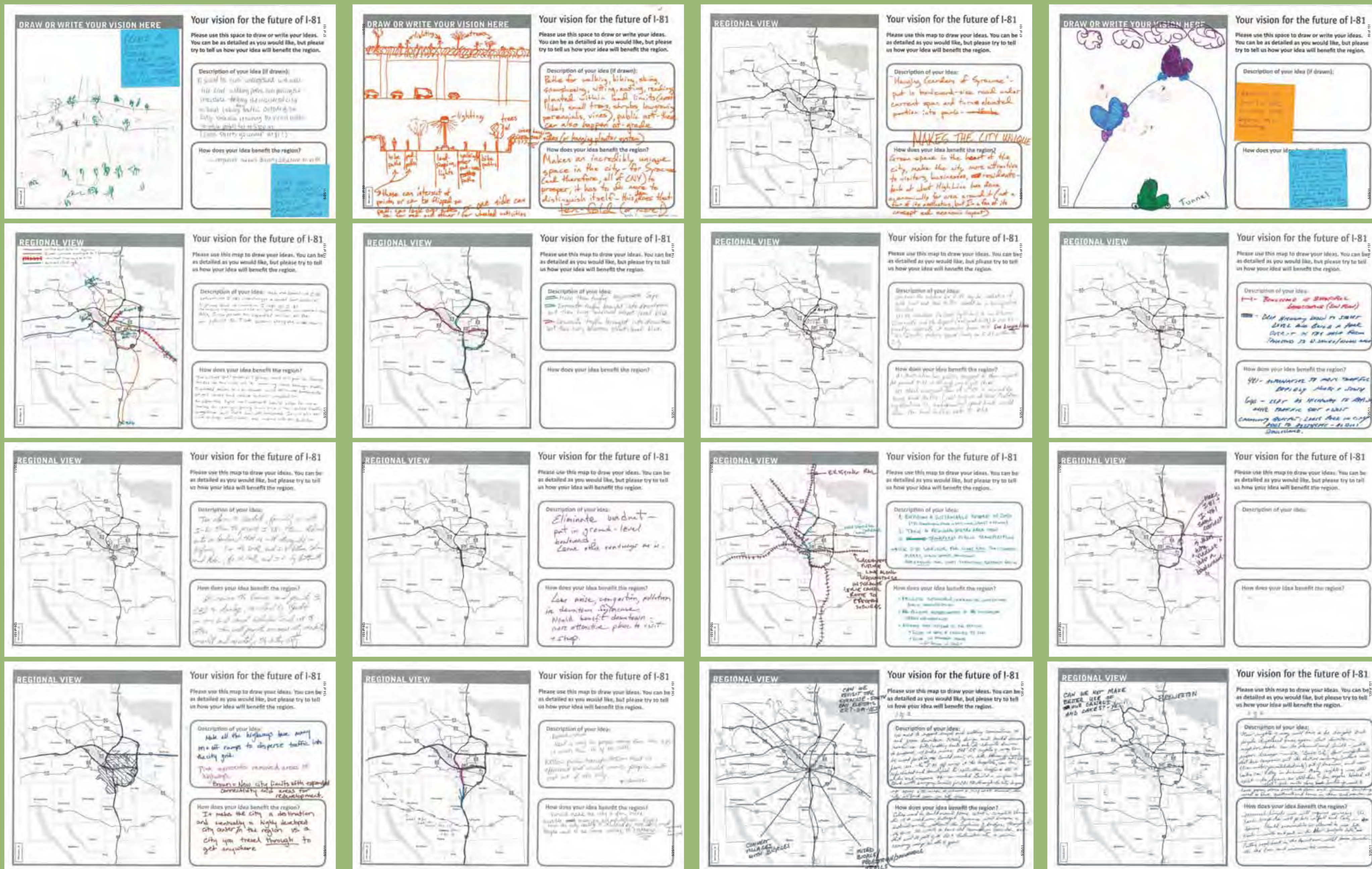




Your visions for I-81



Your visions for I-81



Common categories of concepts

PUBLIC FEEDBACK

Numerous ideas were shared at the May 2011 workshops ranging from spot-specific improvements to full reconstruction to transformation of the regional transportation system.

CATEGORIES

Similar concepts were grouped into six distinct categories.

COMMON CONCEPTS

Participants at the May 2011 workshops made many suggestions that could complement any of the six categories.

Moving to strategy development

Must be considered for all projects

- No-Build
- Rehabilitation
- Reconstruction
- Tunnel / Depressed highway
- Boulevard

Carry forward to strategy development

Based on the review of the concepts and ideas presented by the public, a large majority fell into these categories and represent categories of strategies that can potentially meet the Transportation Needs and Goals & Objectives of the study.

- Western bypass
- Relocate I-81

Pre-screen categories

These two categories of concepts and ideas were prescreened because the review of this information indicated they may not meet the project's Transportation Needs or Goals & Objectives. Western bypass concepts may not address the I-81 needs and the Relocate I-81 concepts present potentially significant community impacts.

Pre-screening:
Relocate I-81 through downtown

POTENTIAL IMPACTS:

PROPERTY:

- Building to interstate highway standards requires 400' swath of land through the City plus property for interchanges
- Significant impacts to residential properties

COMMUNITY RESOURCES:

- Significant impacts to businesses and cultural centers: Huntington Family Center, Hopps Memorial CME Church, Atlas Health Care, and other office/industrial buildings
- Significant impacts to Franklin Square

NYS&W right-of-way is not a viable option because it is an active freight line. Consider alignment immediately west of rail line.

Could complement a boulevard on existing I-81 alignment

RECOMMENDATION:

- Consider a new arterial (non-interstate highway) along West St or adjacent to the NYS&W railroad alignment as part of a Boulevard Strategy [see more details in Station 4]

Pre-screening:
Relocate I-81 north of I-690

POTENTIAL IMPACTS:

PROPERTY:

- Building to interstate highway standards requires 250'-400' swath of land through city neighborhoods plus land for interchanges and new connections to Carousel Center, Regional Transit Center, and Onondaga Lake Parkway

COMMUNITY RESOURCES:

- Impacts multiple neighborhoods and schools, Sisters of St. Francis Campus, and Cooper Crouse-Hinds complex

Connections would need to be re-established to Carousel Center, Regional Transit Center, and Onondaga Lake Parkway

It is unclear what might be done with existing I-81

Does not address issues in the viaduct area

RECOMMENDATION:

- Eliminate both concepts from futher consideration

Pre-screening:
Western bypass concepts

POTENTIAL IMPACTS:

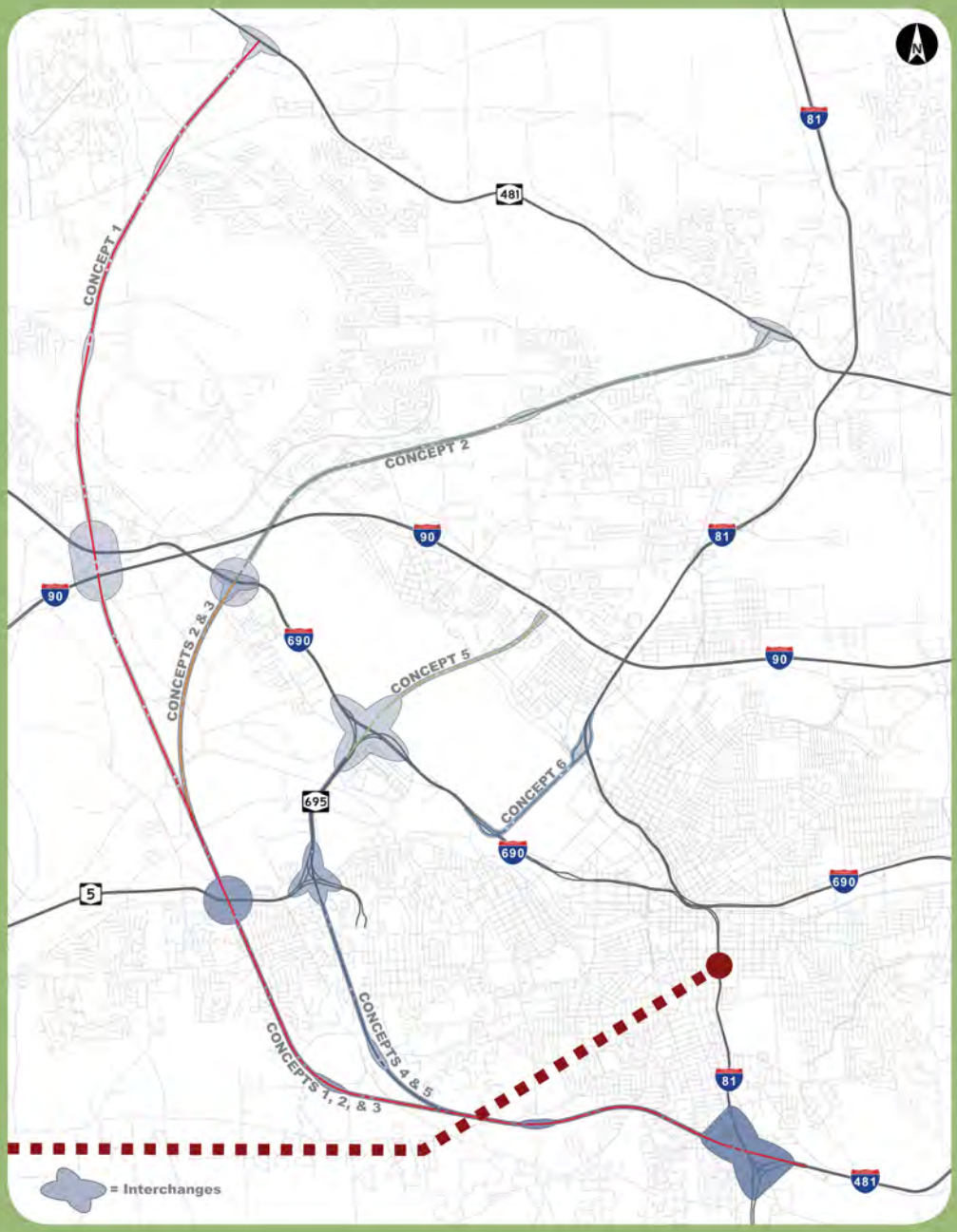
PROPERTY:
- Building to interstate highway standards requires 250'-400' swath of land through established city and town neighborhoods plus land for interchanges

COMMUNITY RESOURCES:
- Impacts various residential neighborhoods, schools, parks, and recreational facilities

ECONOMIC:
- Impacts various medical, office, retail, and industrial facilities

ENVIRONMENTAL:
- Varying Impacts to: Onondaga Lakefront, Tailing Pond Wetland Area/Old Erie Canal, and the Clay Marsh lands

TRAFFIC:
- Traffic volumes on any bypass concept are expected to be much too low to justify the anticipated cost to construct



The Western bypass concepts do not, by themselves, address the project needs for I-81 and the viaduct.

RECOMMENDATION:

- Consider bypass concept 4 from southern I-81/I-481 interchange (Exit 16A) to NYS Rt 5/695 in Fairmount as an optional part of a Boulevard Strategy [see more details in Station 4]
- Eliminate all other Western bypass concepts

Recommendations for strategy development

Based on the categorization of concepts and pre-screening, we recommend that five strategies progress.

- **Boulevard**
  - Optional as part of a Boulevard Strategy
    - Western bypass
    - West Street / railroad arterial
- **No-Build**
- **Reconstruction**
- **Rehabilitation**
- **Tunnel / Depressed**

STATION 4

Strategies for the Future of I-81

This station presents possible concepts for the future of I-81 and should not be interpreted as design level detail.

No-Build strategy: defined

The “no-build” strategy would include only routine maintenance, including filling pavement cracks, patching holes in the viaduct deck, and maintaining the highway drainage system.

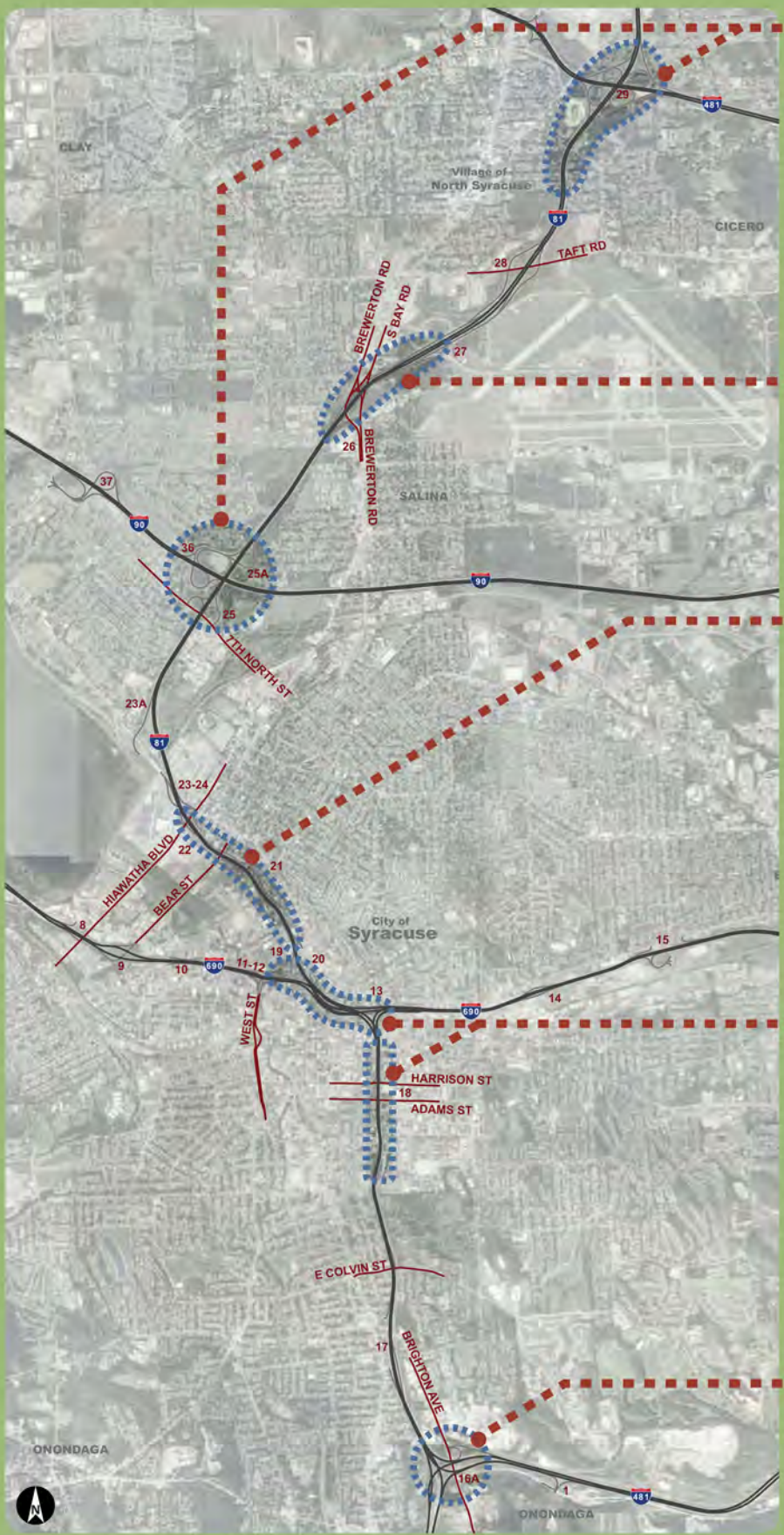
WHY CONSIDER THIS STRATEGY?

- Required under both federal and state environmental regulations
- Used as a benchmark against which other alternatives can be compared

WHAT ISSUES WILL THIS STRATEGY ADDRESS?

- Will not address long-term issues of I-81

No-Build strategy:
Future issues



7TH NORTH ST TO I-90 & TAFT RD TO I-481

- Capacity conditions and congestion will increase
- Safety and accident occurrences will remain, if not increase as a result of increasing congestion
- Non-standard design features will continue to affect capacity and safety

ROUTE 11 AREA (EXIT 26 & 27)

- Traffic capacity will decrease from good to approaching capacity and will likely contribute to increased accident rates

I-690 TO HIAWATHA BLVD

- Capacity conditions and congestion will increase
- Safety and accident occurrences will remain, if not increase, as a result of increasing congestion
- Non-standard design features will continue to affect capacity, safety, and operations

I-81/I-690 INTERCHANGE & VIADUCT AREA

- Bridge conditions continue to deteriorate and require increased funding for out-of-date bridges
- Capacity conditions and congestion will increase
- Safety and accident occurrences will remain, if not increase, as a result of increasing congestion
- Non-standard design features will continue to affect capacity, safety, and operations

I-81/I-481 INTERCHANGE

- Safety and accident occurrences will remain, if not increase, as a result of increasing congestion
- Non-standard design features will continue to affect capacity and safety

No-Build: modeling results

The results presented here are from the SMTC's Regional Travel Demand Model. This model is intended for planning-level analysis and was used to determine impacts to regional mobility, which was one component of the feasibility assessment for each strategy. More detailed analysis to develop location-specific mitigation measures will be necessary during the next phase of this process.

ASSUMPTIONS

- No-Build strategy includes expected regional growth in population and jobs by 2040. Forecast is based on Census trends and input from municipal officials.
- No major changes to the highway network – normal maintenance and planned smaller local projects in the region continue.

TRAFFIC CONDITIONS (PM PEAK PERIOD)

- Congestion at the I-690 and I-81 interchange, on I-690 and I-81 close to the interchange, and on I-690 along Onondaga Lake
- Some congestion south east of Syracuse (Rt. 92 to Manlius)
- Little congestion on other interstates (I-90, I-481 and I-81 and I-690 away from downtown Syracuse)
- North-south through traffic uses I-81 through downtown Syracuse, with little on I-481 – this contributes to low traffic on I-481 southeast of Syracuse

TRAVEL TIMES (AM PEAK PERIOD)

- Maps show AM peak period travel times by car to downtown and University Hill in 2040
- Longest time to drive to either destination from within Onondaga County is 36 minutes

Regional Travel Demand Model

The Regional Travel Demand Model is a computer software package that replicates our regional transportation system

Population
Household vehicles
Parking
HOV lanes
Income data
Land use
Jobs
Road network
Tolls and fares
Transit system
Speed limits

Inputs

SMTC's model is a "Four Step Model" that takes inputs such as population and economic forecasts, the geographic dispersion of people and jobs throughout the region, and a description of the transportation system – the roads and transit system.

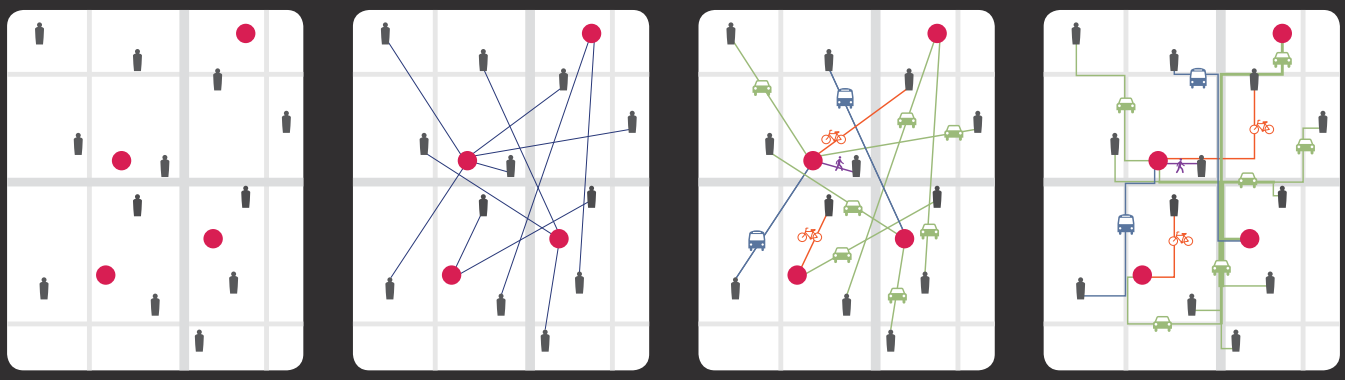
Regional Travel Demand Model

1 TRIP GENERATION
- How many trips will be made?

2 TRIP DISTRIBUTION
- Where will the trips come from and go to?

3 MODE SPLIT
- How many people will drive, take the bus, walk, bike, etc.?

4 NETWORK ASSIGNMENT
- What routes will be used for the trips?



Outputs

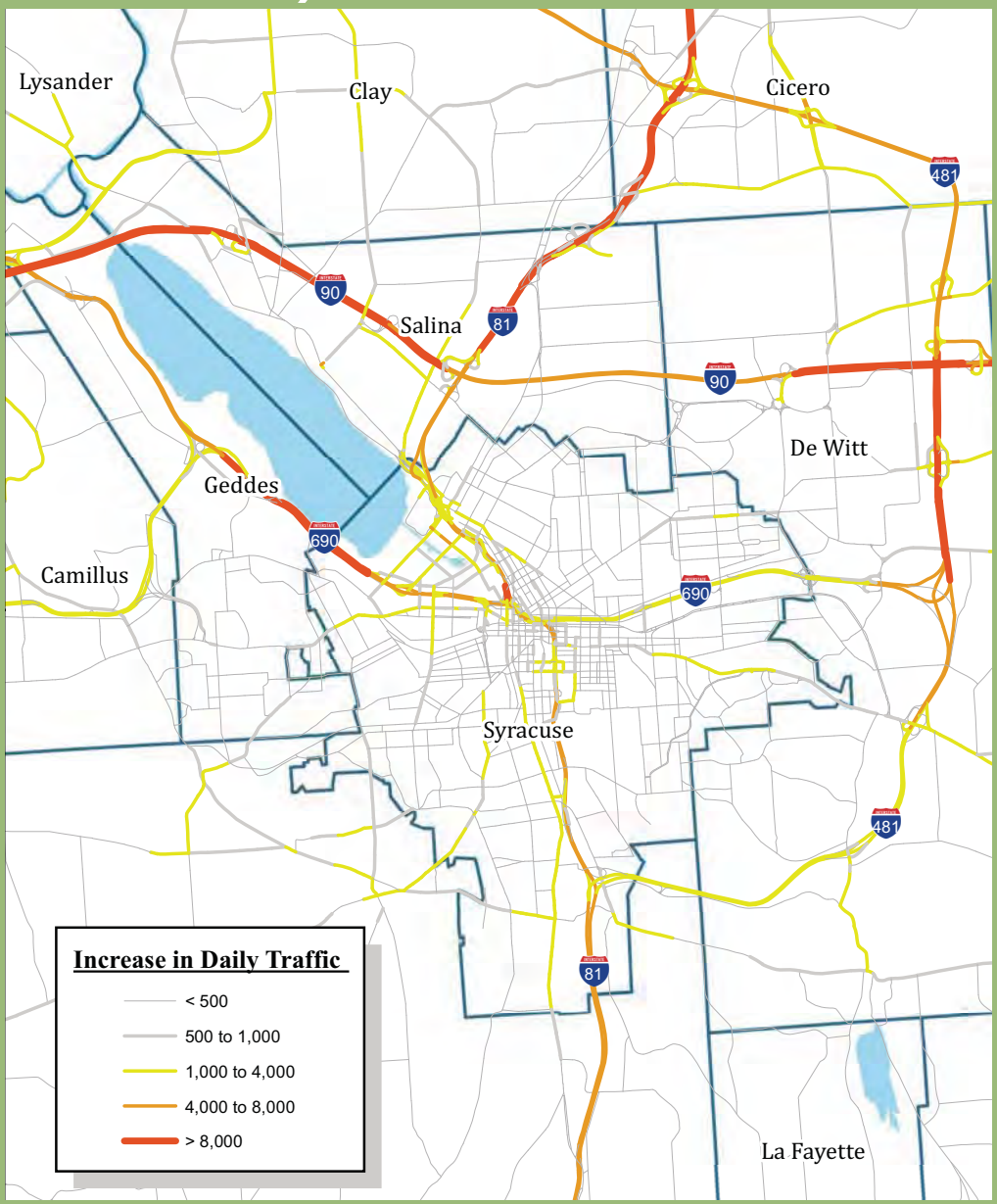
Number of transit riders
Number of vehicles
Travel time
Number of trips
Congestion and delay
Number of miles traveled

The model outputs, to be used in impact analyses to evaluate transportation system alternatives, include the amount of travel, the performance of the transportation system, and mode usage.

Modeling the future

The model can accurately replicate the existing conditions, and it can then be used to predict future travel patterns and demands based on changes in the transportation system, changes in the land use, and changing demographics

PROJECTED GROWTH IN TRAFFIC VOLUMES (2007 TO 2040)*

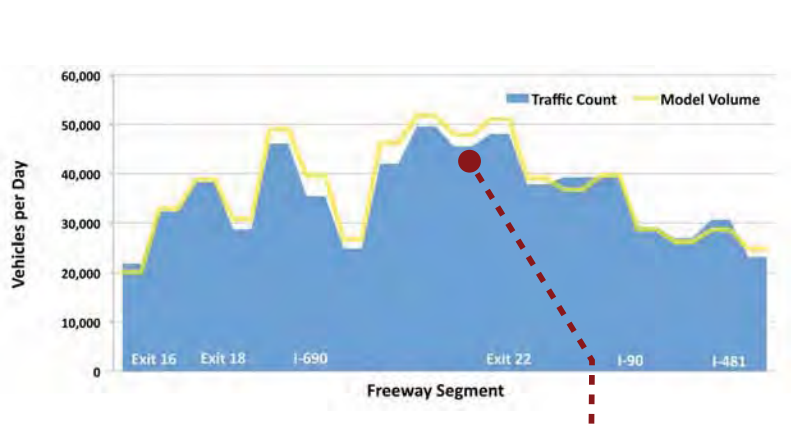


* Assumes no significant changes to I-81

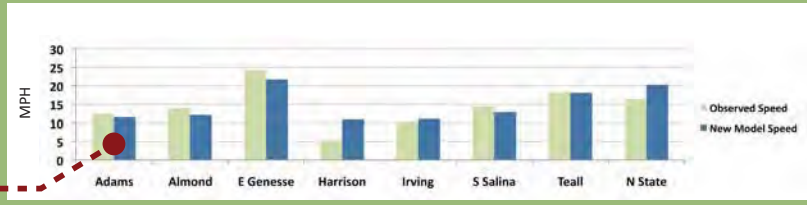
Modeling the present

The first step in using the Regional Travel Demand Model for The I-81 Challenge is to simulate the current “real world”

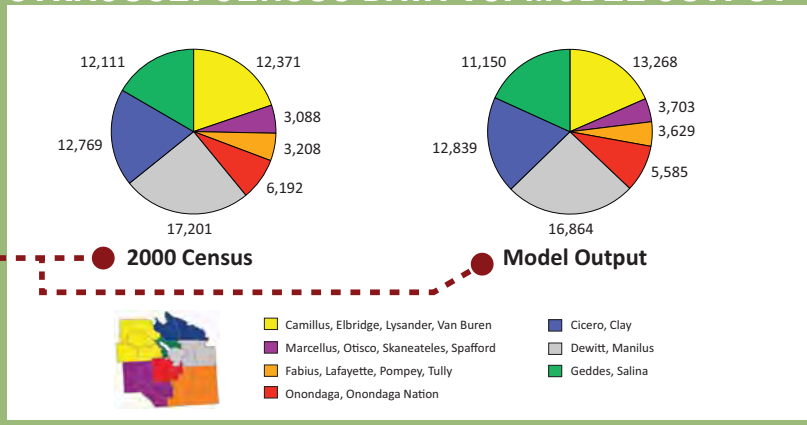
I-81 NORTHBOUND TRAFFIC FLOWS: TRAFFIC COUNTS AND MODELED VOLUMES



MODEL ARTERIAL SPEEDS COMPARED TO OBSERVED ARTERIAL SPEEDS



DAILY WORK TRIPS BY DISTRICT GOING TO SYRACUSE: CENSUS DATA VS. MODEL OUTPUT

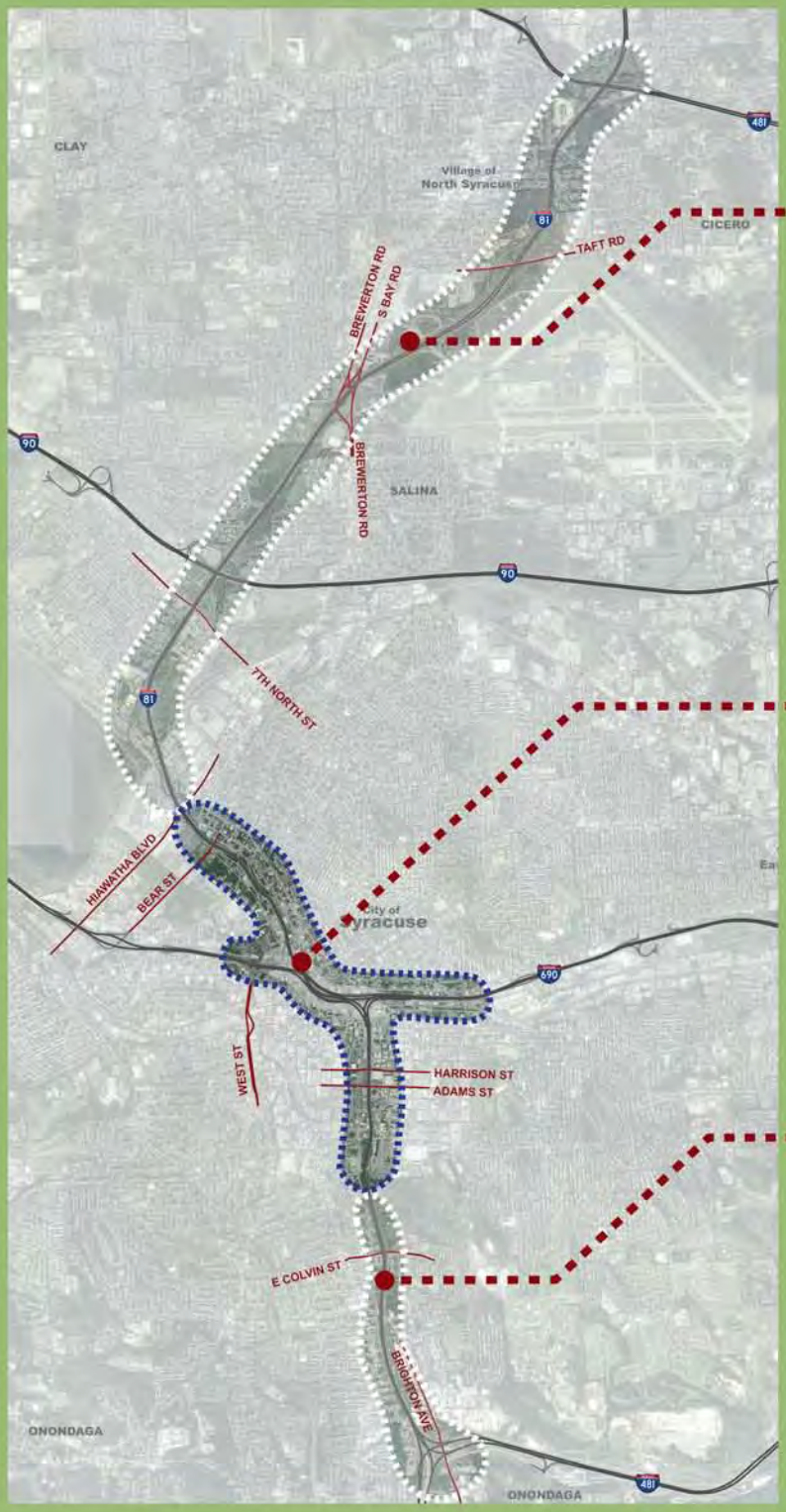


WHY THE DIFFERENCE?

Modeling peoples’ travel behavior is a difficult undertaking since behavior is variable and complex. Travel models are developed from and compared to a wide variety of data sources, so travel models can’t be expected to match any one source exactly.

Rehabilitation strategy: elements

Rehabilitation was considered for the entire 12-mile I-81 corridor between the two I-481 interchanges. Bridge conditions, pavement conditions, and traffic conditions were examined to determine whether the Rehabilitation Strategy is feasible for each segment of the corridor.



HIAWATHA BLVD TO I-481

- 10 bridges can be rehabilitated, 7 bridges need to be replaced
- Pavement is in good condition
- Minor traffic capacity issues
- Minor accident remediation

Rehabilitation Strategy ***IS FEASIBLE*** for this section

VIADUCT PRIORITY AREA

- The most cost effective solution is to replace 38 out of 39 bridges
- Bridges to be replaced are functionally obsolete and have reached their useful service life, as they were built prior to 1970
- Long-term geometric, safety and capacity needs cannot be addressed within existing layout
- Extensive cost investment with no significant geometric, capacity, or safety improvements; limited to no economic, environmental, and community benefits

Rehabilitation Strategy ***IS NOT FEASIBLE*** for this section

I-481 TO VIADUCT

- 2 bridges can be rehabilitated, 5 bridges need to be replaced
- Pavement is in good condition
- No future capacity issues
- Minor accident remediation

Rehabilitation Strategy ***IS FEASIBLE*** for this section

What does a bridge rehabilitation include?

Bridge rehabilitation repairs all the deficient elements associated with the bridge (e.g., deck, railings, bearings, abutment, etc.) to improve their individual conditions to an acceptable level and extend the service life of the bridge to the design year of 2040. Where it is determined that rehabilitation of a bridge is not cost effective (as compared to replacement costs), the bridge will be replaced.

Rehabilitation strategy: modeling results

The results presented here are from the SMTC's Regional Travel Demand Model. This model is intended for planning-level analysis and was used to determine impacts to regional mobility, which was one component of the feasibility assessment for each strategy. More detailed analysis to develop location-specific mitigation measures will be necessary during the next phase of this process.

ASSUMPTIONS

- Same population and number of jobs as No-Build strategy
- Same assumptions of continued maintenance and planned smaller local projects in the region as in the No-Build strategy
- Road network is not significantly different from the No-Build strategy
- Minor road widening and other improvements to improve traffic flow such as longer acceleration/deceleration lanes and ramps
- Genant Street connected to Butternut Street to provide extra capacity to the local street network
- Lane addition on I-81 southbound off ramp to Almond Street and Harrison Street

TRAFFIC CONDITIONS (PM PEAK PERIOD)

- Congestion at the I-690 and I-81 interchange, on I-690 and I-81 close to the interchange, and on I-690 along Onondaga Lake is generally similar to the No-Build strategy
- Less congestion than the No-Build strategy on I-81 immediately north of the interchange
- Little congestion on other interstates (I-90, I-481 and I-81 and I-690 away from downtown Syracuse), consistent with the No-Build strategy
- North-south through traffic continues to use I-81 through downtown Syracuse, with little traffic on I-481
- Some diversion of traffic to I-81 north of the interchange with I-690 due to the improvements made in this strategy

TRAVEL TIMES (AM PEAK PERIOD)

Travel times are essentially the same as the No-Build strategy

Rehabilitation strategy: assessment

Outer segments

Rehabilitation restores the current bridges and pavement to a "state of good repair" that will last for the next 30-40 years.

Transportation Assessment	Economic Competitiveness	Social Equity/Quality of Life	Environmental Stewardship
Enhance the Transportation Network: • Addresses 3% of the geometric deficiencies. Maintains current infrastructure (bridges/ pavement) in a state of good repair. • Some safety improvements on elevated surfaces. Replaces 12 of 24 bridges. No capacity improvements needed. • No enhancements to alternative transportation modes. **Enhance Region-Wide Mobility:** • Regional mobility is maintained, similar to no-build. This increase in congestion may impact access to key destinations. • No change in access to key destinations and no improvements to connectivity of alternative transportation. **Improve Public Safety:** • Limited safety enhancements to provide advance warning on curves and elevated surfaces to minimize accident occurences. • No improvements to the safety of alternative modes of transportation (pedestrian, bicycle, transit).	**Maintain or Improve Economic Opportunities:** • Maintains current access to adjacent businesses. Maintains current multi-modal access and connections. • Slight improvement to system efficiency, reliability or reduced travel time or costs. **Exercise Fiscal Responsibility:** • The most cost-effective method to address the pavement, bridge, and safety needs in these areas.	**Support Community Quality of Life:** • No impacts or benefits to community resources. • Little to no benefit to regional and local connectivity. • Does not encourage smart growth. • Maintains current visual built environment. No impacts to community character. • Does not promote city or county long term vision and preferred future land use patterns. **Share Burdens and Benefits:** • No benefits to stakeholders as there are limited enhancements to the existing highway. • Burden equally shared.	**Preserve or Enhance Environmental Health:** • Does not affect local, regional, or state environmental initiatives. • Relatively no change in air quality. • No improvement to existing noise levels. • No change in benefits or impacts on designated community landmarks or historic resources. • No change in stormwater or water quality.
Good	**Good to Fair**	**Fair**	**Fair**

Cost Range: $300-400 million in north and south outer segments (8.5 miles), including $100-150 million for roadways and $200-250 million for bridges.

Recommendation/Feasibility: The rehabilitation strategy ***is feasible*** in the northern and southern outer segments of the corridor (8.5 miles). Therefore, the rehabilitation strategy is retained in the outer segments.

Rehabilitation strategy: assessment

Viaduct priority area

Rehabilitation restores the current bridges and pavement to a "state of good repair" that will last for the next 30-40 years.

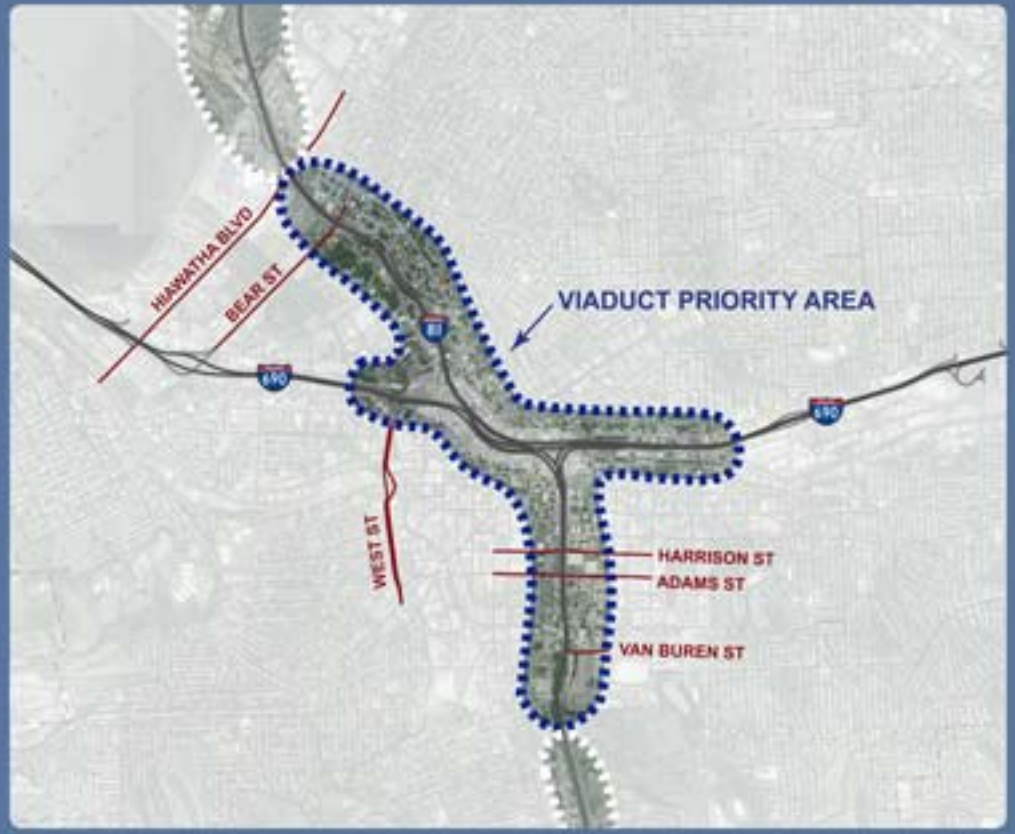
Transportation Assessment	Economic Competitiveness	Social Equity/Quality of Life	Environmental Stewardship
Enhance the Transportation Network: • Addresses only 10-15% of the geometric deficiencies. • Minor capacity improvements; only minor geometric improvements; replaces 38 of 39 bridges built prior to 1970. • Access ramp eliminations may negatively impact key destinations. **Enhance Region-Wide Mobility:** • Regional mobility is maintained with slight increase in vehicle miles traveled. This increased congestion may impact access to key destinations. • Minor enhancements to alternative transportation modes at a few intersection locations; add lighting, sidewalks, crosswalks, and bike lanes. **Improve Public Safety:** • Limited safety improvements (mostly improves various ramps along I-81). • Some aesthetic treatments address safety concerns under the viaduct.	**Maintain or Improve Economic Opportunities:** • Elimination of 2 access ramps may affect adjacent businesses. Minor improvements to multi-modal access or connections. Perceived barrier remains but with aesthetic improvements. • No noticable improvement to system efficiency, reliability or reduced travel time or costs. **Exercise Fiscal Responsibility:** • Not cost effective - significant investment to replace most bridges with little capacity, operational, or community benefits.	**Support Community Quality of Life:** • No change in impacts or benefits to community resources. Does not encourage sustainable land use patterns within city or county. • Does not enhance connectivity between University Hill and Downtown. Perceived barrier remains. • Little to no benefit to regional and local connectivity to encourage smart growth. • Does not change visual built environment. No benefits to community character. • Not consistent with city or county long term vision and preferred future land use patterns. **Share Burdens and Benefits:** • No benefits to stakeholders as there are limited enhancements to existing highway functionality and operations. • Burden equally shared.	**Preserve or Enhance Environmental Health:** • Does not support local, regional, or state environmental initiatives. • Relatively no change in air quality. • No improvement to existing noise levels. • No change in benefits or impacts on designated community landmarks or historic resources. • No change in storm water or water quality.
Poor	**Poor**	**Poor**	**Fair**

Cost Range: $480-600 million in viaduct priority area (3.5 miles), including $30-50 million for roadways and $450-550 million for bridges.

Recommendation/Feasibility: The rehabilitation strategy ***is not feasible*** in the viaduct priority area due to the high cost for bridge replacements with little to no improvements in capacity, safety, and reliability.

Build strategies for viaduct priority area

The assessment determined that Rehabilitation for the viaduct priority area is not feasible and four "build" strategies were developed:



Tunnel

Depressed Highway

Reconstruction

Boulevard

The remainder of this station explores the four "build" strategies.

Tunnel strategy: elements

NORTHERN IMPROVEMENTS: I-690 TO OLD LIVERPOOL ROAD

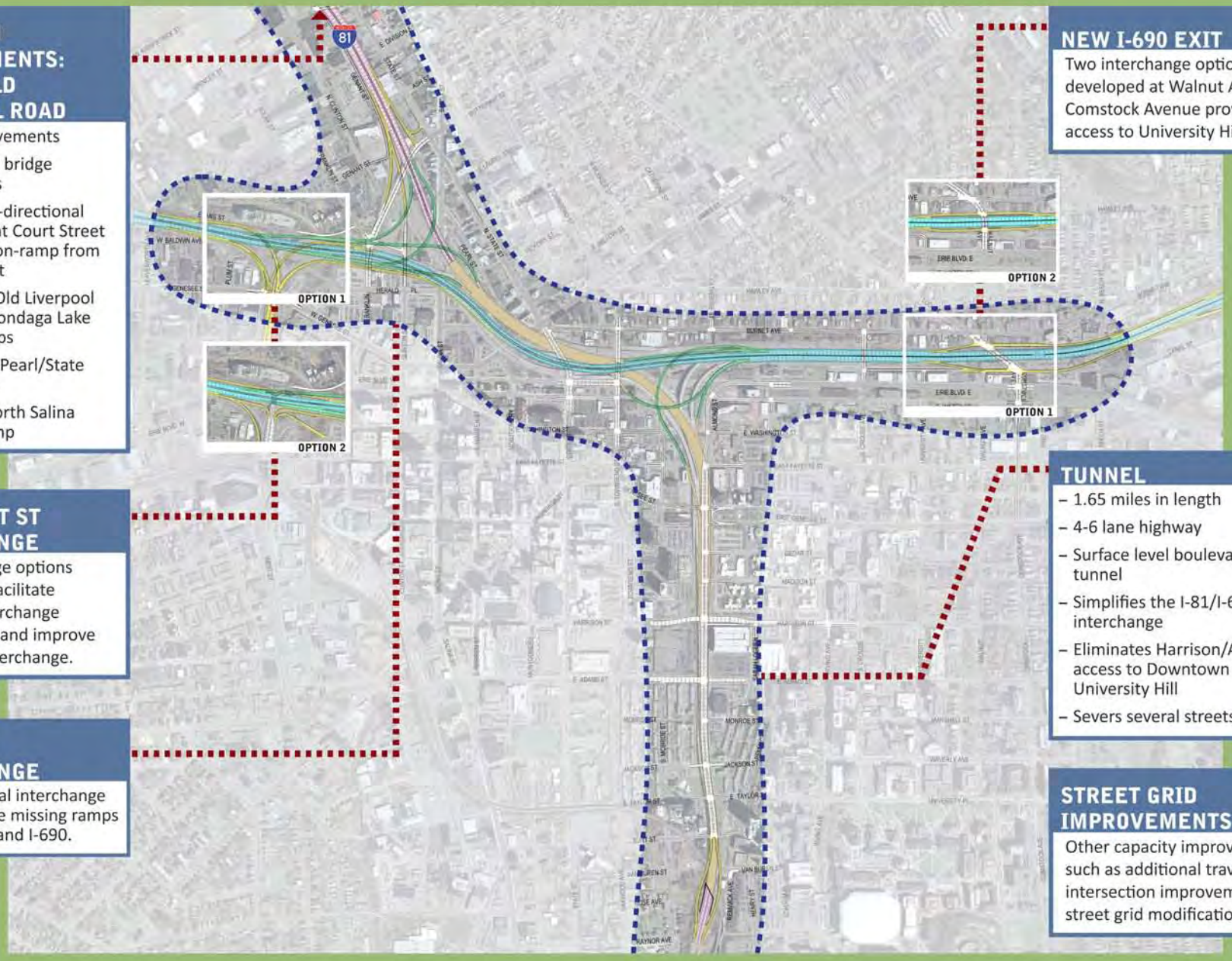
- Safety improvements
- Possible local bridge replacements
- Develop fully-directional interchange at Court Street and remove on-ramp from Genant Street
- Reconfigure Old Liverpool Road and Onondaga Lake Parkway ramps
- Consolidates Pearl/State Street ramps
- Eliminates North Salina Street off-ramp

I-690/ WEST ST INTERCHANGE

Two interchange options developed to facilitate I-81/ I-690 interchange improvements and improve West Street interchange.

I-81/ I-690 INTERCHANGE

Fully directional interchange will include the missing ramps between I-81 and I-690.



NEW I-690 EXIT

Two interchange options developed at Walnut Avenue or Comstock Avenue provide better access to University Hill area.

TUNNEL

- 1.65 miles in length
- 4-6 lane highway
- Surface level boulevard over tunnel
- Simplifies the I-81/I-690 interchange
- Eliminates Harrison/Adams access to Downtown and University Hill
- Severs several streets

STREET GRID IMPROVEMENTS

Other capacity improvements such as additional travel lanes, intersection improvements, and street grid modifications.

Tunnel strategy: modeling results

The results presented here are from the SMTC's Regional Travel Demand Model. This model is intended for planning-level analysis and was used to determine impacts to regional mobility, which was one component of the feasibility assessment for each strategy. More detailed analysis to develop location-specific mitigation measures will be necessary during the next phase of this process.

ASSUMPTIONS

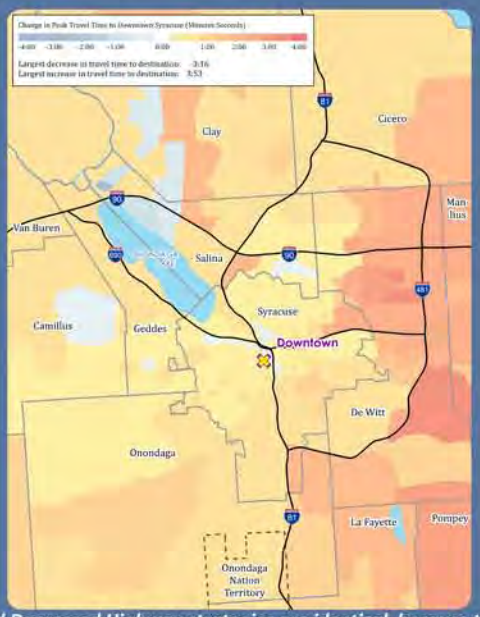
- Same population and number of jobs as No-Build strategy
- Same assumptions of continued maintenance and planned smaller local projects in the region as in the No-Build strategy
- Fully-directional I-81/I-690 interchange with new ramps from I-690 eastbound to I-81 northbound and from I-81 southbound to I-690 westbound
- I-81 replaced with a submerged Tunnel (2 lanes each direction) from Van Buren Street to the I-690 interchange
- New street level boulevard (2 lanes each direction) above the Tunnel in place of Almond Street
- I-690 remains elevated
- New I-690 exit at Lodi/Comstock (Comstock extended from East Genesee to Erie Blvd) for access to University Hill
- West Street off ramp to Herald Place removed
- Erie Blvd and Water Street removed between Townsend Street and Almond Street
- Several local ramps removed to increase spacing of ramps

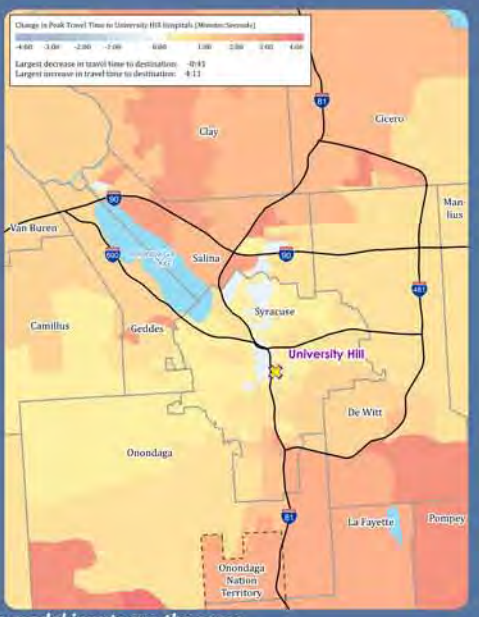
TRAFFIC CONDITIONS (PM PEAK PERIOD)

- Traffic volume increases along I-81 north of the I-81/I-690 interchange, along I-690 west of I-81 and along I-81 within the viaduct area
- North-south through traffic continues to use I-81 through downtown, with little on I-481
- Alters traffic patterns close to downtown, including diversions away from I-690 east of downtown to parallel streets, and a shift to I-690 west of downtown
- Traffic volume decreases along I-690 east of I-81

TRAVEL TIMES (AM PEAK PERIOD)

Minimal increases in travel time expected throughout the region





**Please note modeling results for the Tunnel and Depressed Highway strategies are identical because the model inputs are the same.*

Tunnel strategy: assessment

The tunnel strategy removes the viaduct and lowers I-81 below grade in a tunnel. This strategy requires the reconstruction of I-81 on either end of the tunnel.

Transportation Assessment	Economic Competitiveness	Social Equity/Quality of Life	Environmental Stewardship
Enhance the Transportation Network: • 90% of geometric deficiencies would be addressed. • Constructs 53 new bridges and a 6-lane 1.65 mile tunnel; major capital investment with highest life cycle maintenance costs. • Connectivity notably enhanced with surface boulevard over tunnel. **Enhance Region-Wide Mobility:** • Travel patterns to destinations in close proximity to the interchange would be altered; circuitous travel patterns, increased delay. Regional mobility slightly improved. Notable benefits would result to the regional system efficiency, reliability, safety, and capacity. • Fewer exits would reduce downtown interstate access. Pedestrian, bicycle, and transit facilities along the boulevard would be prominent. **Improve Public Safety:** • Anticipated reduction in accident patterns and rates by addressing design deficiencies and improved capacity. • Improved safety for pedestrians and bicyclists by improving cross connections.	**Maintain or Improve Economic Opportunities:** • Notable negative impact to businesses and properties. Less convenient access to urban core. • Multi-modal system connectivity notably enhanced with surface boulevard over tunnel; improves multi-modal access and overall livability. • Enhanced highway operations that may benefit region-wide population growth and job access. **Exercise Fiscal Responsibility:** • High investment with community benefits and significant operational improvements.	**Support Community Quality of Life:** • Major property impacts including removal of numerous businesses and housing. Does not encourage sustainable land use patterns within city or county; supports sprawl. • Several major surface roads would be severed, negatively impacting connection between Northside, Downtown, and Eastside. • Does not support regional land use patterns or smart growth. • Street level boulevard has high potential to improve visual character. • Moderate consistency with city and county long term vision and preferred future land use patterns. **Share Burdens and Benefits:** • Benefits not shared equally among city neighborhoods. • Higher burden compared to other strategies. Greater number of property displacements in EJ neighborhoods.	**Preserve or Enhance Environmental Health:** • Does not conflict with local, regional, or state environmental initiatives. Limited integration with city bike plan where roads are severed. • Possible air quality impacts due to potentially higher emissions. • Noise levels in general are anticipated to be lower with traffic traveling within enclosed tunnel. Noise levels would increase by tunnel portals due to reverbrance. • Impact to community landmarks or historic resources depending on footprint. • Probable stormwater pumping station for tunnel drainage.
Good to Fair	**Fair**	**Poor to Very Poor**	**Poor to Very Poor**

Cost Range: $1.6-1.8 billion; Roadway: $120-150 million, Bridges: $480-550 million, Tunnel: $1.1 billion.

Recommendation/Feasibility: The tunnel strategy in the viaduct priority area ***is not feasible*** and is eliminated from further consideration. Very high investment to improve system operations, safety, and capacity; would have significant negative economic, social, and environmental impacts.

Depressed highway strategy: elements

NORTHERN IMPROVEMENTS: I-690 TO OLD LIVERPOOL ROAD

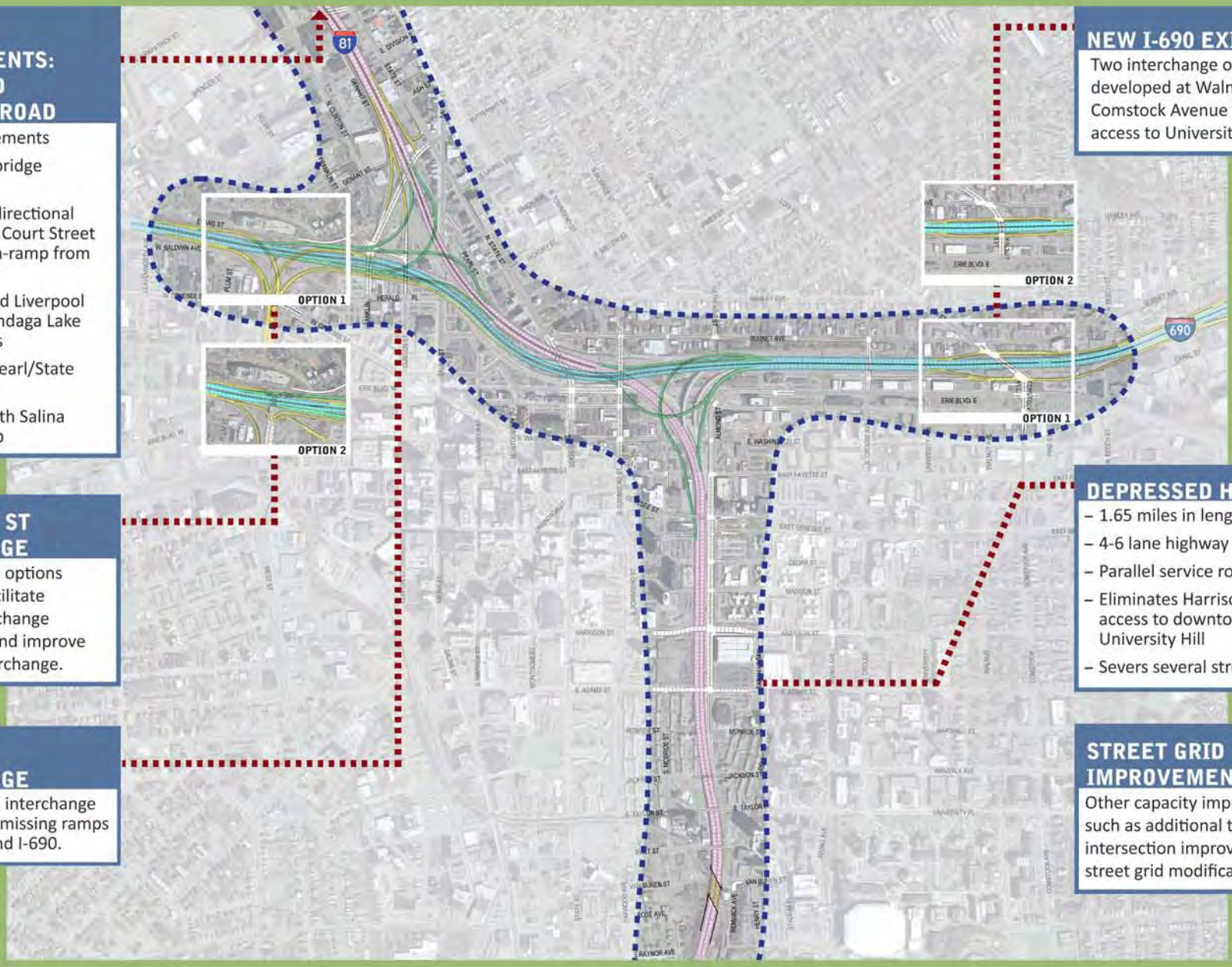
- Safety improvements
- Possible local bridge replacements
- Develop fully-directional interchange at Court Street and remove on-ramp from Genant Street
- Reconfigure Old Liverpool Road and Onondaga Lake Parkway ramps
- Consolidates Pearl/State Street ramps
- Eliminates North Salina Street off-ramp

I-690/ WEST ST INTERCHANGE

Two interchange options developed to facilitate I-81/ I-690 interchange improvements and improve West Street interchange.

I-81/ I-690 INTERCHANGE

Fully directional interchange will include the missing ramps between I-81 and I-690.



NEW I-690 EXIT

Two interchange options developed at Walnut Avenue or Comstock Avenue provide better access to University Hill area.

DEPRESSED HIGHWAY

- 1.65 miles in length
- 4-6 lane highway
- Parallel service road or boulevard
- Eliminates Harrison/Adams access to downtown and University Hill
- Severs several streets

STREET GRID IMPROVEMENTS

Other capacity improvements such as additional travel lanes, intersection improvements, and street grid modifications.

Depressed highway strategy: modeling results

The results presented here are from the SMTC's Regional Travel Demand Model. This model is intended for planning-level analysis and was used to determine impacts to regional mobility, which was one component of the feasibility assessment for each strategy. More detailed analysis to develop location-specific mitigation measures will be necessary during the next phase of this process.

ASSUMPTIONS

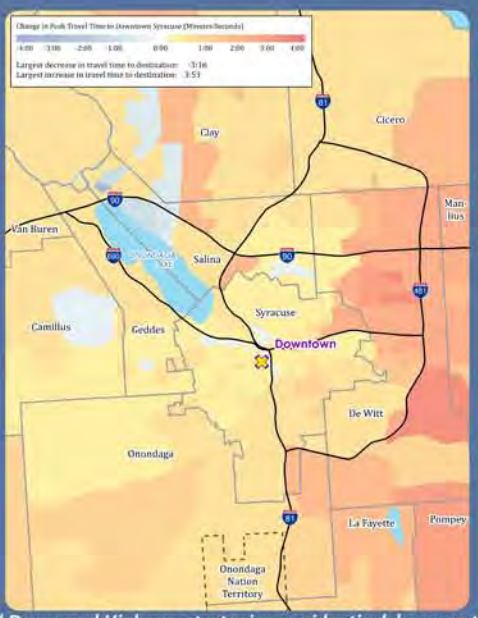
- Same population and number of jobs as No-Build strategy
- Same assumptions of continued maintenance and planned smaller local projects in the region as in the No-Build strategy
- Fully-directional I-81/I-690 interchange with new ramps from I-690 eastbound to I-81 northbound and from I-81 southbound to I-690 westbound
- I-81 replaced with a submerged depressed highway (2 lanes each direction) from Van Buren Street to the I-690 interchange
- New street level boulevard (2 lanes each direction) in place of Almond Street
- I-690 remains elevated
- New I-690 exit at Lodi/Comstock (Comstock extended from East Genesee to Erie Blvd) for access to University Hill
- West Street off ramp to Herald Place removed
- Erie Blvd and Water Street removed between Townsend Street and Almond Street
- Several local ramps removed to increase spacing of ramps

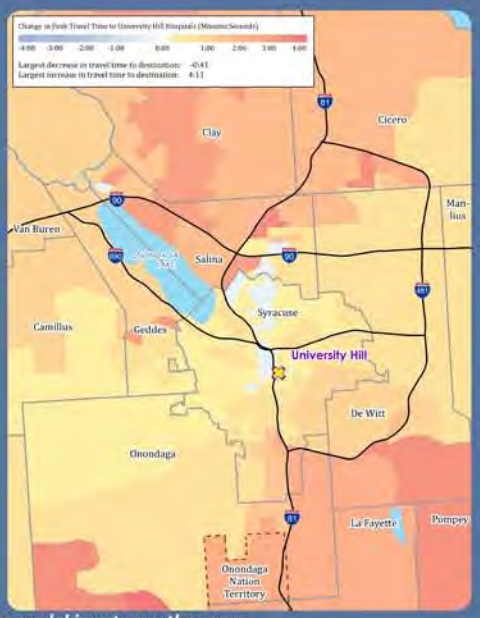
TRAFFIC CONDITIONS (PM PEAK PERIOD)

- Traffic volume increases along I-81 north of the I-81/I-690 interchange, along I-690 west of I-81 and along I-81 within the viaduct area
- North-south through traffic continues to use I-81 through downtown, with little on I-481
- Alters traffic patterns close to downtown, including diversions away from I-690 east of downtown to parallel streets, and a shift to I-690 west of downtown
- Traffic volume decreases along I-690 east of I-81

TRAVEL TIMES (AM PEAK PERIOD)

Minimal increases in travel time expected throughout the region





**Please note modeling results for the Tunnel and Depressed Highway strategies are identical because the model inputs are the same.*

Depressed highway strategy: assessment

The depressed highway strategy removes the viaduct and buries I-81. This strategy requires the reconstruction of I-81 on either end of the depressed highway.

Transportation Assessment	Economic Competitiveness	Social Equity/Quality of Life	Environmental Stewardship
Enhance the Transportation Network: • 90% of geometric deficiencies would be addressed. • Constructs 54 new bridges; special structure with high retaining walls; high life cycle maintenance costs. • Hinders alternative mode improvements. **Enhance Region-Wide Mobility:** • Regional mobility would be slightly improved. Strategy would have increased hours of delay and congestion, especially at intersection locations. • Connectivity is compromised as it creates gaps in the street grid system. Fewer exits would reduce downtown interstate access. Major highway improvements would improve access to key destinations. **Improve Public Safety:** • Anticipated reduction in accident patterns and rates by addressing design deficiencies and improved capacity. • Added width, complicated intersections, and difficult crossings.	**Maintain or Improve Economic Opportunities:** • Alignment and construction would encroach on existing properties, negatively impacting business and residences. Could create a sense of disconnection between neighborhoods due to physical void between east and west. Access to urban core less convenient. • Enhanced highway operations that may benefit region-wide population growth and job access. **Exercise Fiscal Responsibility:** • High investment with limited community benefits and significant operational improvements.	**Support Community Quality of Life:** • Major property impacts including removal of numerous businesses, housing, portions of a park and sports fields, and a school. Does not encourage sustainable land use patterns within city or county; supports sprawl. • Several major surface roads would be severed, negatively impacting connection between Northside, Downtown, and Eastside. • Does not support regional land use patterns or smart growth. • Improved visual environment with viaduct removal. • Moderate consistency with city and county long term vision and preferred future land use patterns. **Share Burdens and Benefits:** • Benefits not shared equally among city neighborhoods. • Greater number of property impacts with arterial road alongside depressed highway.	**Preserve or Enhance Environmental Health:** • Does not conflict with local, regional, or state environmental initiatives. Limited integration with city bike plan where roads are severed. • Possible air quality impacts due to potentially higher emissions. • Increase in noise levels due to reverberation between walls of the depressed highway. • Impact to community landmarks or historic resources depending on footprint. • Increases impervious areas by 11% requiring stormwater management features.
Fair	**Fair to Poor**	**Poor**	**Poor**

Cost Range: $1.3-1.5 billion; Roadway: $120-150 million, Bridges: $480-550 million, Depressed Highway: $700-800 million.

Recommendation/Feasibility: The depressed highway strategy in the viaduct priority area ***is not feasible*** and is eliminated from further consideration. Very high fiscal investment to improve system operations, safety, and capacity would have limited economic, social, and environmental benefits and significant impacts. Complex construction process with significant impacts to local and regional travel, significant utility impacts, and significant long-term maintenance costs.

Reconstruction strategy: elements

NORTHERN IMPROVEMENTS: I-690 TO OLD LIVERPOOL ROAD

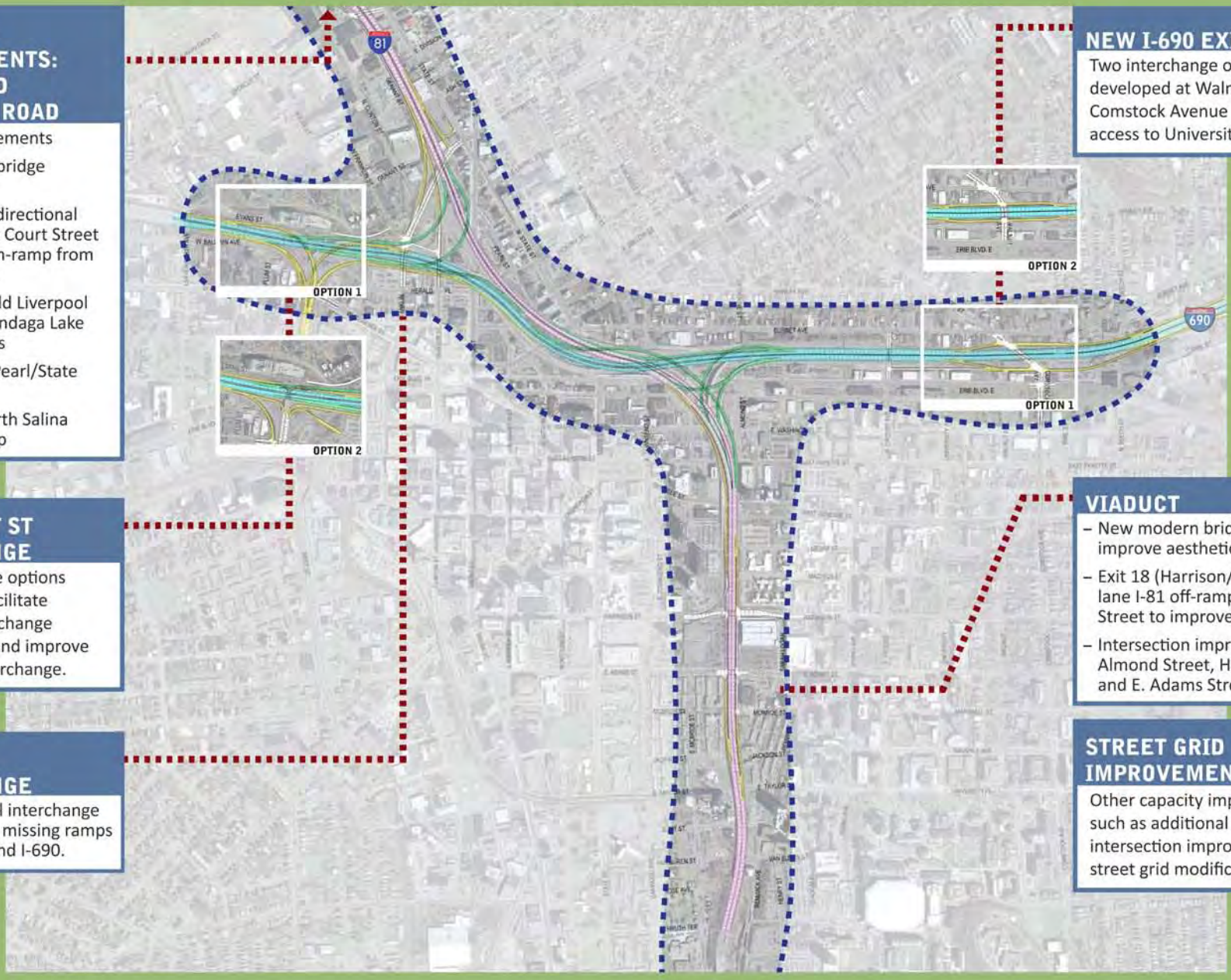
- Safety improvements
- Possible local bridge replacements
- Develop fully-directional interchange at Court Street and remove on-ramp from Genant Street
- Reconfigure Old Liverpool Road and Onondaga Lake Parkway ramps
- Consolidates Pearl/State Street ramps
- Eliminates North Salina Street off-ramp

I-690/ WEST ST INTERCHANGE

Two interchange options developed to facilitate I-81/ I-690 interchange improvements and improve West Street interchange.

I-81/ I-690 INTERCHANGE

Fully directional interchange will include the missing ramps between I-81 and I-690.



NEW I-690 EXIT

Two interchange options developed at Walnut Avenue or Comstock Avenue provide better access to University Hill area.

VIADUCT

- New modern bridge design to improve aesthetics and safety.
- Exit 18 (Harrison/Adams St): two-lane I-81 off-ramp to Harrison Street to improve weaving.
- Intersection improvements along Almond Street, Harrison Street and E. Adams Street.

STREET GRID IMPROVEMENTS

Other capacity improvements such as additional travel lanes, intersection improvements, and street grid modifications.

Reconstruction strategy: concepts

I-81 existing conditions, view south

I-81 reconstruction viaduct concept, view south

RECONSTRUCTION CONSIDERATIONS

- Interchange Layout
  - Fully directional interchange includes missing links between I-81 south to I-690 west and I-690 east to I-81 north
  - Ramp spacing considers interstate and local access
  - Increases posted speed limit from 45 MPH to 55 MPH with more stringent design requirements
  - Reuses existing right-of-way; minimizes complexity, weaving and community impacts
- Highway Viaduct
  - A new viaduct would conform to current design standards
  - Many cities have built new viaducts that are aesthetically pleasing

MODERN VIADUCT EXAMPLES

Modern steel bridge
Hammersmith flyover, West London

Seattle viaduct rendering
Seattle, WA

Modern concrete bridge
U.S. Route 83, TX

Reconstruction strategy: modeling results

The results presented here are from the SMTC's Regional Travel Demand Model. This model is intended for planning-level analysis and was used to determine impacts to regional mobility, which was one component of the feasibility assessment for each strategy. More detailed analysis to develop location-specific mitigation measures will be necessary during the next phase of this process.

ASSUMPTIONS

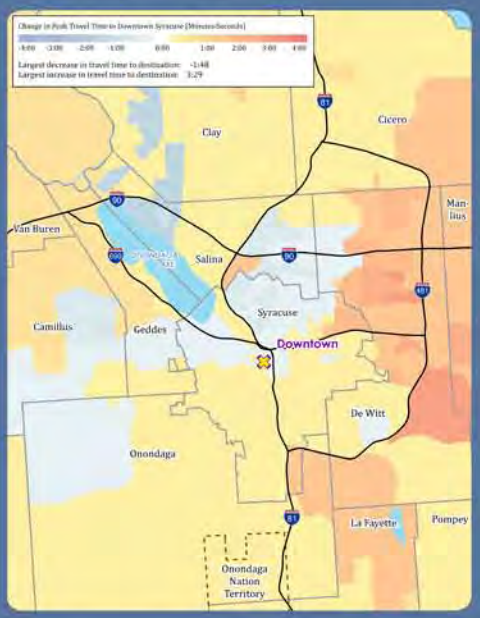
- Same population and number of jobs as No-Build strategy
- Same assumptions of continued maintenance and planned smaller local projects in the region as in the No-Build strategy
- Almond Street under I-81 is kept and improved
- Fully-directional I-81/I-690 interchange with new ramps from I-690 eastbound to I-81 northbound and from I-81 southbound to I-690 westbound
- Several local ramps removed to increase spacing of ramps
- New I-690 exit at Lodi/Walnut for access to University Hill
- Reconstruction of I-81 using modern design criteria and specifications
- West St/I-690 interchange reconfiguration

TRAFFIC CONDITIONS (PM PEAK PERIOD)

- Traffic volume increases along I-81 north of the I-81/I-690 interchange, along I-690 west of I-81 and along I-81 within the viaduct area
- North-south through traffic continues to use I-81 through downtown Syracuse, with little on I-481
- Some diversion of traffic to I-690 west of downtown and to I-81 due to the capacity improvements and ramp changes made in this strategy

TRAVEL TIMES (AM PEAK PERIOD)

Minimal decreases in travel time from northern areas, with very minimal increases elsewhere



Reconstruction strategy: assessment

Reconstruction completely removes and replaces the existing interchange and viaduct pavement and bridges in the downtown Syracuse viaduct priority area and builds a new viaduct within the same vicinity of the current highway.

Transportation Assessment	Economic Competitiveness	Social Equity/Quality of Life	Environmental Stewardship
Enhance the Transportation Network: • 85% of geometric deficiencies would be addressed. • Reconstruct 63 bridges; restore all bridges to good condition or better. • Improved lighting, crossings, sidewalks, and bike lanes where possible. Transit features will be integrated. **Enhance Region-Wide Mobility:** • Regional mobility slightly better with slight increase in speeds. • Reduces access by eliminating some local access ramps. Opportunity to enhance crossing locations and safety. **Improve Public Safety:** • Addresses design deficiencies and improved capacity to help reduce accident patterns and rates. • Improved safety for pedestrians and bicyclists under viaduct by improving cross connections.	**Maintain or Improve Economic Opportunities:** • Improved aesthetics, connectivity, and system operations have potential to improve economic environment. Opportunity to integrate improvements to multi-modal enhancements with positive economic and social benefits. • Notable efficiency, reliability, safety, and capacity improvements to the regional transportation system. **Exercise Fiscal Responsibility:** • Significant investment with moderate community benefits and significant operational improvements.	**Support Community Quality of Life:** • No change in impact or benefits to community resources. Moderate property impacts . Does not encourage sustainable land use patterns. • Significant enhancements to connection between University Hill and downtown with multi-modal facilities. • Does not support regional land use patterns that encourage smart growth. • Visual barrier would remain; potential to improve visual built environment with context senstive design. • Not consistent with city or county long term vision and preferred future land use patterns. **Share Burdens and Benefits:** • Benefits to EJ populations with multi-modal access improvements and to longer distance commuters. • Unequal burden on immediate neighborhoods or EJ populations.	**Preserve or Enhance Environmental Health:** • Low consistency with local, regional, or state environmental initiatives. Opportunity to support city bike plan or county sustainability plan. • Possible air quality impact due to potentially higher emissions. • No change in noise impacts to neighborhoods. • Depending on the height of rebuilt viaduct, may impact community landmarks or historic resources. • Increase impervious areas by 23%.
Very Good	**Good**	**Good to Fair**	**Good to Fair**

Cost Range: $800-900 million; Roadway: $150-200 million, Bridges: $650-700 million.

Recommendation/Feasibility: The reconstruction strategy in the viaduct priority area ***is feasible*** and recommended for further evaluation and review.

Boulevard strategy: elements

NORTHERN IMPROVEMENTS: I-690 TO OLD LIVERPOOL ROAD

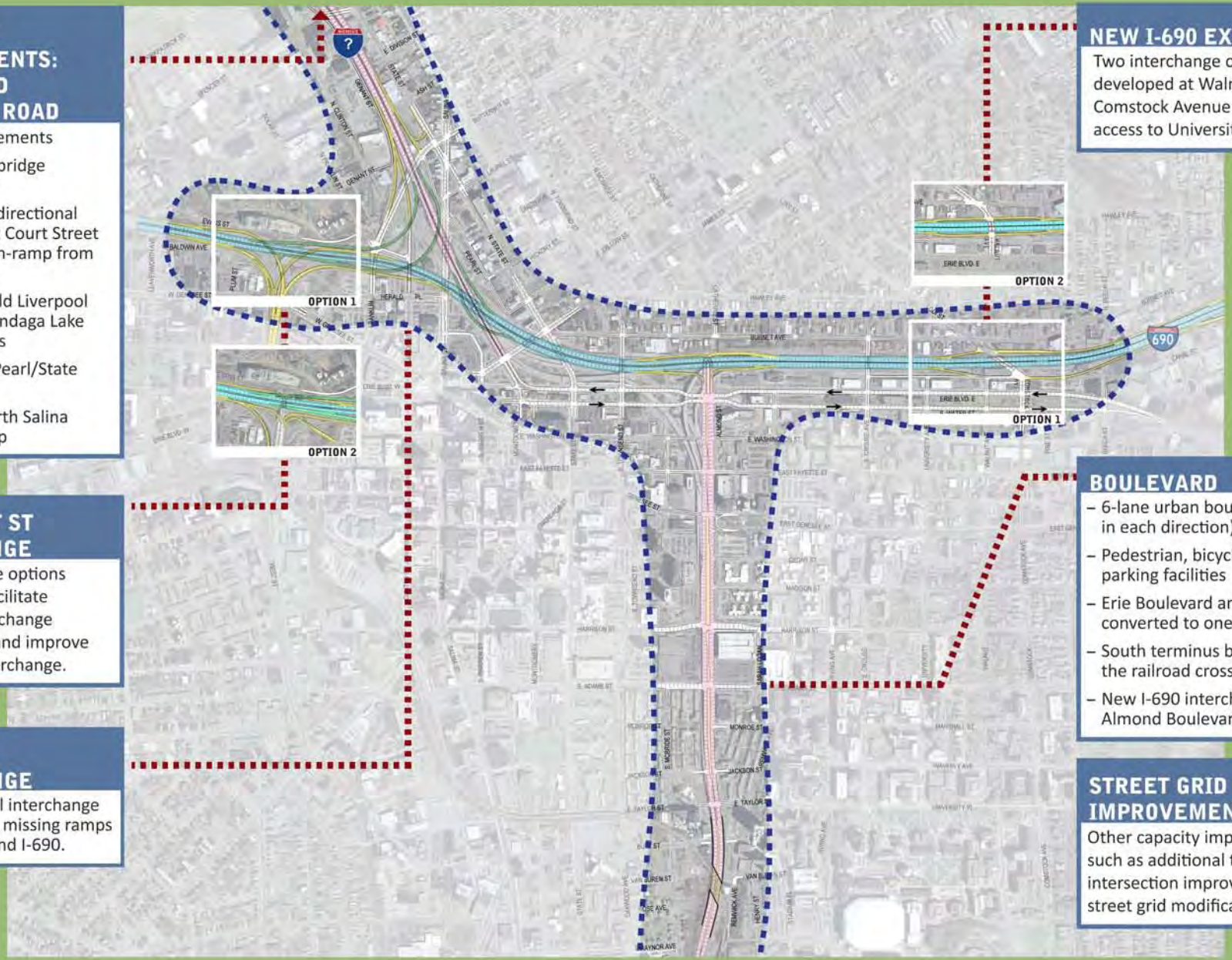
- Safety improvements
- Possible local bridge replacements
- Develop fully-directional interchange at Court Street and remove on-ramp from Genant Street
- Reconfigure Old Liverpool Road and Onondaga Lake Parkway ramps
- Consolidates Pearl/State Street ramps
- Eliminates North Salina Street off-ramp

I-690/ WEST ST INTERCHANGE

Two interchange options developed to facilitate I-81/ I-690 interchange improvements and improve West Street interchange.

I-81/ I-690 INTERCHANGE

Fully directional interchange will include the missing ramps between I-81 and I-690.



NEW I-690 EXIT

Two interchange options developed at Walnut Avenue or Comstock Avenue provide better access to University Hill area.

BOULEVARD

- 6-lane urban boulevard (3 lanes in each direction)
- Pedestrian, bicycle, transit and parking facilities
- Erie Boulevard and Water Street converted to one-way-couplet
- South terminus before or after the railroad crossing
- New I-690 interchange at Almond Boulevard

STREET GRID IMPROVEMENTS

Other capacity improvements such as additional travel lanes, intersection improvements, and street grid modifications.

Boulevard strategy: concepts

I-81 existing conditions, view north

I-81 urban boulevard concept, view north

BOULEVARD CONSIDERATIONS

- Street network changes
  - Reconnect street grid
  - Improve connections to state roads
  - Review one-way streets
  - Other traffic capacity enhancements
- Alternative transportation modes
  - Sidewalks and bike lanes
  - Pedestrian friendly
  - Integrate transit system enhancements
- Improved aesthetics and open spaces
  - Softscape (trees and landscaping)
  - Hardscape (pavers, lighting and benches)

URBAN BOULEVARD CONCEPTS

Broad Street - Newark, NJ

Route 9A - New York, NY

Route 9A - New York, NY

Boulevard strategy: regional system modifications

Retain and convert original I-81 to I-481 or to a state highway

Consider West Street corridor to provide additional traffic capacity and improve the overall street grid network and operations.

An extension of I-481 to NYS Route 695 was considered as possible capacity mitigation for the boulevard strategy. Analysis indicated that this strategy would not provide a meaningful reduction in traffic through the viaduct and it would result in significant social, economic and environmental impacts on the surrounding community as well as significant costs with little to no benefit.

Therefore, the ***Western Bypass is eliminated from further consideration.***

Interchange modifications - see next board

Redesignate I-481 as I-81

Viaduct priority area

Retain and convert original I-81 to a state highway

Interchange modifications - see next board

Boulevard strategy: I-481 interchange modifications

The Boulevard strategy would include the redesignation of I-481 as I-81. The two I-81/I-481 interchanges would need to be reconfigured to accommodate the new I-81 mainline.

I-81/I-481 NORTHERN INTERCHANGE EXIT 29

I-81/I-481 SOUTHERN INTERCHANGE EXIT 16A

See previous board (*Boulevard strategy: regional system modifications*) for regional context of I-81/I-481 interchanges.

Legend

- Ramp to be removed
- New or retained connections

Boulevard strategy: modeling results

The results presented here are from the SMTC's Regional Travel Demand Model. This model is intended for planning-level analysis and was used to determine impacts to regional mobility, which was one component of the feasibility assessment for each strategy. More detailed analysis to develop location-specific mitigation measures will be necessary during the next phase of this process.

ASSUMPTIONS

- Same population and number of jobs as No-Build strategy
- Same assumptions of continued maintenance and planned smaller local projects in the region as in the No-Build strategy
- I-481 redesignated as I-81 including interchange reconfigurations
- I-81 (former) viaduct is removed
- Fully-directional I-81 (former)/I-690 interchange with new ramps from I-690 eastbound to I-81 (former) northbound and from I-81 (former) southbound to I-690 westbound
- New boulevard with 3 lanes in each direction replaces Almond Street
- Ramps from the boulevard to and from I-690 allowing travel to east and west
- Erie Blvd becomes one-way westbound and Water Street one-way eastbound
- New I-690 exit at Lodi/Comstock (Comstock extended from East Genesee to Erie Blvd) for access to University Hill
- West Street off ramp to Herald Place removed
- Several local ramps removed to increase spacing of ramps

TRAFFIC CONDITIONS (PM PEAK PERIOD)

- Traffic volume increases along I-81 north of the I-81/I-690 interchange, along I-690 west of I-81 and along current I-481
- Most north-south through traffic diverts to use I-481, increasing traffic on I-481 and reducing traffic on I-81 (former)
- I-481, which has low traffic volumes in the No-Build strategy, can accommodate the diverted traffic without becoming congested
- Traffic volume decreases along I-690 east of I-81, along current I-81 south of the viaduct area and along current I-81 north of the City of Syracuse

TRAVEL TIMES (AM PEAK PERIOD)

Minimal decreases in travel time from northern areas, with very minimal increases elsewhere

Boulevard strategy: assessment

The boulevard strategy removes the viaduct and constructs an at-grade non-interstate boulevard. This strategy involves re-designation of an interstate (I-481 to I-81). This strategy also includes reconstruction of I-81 on either end of the boulevard and significant changes to the I-81/I-481 interchanges.

Transportation Assessment	Economic Competitiveness	Social Equity/Quality of Life	Environmental Stewardship
Enhance the Transportation Network: • 90% of geometric deficiencies would be addressed. • Construct 53 new bridges (10 less than Reconstruction strategy). Reconstruct bridges; restore all bridges to good condition or better. • Significant opportunity to enhance crossing locations and safety. Improve lighting, crossings, sidewalks, and bike lanes where possible. Strong potential to integrate transit features. **Enhance Region-Wide Mobility:** • Improved regional mobility; significant reduction in expressway lane miles with congestion. Conversely, congestion may increase at local intersections. • Improved access to key destinations. Bicycle and transit facilities would be prominent. **Improve Public Safety:** • Anticipated reduction in accident patterns and rates. • Improved safety for pedestrians and bicyclists under viaduct by improving cross connections.	**Maintain or Improve Economic Opportunities:** • Potential to improve enconomic environment with improved aesthetics, connectivity, and system operations. Opportunity to integrate improvements to multi-modal enhancements with positive economic and social impacts. • Notable efficiency, reliability, safety, and capacity improvements to the regional transportation system. Better downtown and University Hill connections with improved access to jobs, retail, and commercial opportunities. **Exercise Fiscal Responsibility:** • Significant investment with significant community benefits and significant operational improvements.	**Support Community Quality of Life:** • Long term benefit to city; anticipated property value increases; moderate property displacements. • Encourages sustainable land use patterns within city and county. • Enhances neighborhood connectivity, especially between downtown and University Hill with multi-modal facilities. • Supports regional land use patterns that encourage smart growth. • Improves visual character of the area. Highest potential to include street trees and landscaping. • Highly consistent with city or county long term vision and preferred future land use patterns. **Share Burdens and Benefits:** • Benefits to EJ populations with multi-modal access and to longer distance commuters • Unequal burden on immediate neighborhoods or EJ populations.	**Preserve or Enhance Environmental Health:** • Consistent with local, regional, or state environmental initiatives. Opportunities for more green space and non-motorized travel. Advances city bike plan and county sustainability plan. • Possible air quality impacts due to potentially higher emissions. • Potential for noise levels to increase in downtown. • Impact to community landmarks or historic resources will be based on the footprint. • Increase impervious areas by 29% requiring stormwater management treatments; opportunity to advance "save the rain" initiatives.
Very Good	**Very Good to Good**	**Very Good to Good**	**Good**

Cost Range: $650-800 million; Roadway: $125-150 million, Bridges: $325-400 million, I-481 designation: $200-250 million.

Recommendation/Feasibility: The boulevard strategy in the viaduct priority area ***is feasible*** and recommended for further evaluation and review.

Viaduct priority area strategy comparison

Each of the strategies has been evaluated against the corridor needs and goals and objectives. Some of the assessments completed were highly quantitative, such as the geometric, bridge and traffic assessments and others were more qualitative assessments. Through this process strategies were compared to the no-build conditions and at times to each other. Using professional judgment each strategy was then rated at a macro scale view as poor, fair, good or very good in meeting the specific goals related to Transportation, Economic, Social and Environmental factors.

The following scorecard summarizes the rating results for each strategy:

Criteria/ Strategy:	Rehabilitation	Reconstruction	Boulevard	Tunnel	Depressed Highway
Transportation	Poor	Very Good	Very Good	Good to Fair	Fair
Economic	Poor	Good	Very Good to Good	Fair	Fair to Poor
Social	Poor	Good to Fair	Very Good to Good	Poor to Very Poor	Poor
Environmental	Fair	Good to Fair	Good	Poor to Very Poor	Poor
Feasibility:	**Not Feasible**	**Feasible**	**Feasible**	**Not Feasible**	**Not Feasible**
Cost Range:	$480-600 million	$800-900 million	$650-800 milion	$1.6-1.8 billion	$1.3-1.5 billion

Very Poor: significantly reduced operations and/or conditions.
Poor: reduced operations and/or conditions.
Fair: little to no change in operations and/or conditions.
Good: improved operations and/or conditions.
Very Good: significantly improved operations and/or conditions.

Tell us what you think

Do you understand the process that was used to develop and evaluate the strategies?

What do you think about dismissing the Tunnel and Depressed Highway strategies and progressing the Reconstruction and Boulevard strategies to environmental review in the next phase?

Do you have any comments on the concepts presented for the Reconstruction and Boulevard strategies?

Tell us what you think

STATION 5

Our Transit System

Why is a Transit System Analysis Part of *The I-81 Challenge*?

Transit System Analysis: NEEDS

The I-81 Challenge project presents an opportunity to evaluate and improve the future of the transportation system for all modes and users.
An improved transit system can help:

- Reduce congestion within the City, particularly along corridors adjacent to I-81 and I-690.
- Facilitate sustainable economic development within the City, including the planned development in University Hill.
- Reduce parking demand downtown and on University Hill.
- Improve connectivity and integration of the downtown with University Hill.
- Increase transportation options for young, elderly, persons with disabilities, and low-income populations.
- Decrease noise and air pollution generated from traffic.

Image Source: CENTRO


Image Source: CENTRO

Why is a Transit System Analysis Part of *The I-81 Challenge*?

Transit System Analysis: GOALS & OBJECTIVES

GOAL: **IMPROVE SERVICE AND MOBILITY WITHIN THE CITY OF SYRACUSE**

OBJECTIVE:

A Improve and expand service between key destinations in the City, including residential areas, employment centers, health care facilities, educational institutions, and cultural resources.

B Reduce single-vehicle trips and parking demand in the downtown and on University Hill by generating new ridership through increased mobility within, and between, those areas.

C Develop transit corridors to support sustainable land use and economic growth within the City.

D Make transit more attractive by reducing transit travel time, improving transit stops and on-board amenities, providing rider information, and branding key corridors.

GOAL: **IMPROVE SUBURBAN COMMUTER SERVICES TO DOWNTOWN SYRACUSE AND UNIVERSITY HILL**

OBJECTIVE:

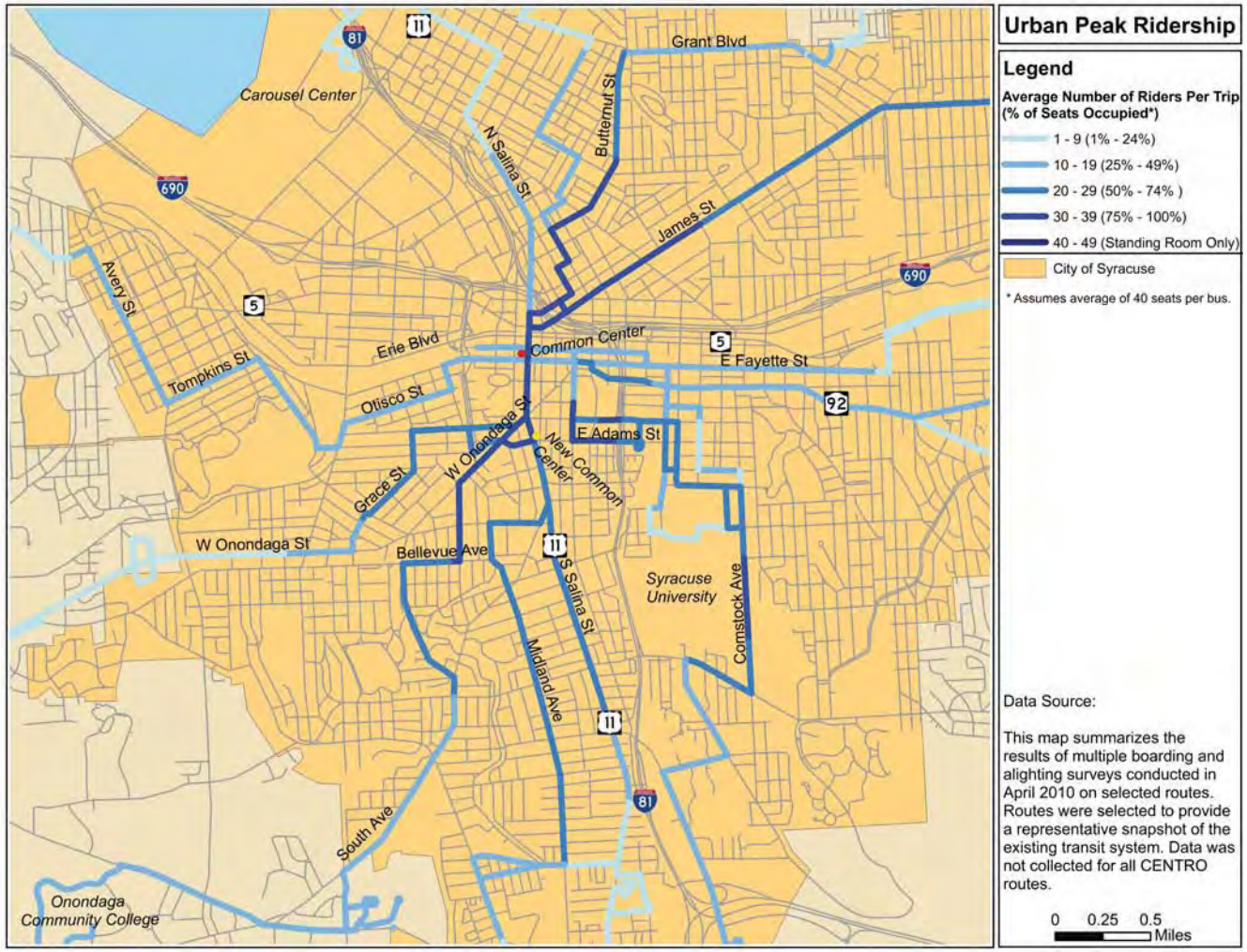
A Reduce regional transit travel time to be more comparable to commuter vehicle travel time.

B Expand direct service between suburban communities and major employment centers in the City, in particular, downtown and University Hill.

C Provide the potential for transit-oriented development in suburban communities.

D Make transit more attractive to suburban commuters by providing transit-stop and on-board amenities.

Urban Peak Ridership



Urban Peak Ridership

Legend

Average Number of Riders Per Trip (% of Seats Occupied*)

- 1 - 9 (1% - 24%)
- 10 - 19 (25% - 49%)
- 20 - 29 (50% - 74%)
- 30 - 39 (75% - 100%)
- 40 - 49 (Standing Room Only)
- City of Syracuse

* Assumes average of 40 seats per bus.

Data Source:

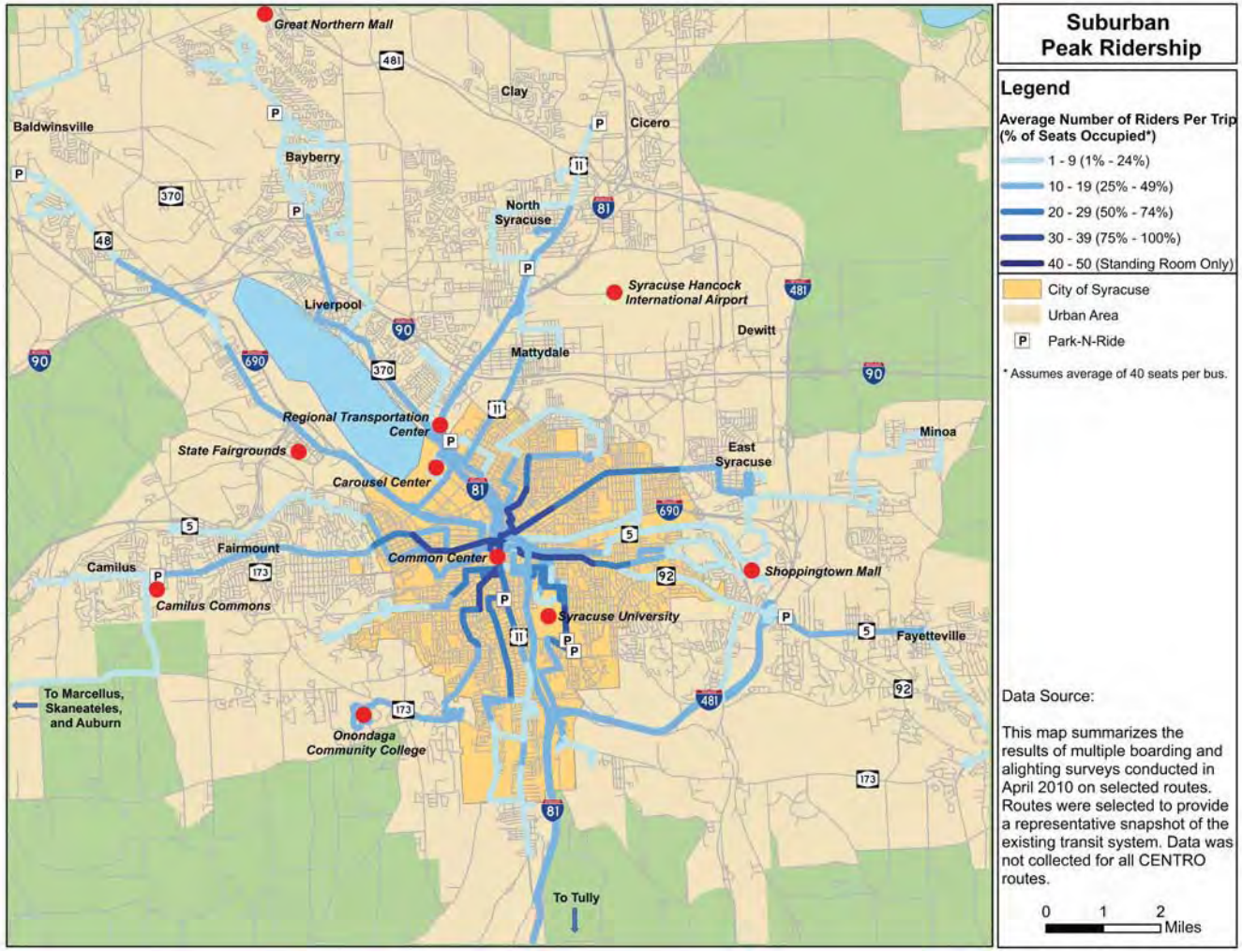
This map summarizes the results of multiple boarding and alighting surveys conducted in April 2010 on selected routes. Routes were selected to provide a representative snapshot of the existing transit system. Data was not collected for all CENTRO routes.

0 0.25 0.5 Miles

MAP CONCLUSIONS

- Ridership decreases significantly with every one-half mile away from the Common Center.
- Major corridors into downtown, including James Street, Butternut Street, S. Salina Street, Midland Ave., and W. Onondaga Street, and routes around Syracuse University, operate at or close to capacity.
- Onondaga Community College and Syracuse University generate sustained ridership farther away from the downtown core.

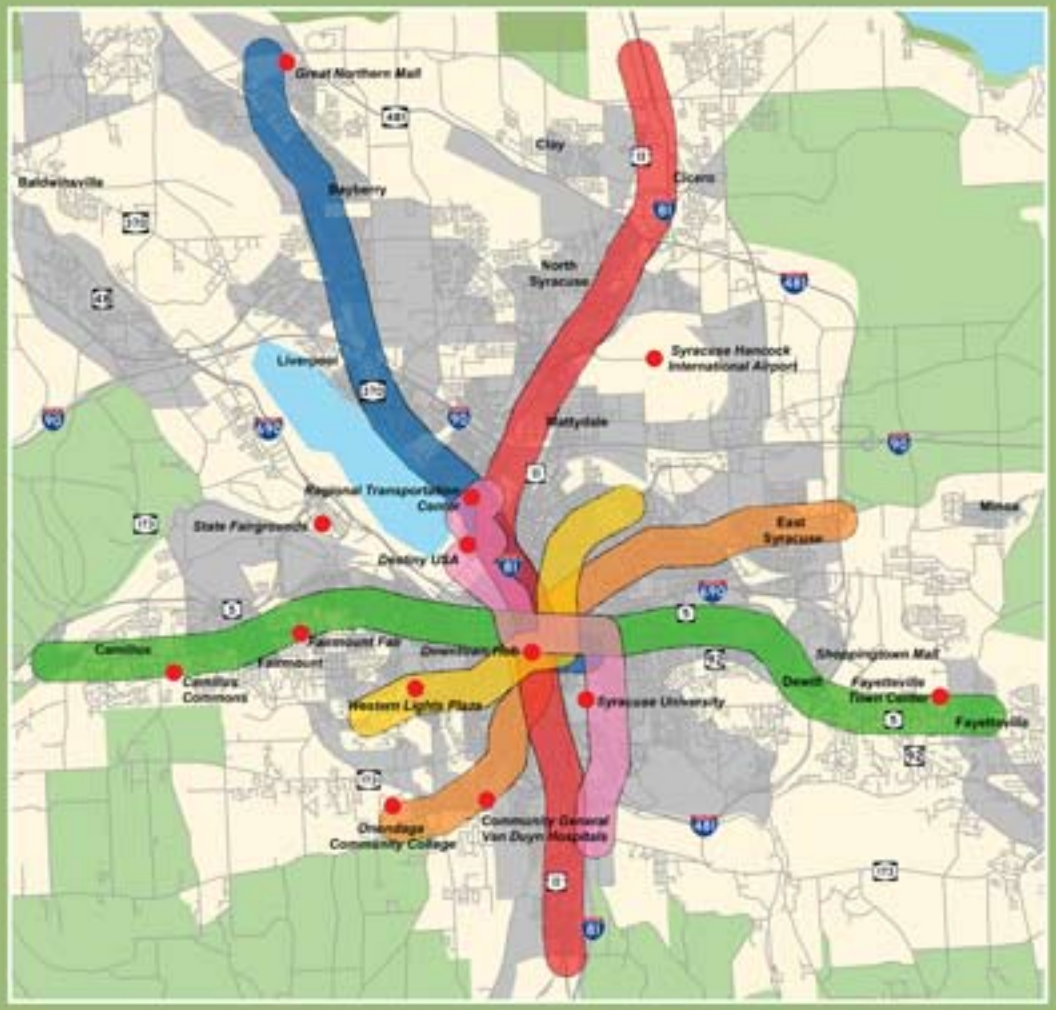
Suburban Peak Ridership



MAP CONCLUSIONS

- In general, the suburban commuter routes are less than 50% occupied.
- Park and Rides and express routes do not generate a significant number of riders.
- Routes to Fayetteville, East Syracuse, Camillus, North Syracuse, and Liverpool have the highest occupancy, outside of the City boundaries, of the suburban routes; however, even these routes generally operate well below capacity outside of the City.

Transit improvement corridors



METHODOLOGY

- Identified transit improvement corridors with:
  - Ridership data
  - Infrastructure assessment
  - Previous studies
  - Public/ stakeholder feedback
  - Demographics

Legend

Corridors

- University Hill – RTC
- Northside - Western Lights
- Carrier - Fayetteville
- North Syracuse - South Valley
- East Syracuse - DOC
- Great Northern Mall - Downtown

Key Features

- Roads
- Community Destinations
- Urban Area
- Transit Supportive Areas*

* Transportation Analysis zones or Census blocks with the following characteristics:
- Population density > 4,000 people/sq mi
- Employee density > 4,000 employees/sq mi
- Average Household Income > $34,360
- % of households with 0 or 1 vehicle > 30%
- % of trips taken by transit > 8%

Low investment scenario: enhance existing system with consolidated trunk routes

SYSTEM FEATURES

Feature	Description
Vehicle Type	– Existing CENTRO buses
Travel-Way	– Urban core: bus lanes and signal priority – Outside of urban core: queue jumpers and signal priority at congested intersections, bus pull-outs
Stop Design	– Corridor branding – Improved pedestrian and bicycle connections – New bus stop signs » Direction of travel » Designation of bus routes – Bus shelters: » Corridor branding » Posted schedules » Benches » Bicycle Racks
Park & Ride	– Enhance existing locations – New locations: » NY 5 bypass - Camillus » I-690 and NY 48 » Taft Road - North Syracuse » I-481 - East Syracuse – Guidelines: » Enhanced way finding » Efficient access for transit » Bus stops on roadway » Highly visible bus shelters » User amenities (heated shelters, newspaper vending, wi-fi, etc.)
Station Spacing	– Local service minimum: 0.2 mile – Express service minimum: 1.0 mile
Operating Headways	– 6:00 AM - 9:30 AM and 3:00 PM - 7:00 PM: 20 minutes – 9:30 AM - 3:00 PM: 30 minutes – Weekdays after 7:00 PM: 30-60 minutes – Saturdays: 30 minutes – Sundays and holidays: 1 hour
Operating Hours	– Monday - Friday: extend service to 2:00 AM – Sundays and holidays: maintain existing operating hours

Transit Corridor Enhancements

BUS RAPID TRANSIT (BRT)

Bus rapid transit, or BRT, combines the flexibility of bus service with features of rail transit to provide a premium level of service and enhanced reliability. BRT systems typically operate at higher speeds and have fewer stops than regular bus service, and can operate in mixed-flow travel lanes, bus-only lanes, or on separate transit-ways.

ADVANTAGES

- Typically about half the cost of LRT for a similar travel time benefit.
- Slightly lower than LRT operating/ maintenance costs.
- Can be established more quickly, require less infrastructure reconstruction and can be implemented in pieces.
- More flexible – can accommodate route changes.

DISADVANTAGES

- Less proven track record in attracting transit-oriented development.
- Not seen to be as permanent as LRT.
- Sometimes viewed as less attractive than LRT – resulting in lower ridership.

LIGHT RAIL TRANSIT (LRT)

Light rail transit, or LRT, combines aspects of traditional commuter/ passenger rail with streetcars. LRT systems typically operate at higher speeds and capacity than bus systems, and can operate in designated transit lanes with transit priority signals, in mixed-traffic lanes, or on existing or abandoned rail lines.

ADVANTAGES

- Seen as more permanent than BRT.
- Sometimes viewed as more attractive and reliable than BRT – resulting in higher ridership.
- Proven track record of attracting transit-oriented development.
- Slightly faster travel times than BRT.

DISADVANTAGES

- Typically about double the cost of a similar BRT system.
- Slightly higher operating/maintenance cost than BRT.
- Competition for federal funding is strong – more expensive systems may be more difficult to justify and take longer to implement.

Image Source: Los Angeles County Metropolitan Transportation Authority

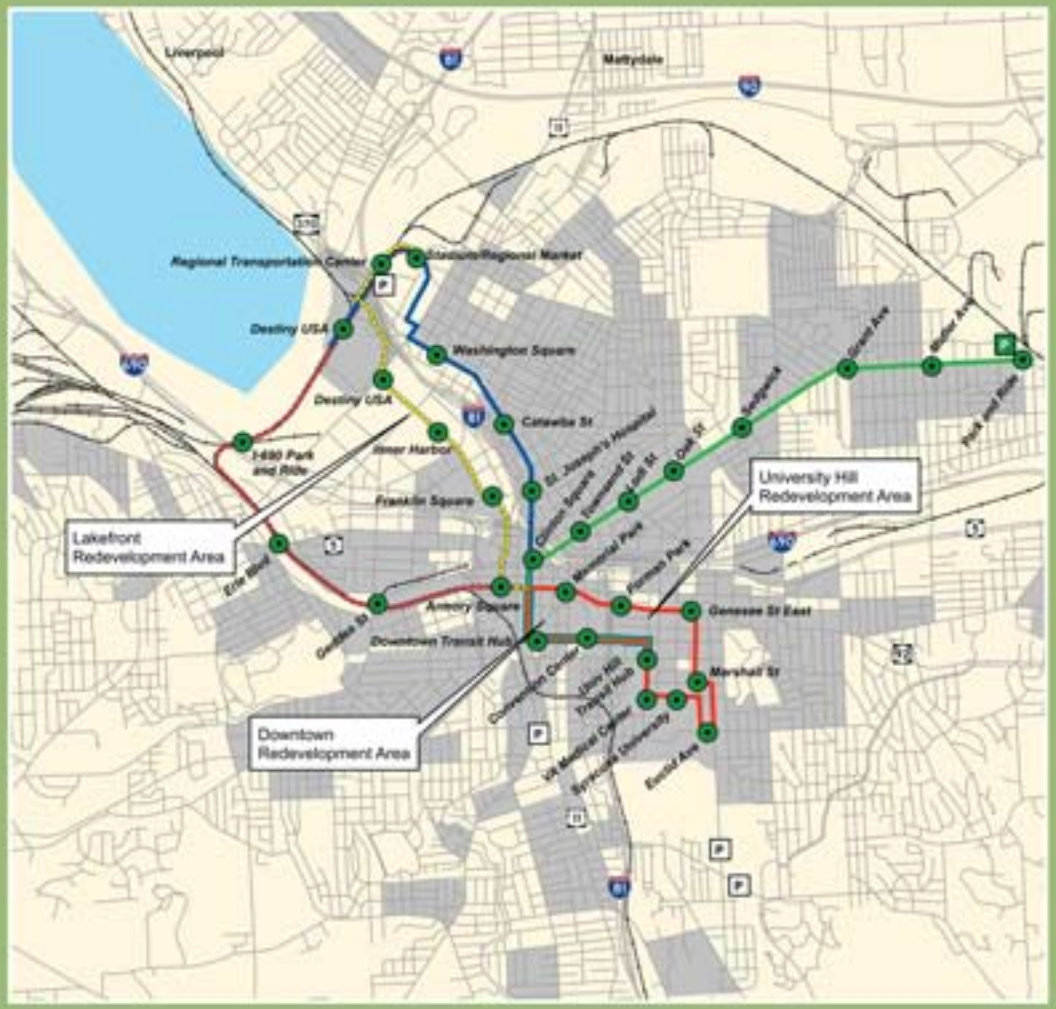
Image Source: Stantec Consulting Services, Inc.

Medium investment scenario: Bus Rapid Transit system

SYSTEM FEATURES

Feature	Description
Vehicle Type	– New low-floor BRT buses
Travel-Way	– Urban core: bus lanes and signal priority – Outside of urban core: bus lanes, queue jumpers, signal priority, and bus pull-outs
Stop Design	– Branded shelter – Large sign – Benches – Bicycle racks – Posted schedule and real-time arrival information – Raised platform (heavily utilized stops) – Off-board fare collection (optional)
Station Location	– Preferred: Curbside, far-side with bus only lane or bus pull-out – Accepted: curbside, near-side if far-side cannot be provided
Station Spacing	– Syracuse City/ Business Districts: 0.25 - 0.33 mile – Higher-density suburbs: 0.5 - 0.75 mile – Low-density suburbs: 1.0 - 2.0 miles – Express routes: > 2.0 miles
Operating Headways	– 6:00 AM - 9:30 AM and 3:00 AM - 7:00 PM: 10 - 15 minutes – 9:30 AM - 3:00 PM and 7:00 PM - 9:00 PM: 20 minutes – Weekday evenings, weekends, and holidays: 30 minutes
Operating Hours	– Monday - Friday: 6:00 AM - 10:00 PM – Saturday: 9:00 AM - 10:00 PM – Sundays and holidays: 9:00 AM - 8:00 PM

High investment scenario: Light Rail Transit system



SYSTEM FEATURES

Feature	Description
Vehicle Type	– Modern design – Single-unit with articulation – Low-floor
Propulsion	– Electric with overhead catenary
Travel-way	– Preferred: dedicated transit lanes – Accepted: rail in travel lane
Station Design	– Branded shelter – Benches – Bicycle racks – Posted schedule and real-time arrival information – Raised platform – Off-board fare collection (Optional)
Station Location	– Near-side if LRT in travel lane – Far-side if LRT in dedicated transit lane
Station Spacing	– Downtown core/ business districts: 0.25 – 0.33 mile – Syracuse city: 0.5 – 1.0 mile – Suburban: > 1.0 mile
Operating Headways	– 6:00 AM – 9:30 AM and 3:00 PM – 7:00 PM: 10 minutes – 9:30 AM – 3:00 PM and 7:00 PM – 9:00 PM: 15 - 20 minutes – Weekday evenings, weekends, and holidays: 20 - 30 minutes
Operating Hours	– Monday – Friday: 6:00 AM – 11:00 PM – Saturday: 7:00 AM – 11:00 PM – Sundays and holidays: 8:00 AM – 9:00 PM

Legend

Potential LRT Route
- Downtown – Univ Hill Loop
- James Street Option
- OnTrack Option
- Salina Street Option
- Solar Street Option

Key Features
- Potential LRT Stations
- Existing Rail
- Route
- LRT Supportive Area

Park and Ride
- Existing
- Potential

LOW Intensity BRT Example:
Mixed Traffic with Queue Jumpers
CDTA BusPlus: Albany, NY

CDTA's BusPlus BRT system operates along a 17-mile stretch of Route 5 between Albany and Schenectady. The BRT vehicles travel in mixed traffic and utilize queue jumpers at major signalized intersections, and stop at 18 upgraded/branded stations, resulting in a significant travel time improvement over the existing route which had 90 stops. The system also incorporates GPS tracking which is used to provide arrival information at the stations.

Image Source: Times Union

Image Source: Times Union

Image Source: CDTA

BUSPLUS FACTS:

Location: Albany – Schenectady, NY

Length: 17 miles – 18 stations

Time to Construct: 2 years

Construction Cost: $34 million total*
$2 million per mile*

Opened: 2011

Cost to Maintain: $15 million per year

Ridership: 10,000 per day

Fare: One-way pass $2.00
All-day pass $4.00

*Construction Cost does not include Engineering or R.O.W.

SUCCESS STORY

Ridership along the Route 5 corridor has increased 10 – 15%, with the biggest share in ridership coming from the BusPlus route.

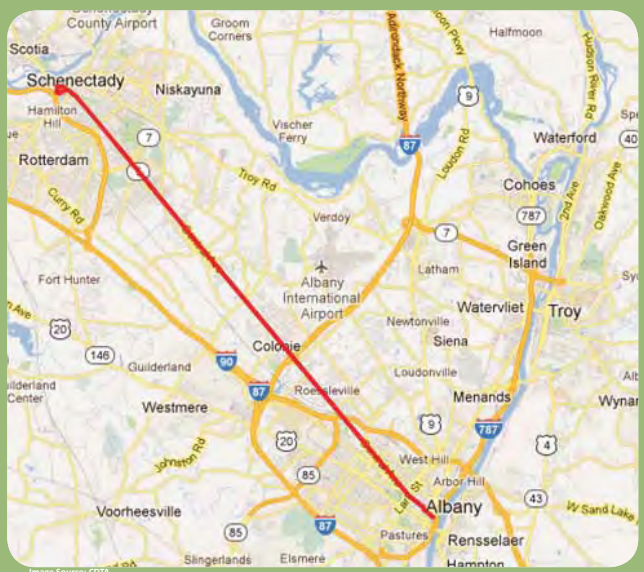


Image Source: CDTA

MEDIUM Intensity BRT Example:
Bus-Only Lanes
RTA HealthLine: Cleveland, OH

The 6.8-mile Healthline utilizes 21 articulated rapid transit vehicles that can accommodate 47 sitting and 53 standing passengers, and incorporate GPS communication with text and audio announcements. The vehicles operate in bus-only lanes in the center of Euclid Avenue.

Image Source: Steven Litt, The Plain Dealer

Image Source: Joshua Gunter, The Plain Dealer

HEALTHLINE FACTS:

Location: Cleveland, OH

Length: 6.8 miles – 58 stations

Time to Construct: 3 years

Construction Cost: $112 million total*
$16.5 million per mile*

Opened: 2008

Annual Operating Costs: $7.2 Million

Ridership: 12,500 per day

Fare: One-way pass $2.25
All-day pass $5.00

*Construction Cost does not include Engineering or R.O.W.

SUCCESS STORY

Since the completion of the project, $4.3 billion has been spent on projects along the corridor, including loft apartments, retail, and office. The Healthline received its name through a partnership with the Cleveland Clinic and University Hospital.

Image Source: Cleveland RTA

HIGH Intensity BRT Example:
Designated Transit Way
Los Angeles Metro Orange Line

The 14-mile Orange Line utilizes a completely separate transit-way that follows a part of a former railroad line. The system utilizes buses that are 20 feet longer and can hold 50% more passengers than a standard bus.

Image Source: Metro Transportation Library and Archive

Image Source: user lensovet:Wikipedia.com

ORANGE LINE FACTS:

Location: Los Angeles, CA

Length: 14 miles – 14 stations

Time to Construct: 3 years

Construction Cost: $322 million total*
$23 million per mile*

Opened: 2005

Annual Operating Costs: $24 million

Ridership: 25,485 per day

Fare: One-way pass $1.50
All-day pass $5.00

*Construction Cost does not include Engineering or R.O.W.

SUCCESS STORY

Several transit-oriented developments were planned at completion of the Orange Line. Furthermore, there was a 24% increase in boardings between 2006 and 2008.

Image Source: Los Angeles County Metro

LOW Intensity LRT Example:
Streetcar Circulator
Little Rock River Rail

RIVER RAIL FACTS:

Location: Little Rock, AK

Length: 3.4 miles – 15 stations

Time to Construct: 1.5 years

Construction Cost: $27 million total*
$8 million per mile*

Opened: 2004

Annual Operating Costs: $450,000

Ridership: 800 per weekday
1,500 Saturday

Fare: One-way pass $1.00
All-day pass $2.00

*Construction Cost does not include Engineering or R.O.W.

SUCCESS STORY

Economic impacts of the River Rail were felt even before its opening. Two loft apartment buildings and the River Market were proposed once the streetcar route was finalized. The streetcar system has become a tourist attraction, boosting activity within the cities during the weekends.

The 3.4-mile River Rail Streetcar system operates between Little Rock and North Little Rock, connecting major points of interest in both cities, including a ballpark, convention center, museums, courthouses, riverfront attractions, and loft apartments, among others. The service utilizes five vintage replica trolleys, powered by overhead electric, that operate on track within the traffic flow.

Image Source: John Smatlak http://www.railwaypreservation.com/vintagetrolley/littlerock.htm

Image Source: Central Arkansas Transit Authority

Image Source: John Smatlak http://www.railwaypreservation.com/vintagetrolley/littlerock.htm

MEDIUM Intensity LRT Example:
Existing Rail
New Jersey Transit River Line

TRANSIT FACTS:

Location: Camden – Trenton, NJ

Length: 34 miles – 20 stations

Time to Construct: 5 years

Construction Cost: $1.1 billion total*
$32.4 million per mile*

Opened: 2004

Annual Operating Costs: $18 million

Ridership: 9,000 per day

Fare: One-way pass $1.50
All-day pass: N/A

*Construction Cost does not include engineering or ROW

SUCCESS STORY

The politically driven project was highly controversial due to the low ridership projections, but the service has exceeded the predicted ridership every year since opening.

The River LINE is a 34-mile light rail corridor that connects the cities of Camden and Trenton, and passes through many suburban communities in between. It operates mostly along a lightly used freight railroad line that was upgraded for passenger service and is the first LRT system in the US to utilize self-propelled diesel-electric vehicles.

HIGH Intensity LRT Example:
New Rail
Phoenix Metro Light Rail

METRO FACTS:

Location: Phoenix – Tempe – Mesa, AZ

Length: 20 miles – 32 stations

Time to Construct: 3.5 years

Construction Cost: $1.4 billion total*
$70 million per mile*

Opened: 2008

Annual Operating Costs: $37 million

Ridership: 38,700 per day

Fare: One-way pass $1.50
All-day pass $3.50

*Construction Cost does not include Engineering or R.O.W.

SUCCESS STORY

Since construction of the METRO Light Rail, $4 billion has been spent on transit-oriented developments along the corridor.

The 20-mile light rail corridor serves Phoenix, Tempe, and Mesa with low-floor vehicles powered by overhead electrical lines. The vehicles operate in a two-way configuration in the center of city streets, or on the outside of the street in one-way couplets. The system required significant reconstruction of the city streets to incorporate the rail lines and stations.

Image Source: Arizona Passenger Rail Association

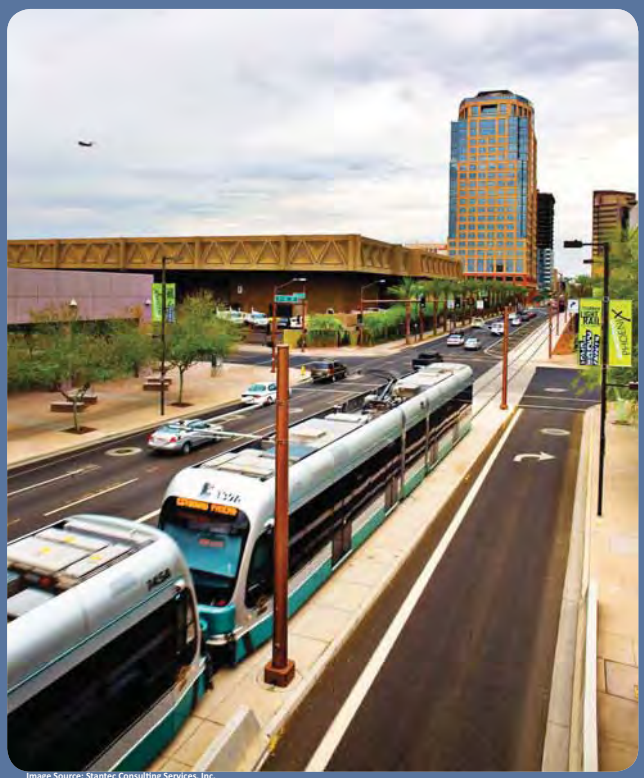


Image Source: Stantec Consulting Services, Inc.

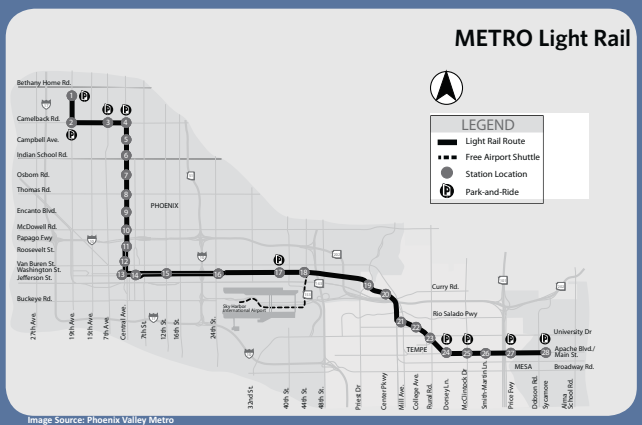


Image Source: Phoenix Valley Metro

What do you think?

STATION 6

Transition to Environmental Review

Environmental review

Any project proposed from the I-81 corridor study will have a long way to go. In the future, you will see increasingly refined and detailed analysis of the proposed alternatives and an effort to build consensus around the limited number of alternatives which will progress to a formal environmental review.

The National Environmental Policy Act

The National Environmental Policy Act (NEPA) of 1969 was the first major U.S. environmental law and establishes national environmental policy and goals for the protection, maintenance, and enhancement of the environment.

For transportation projects receiving federal funding, NEPA requires the Federal Highway Administration (FHWA) and other transportation agencies to consider potential impacts to the natural and built environment and to make this information available to the public for comment and consider these comments before the implementation of the proposals.

In addition to evaluating the potential environmental effects, NYSDOT and FHWA must take into account the transportation needs and public input in reaching a decision that is in the best overall public interest. As joint lead agencies, NYSDOT and FHWA will make decisions on the advancement of a project together.

Environmental review

The State Environmental Quality Review Act

The State Environmental Quality Review Act (SEQR) establishes a process to systematically consider environmental factors early in the planning stages of actions that are directly undertaken, funded or approved by local, regional and state agencies. By incorporating environmental review early in the planning stages, projects can be modified as needed to avoid adverse impacts on the environment.

SEQR is both a procedural and a substantive law. In addition to establishing environmental review procedures, the law mandates that agencies act on the substantive information produced by the environmental review. The SEQR process must be applied whenever an action is:

- directly undertaken by an agency
- involves funding by an agency
- requires one or more new or modified discretionary approvals from an agency or agencies.

An important aspect of SEQR is its public participation and agency coordination component. There are opportunities for outreach and public participation throughout the Environmental Impact Statement (EIS) process. These opportunities allow the public and other agencies to provide input into the planning or review process, resulting in a review with a broader perspective. It also increases the likelihood that the project will be consistent with community values.

If a significant adverse impact is likely to occur, an EIS is prepared to explore ways to avoid or reduce adverse environmental impacts or to identify a potentially less damaging alternative. If, on the other hand, the determination is made that the proposed action will not significantly impact the environment, then a Negative Declaration is prepared which ends the SEQR process.

The Onondaga County War Memorial installed a water re-use system as a part of the "Save the Rain" program.

Key components of the NEPA process

Planning Process

The Corridor Study identified the study area problems and issues, transportation needs and possible strategies which will lead to alternatives in the NEPA process.

Purpose and Need

The purpose and need is a key factor in determining the range of alternatives considered in an EIS. The "needs" statement describes the problems that the proposed action is intended to address and, to the extent possible, explains the underlying causes of those problems. The "purpose" statement defines, as sharply as possible, the fundamental reasons why the project is being proposed based on meeting the transportation needs. The NEPA scoping process provides the opportunity for public input into the purpose and need and reasonable range of alternatives.

Analysis of Alternatives

The alternatives analysis is a basic requirement of NEPA and describes the process used to develop, evaluate, and eliminate potential alternatives to address the problem identified in the purpose and need. Agencies are not required to consider every potential alternative; however, they are responsible for developing the reasonable range of alternatives. Agencies must provide opportunities for the involvement of participating agencies and the public in developing the alternatives and consider the input provided by these groups.

- The "no-build" alternative is the baseline for comparison of alternatives.
- A reasonable range of alternatives can be studied when the number of potentially reasonable alternatives is very large. Therefore it is permissible to study a "reasonable range" of alternatives in an EIS, covering the "full spectrum" of potential reasonable alternatives. Reasonable alternatives include those that are practical or feasible from the technical and economic standpoint.
- The preferred alternative is the alternative which the agency believes would fulfill the purpose of the project.

I-81, Downtown Syracuse; photos courtesy of SMTC

Key components of the NEPA process

Assessment of Environmental Issues

NEPA requires a balanced consideration of the direct, indirect, and cumulative impacts of a proposed action and its alternatives on the environment. Potential measures to avoid, minimize or otherwise mitigate adverse environmental effects must also be considered.

Interagency Coordination

The NEPA process includes requirements for interagency coordination and cooperation. The lead agencies work cooperatively with other federal and state agencies during the environmental review process.

Public Involvement

Public participation in the NEPA process will improve acceptance of the final decision and, at a minimum, provide information to make an informed decision. The amount and type of public involvement will vary depending on the complexity of the project. Elements include:

- Scoping meetings and public hearings.
- Early and continuing opportunities for the public to be involved in the identification of social, economic, and environmental impacts, as well as impacts associated with the relocation of individuals, groups, or institutions.
- Reasonable notice to the public of public information meetings and the opportunity for a public hearing.

I-81, Downtown Syracuse; photos courtesy of www.petercaty.com

Three routes through NEPA

1 *Categorical Exclusion*

Under NEPA, transportation projects that we know do not individually or cumulatively have significant environmental effects are classified as categorical exclusions (CEs).

The Spencer Street bridge is an example of a project subject to the Categorical Exclusion process.

2 *Environmental Assessment*

Where the significance of environmental impacts is unknown, a federal agency may prepare an environmental assessment (EA). An EA is meant to provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact (FONSI). The FONSI is the final step in the EA process, when the project will not have significant impacts. It documents the preferred alternative and presents the basis for the decision.

Route 281 in Cortlandville, NY is an example of a project subject to the Environmental Assessment process.

3 *Environmental Impact Statement*

NEPA requires a federal agency to prepare an environmental impact statement (EIS) when there is a proposal for a major federal action expected to affect the quality of the natural and built environment and/or generate substantial controversy on environmental grounds. An EIS includes a detailed evaluation of the proposed action and alternatives. The EIS serves as a tool for environmentally sensitive decision making.

The Tappan Zee Bridge is an example of a project subject to the Environmental Impact Statement process.

Environmental Impact Statement

Notice of Intent (NOI)

Starts EIS process, official notice published in the *Federal Register* to notify and involve cooperating and participating agencies and individuals about the proposed action and to identify the issues that will be analyzed.

NEPA Scoping

An early and open process involving the public and other stakeholders to provide input on a project's purpose and need statement; and identify alternatives and significant issues to be analyzed.

Draft EIS

Official document which includes a detailed description of the proposal, the purpose and need, reasonable alternatives, the affected environment, and presents an analysis of the anticipated beneficial and adverse environmental effects of the alternatives.

Public Comment

The NEPA Scoping Document is available for review and comment by participating agencies and the public for 30 days.

The Draft EIS is available to the public for review and comment. The typical comment period is 45 days from the date of public notice in the *Federal Register*.

Final EIS

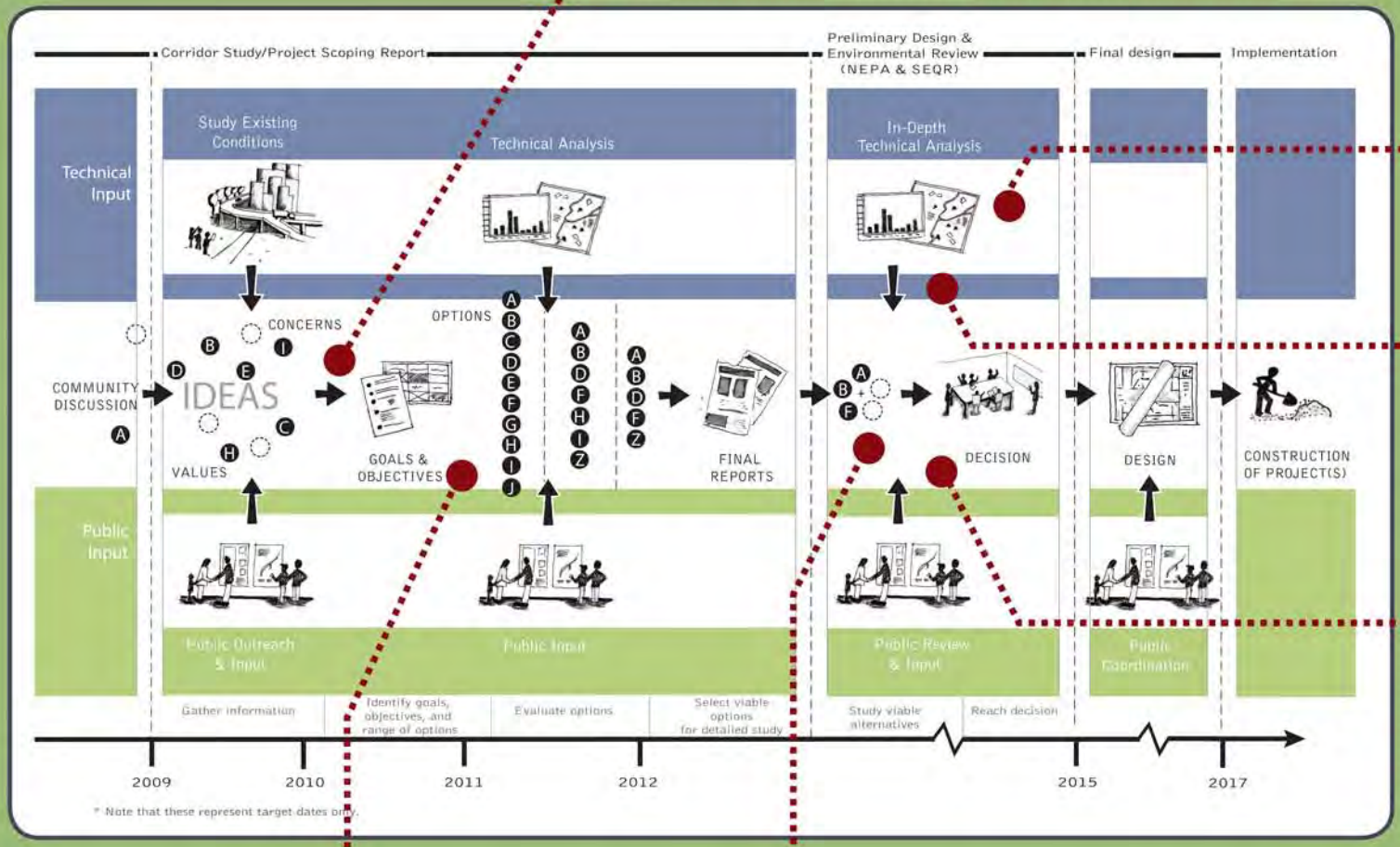
The Final EIS includes responses to any issues raised through review of the Draft EIS. The Final EIS must identify the preferred alternative. After responding to comments, the agency will make the Final EIS available to the public. Agencies cannot make a final decision until 30 days after the Final EIS is filed.

Record of Decision (ROD)

The ROD records the final decision in the EIS process. It documents the preferred alternative; presents the basis for the decision; identifies other alternatives considered and why they were not selected; lists and identifies all environmental commitments; and adopts and summarizes a monitoring and enforcement program, if applicable, for any mitigation.

I-81, Downtown Syracuse; photos courtesy of SMTC

How will the I-81 Corridor Study lead to a decision?



PUBLIC + TECHNICAL INPUT

Generate a wide range of options for the future of I-81 as well as a set of criteria to narrow down options based on broad public participation and technical analysis.

REASONABLE ALTERNATIVES

Narrow the alternatives through technical analysis, agency, and public review and comment.

ENVIRONMENTAL ANALYSIS

Identify reasonable range of alternatives for formal environmental review required by federal and New York State law.

REFINING ALTERNATIVES

Refine alternatives through a formal environmental review process— lead to a decision and a project or projects to be implemented.

VIABLE OPTIONS

Narrow the options through more public involvement and technical analysis.

NEPA SCOPING

Develop purpose and need.

Three routes through NEPA