Existing Transit System

Transit Benefits

Image Source: CENTRO

ECONOMIC

- Every $1 billion invested in public transportation capital and operations creates and supports an average of 36,000 jobs.
- For every $1 invested in public transportation, $4 is generated in economic returns.
- Transit corridors support sustainable economic growth.

Source: American Public Transportation Association: www.publictransportation.org

Image Source: CENTRO

Image Source: SMTC

ENVIRONMENTAL

- Public transportation in the US saves as much CO2 as would be produced from the generation of electricity for 4.9 million households.
- If an individual switches a 20-mile roundtrip commute to public transportation, his or her annual CO2 emissions will decrease by 4,800 pounds per year.
- Expanded public transit strategies coordinated with combining travel activity, land use development, and operational efficiencies can reduce greenhouse gases by 24 percent.

Source: American Public Transportation Association: www.publictransportation.org

Transit Benefits

Image Source: CENTRO

QUALITY OF LIFE

- Americans living in areas served by public transportation save 785 million hours in travel time and 640 million gallons of fuel annually.
- When Americans use public transportation, they walk more. Walking increases fitness levels, leading to healthier citizens and less strain on the health care system.
- Transit provides a means of transportation and access to opportunities for all, including the elderly, persons with disabilities, and low-income communities.

Source: American Public Transportation Association: www.publictransportation.org

Image Source: CENTRO

ENERGY

- Public transportation saves the US the equivalent of 4.2 billion gallons of gasoline annually.
- An individual can achieve an average annual savings of more than $10,000 by taking public transportation instead of driving, and by living with one less car.
- Household residents living within proximity of public transportation drive an average of 4,400 fewer miles annually.

Image Source: CENTRO

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.

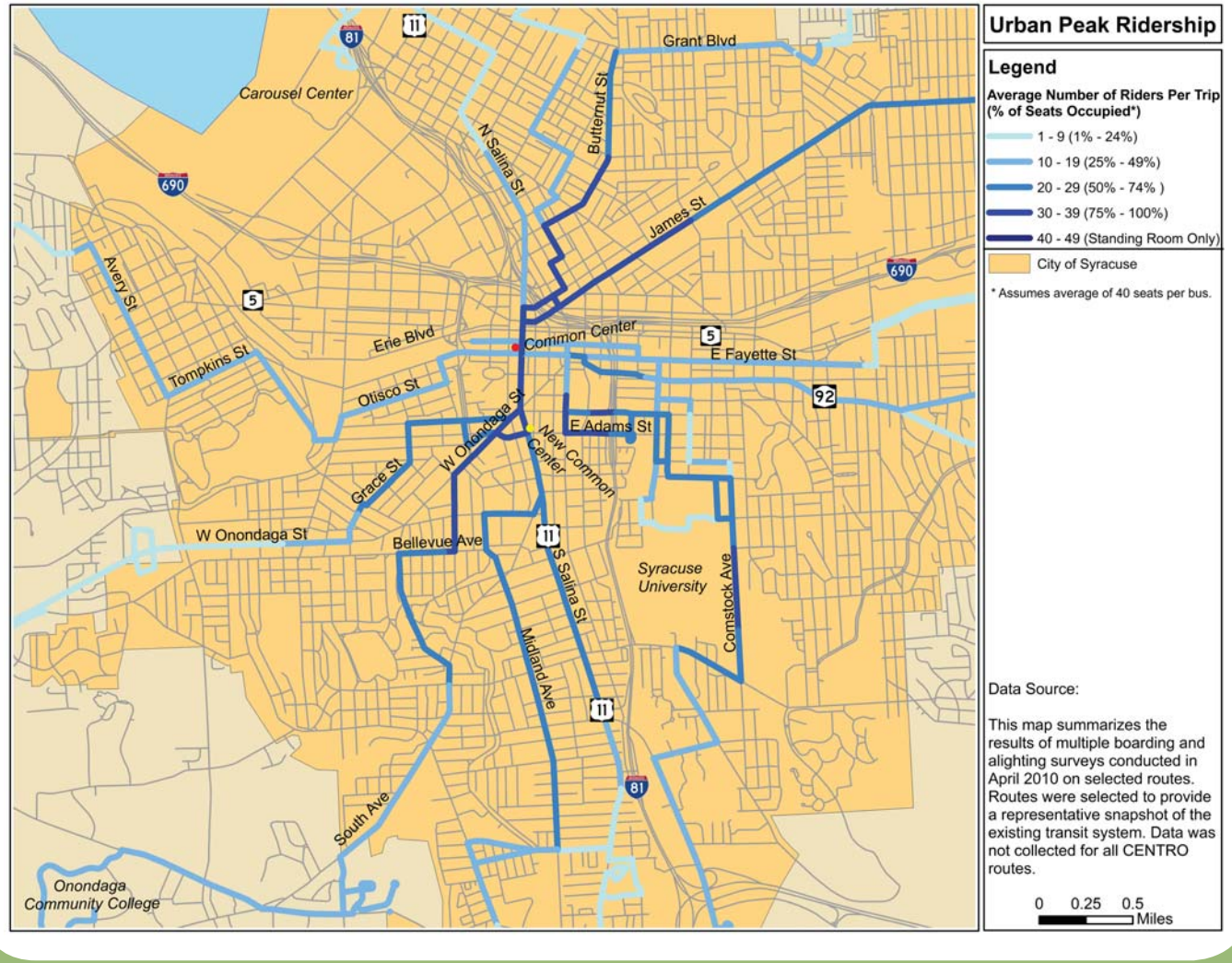
C Provide the potential for transit-oriented development in suburban communities.

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

Are there other needs this transit system analysis should consider?

Write your ideas on a post-it note and add them to this board.

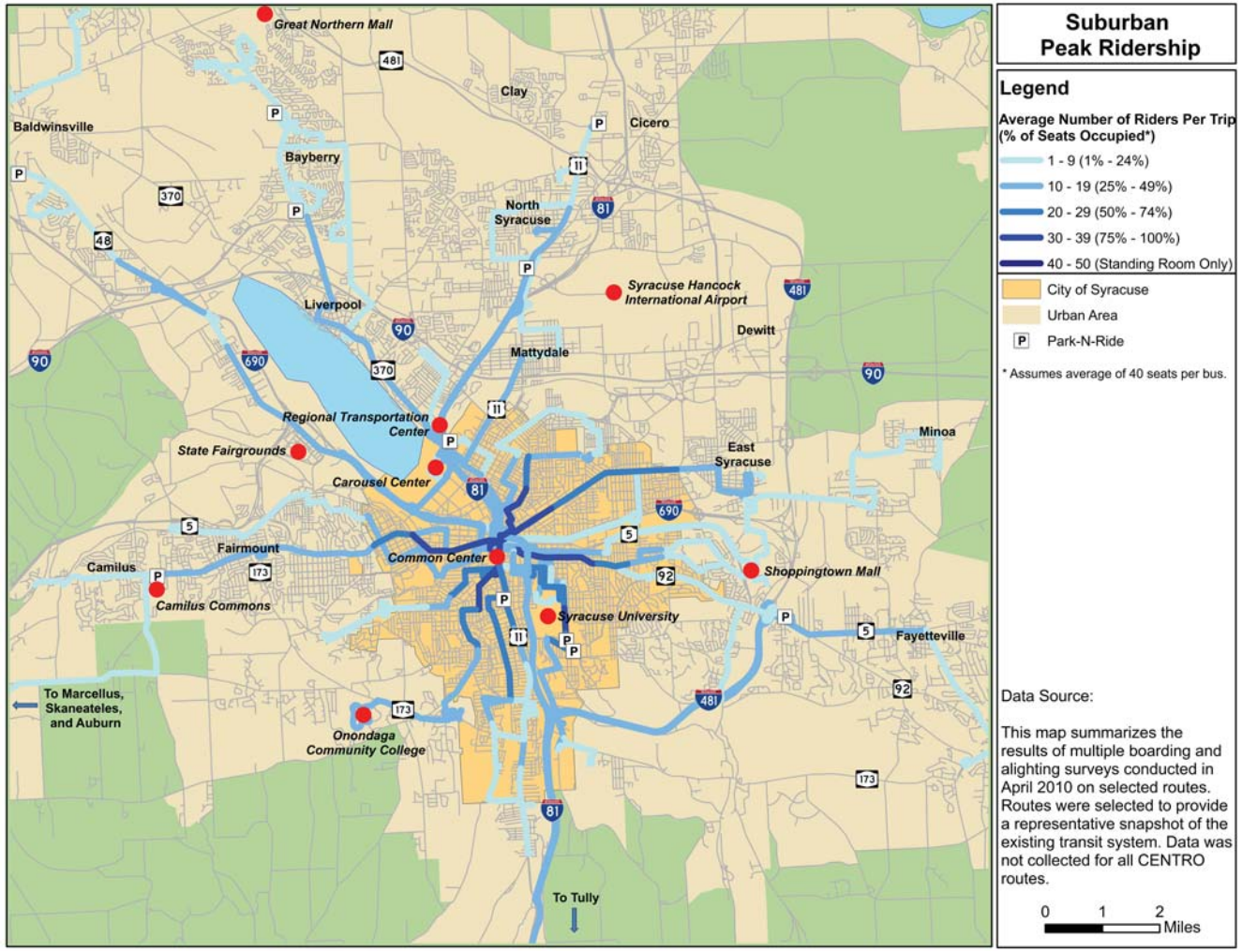
Urban Peak Ridership



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



Suburban 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 - 50 (Standing Room Only)

City of Syracuse

Urban Area

P Park-N-Ride

* 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 1 2 Miles

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 Enhancements

Image Source: Ian Fisher

BUS-ONLY LANES

WHAT IS IT?

- A travel or parking lane that is restricted to buses during certain times of the day.

WHAT ARE THE BENEFITS?

- Can be designated by a combination of striping, colored pavement, and signing.
- Can be applied in urban and suburban environments, on arterials and freeways.
- Reduces transit travel time by allowing buses to bypass congestion.

Estimated Average Cost
New Lane Construction: $2,000,000/mile*
Restripe Existing Lane: $25,000/mile*

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

BUS PULL-OUTS

WHAT IS IT?

- A small shoulder area that is provided at a bus stop.

WHAT ARE THE BENEFITS?

- Helps to maintain traffic flow along congested corridors by providing an area for buses to pull out of travel lane to pick up or drop off passengers.

Estimated Cost Per Pull-Out: $30,000*

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


Image Source: Stantec Consulting Services, Inc.

Transit Enhancements

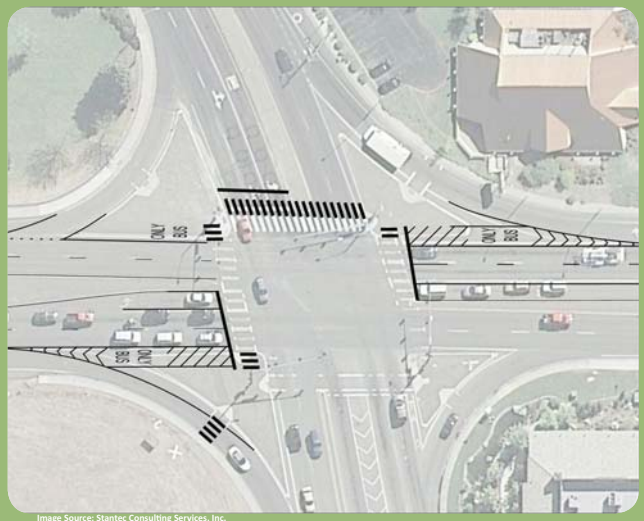


Image Source: Stantec Consulting Services, Inc.

QUEUE JUMP LANES

WHAT IS IT?

- Short bus-only lanes that are provided in advance of a signalized intersection and combined with transit signal priority.

WHAT ARE THE BENEFITS?

- Allows a bus to bypass intersection queuing and re-enter the travel lanes ahead of other vehicles.
- Provides a reduction in travel time for buses along corridors with multiple traffic signals.

Estimated Cost Per Intersection:
$100,000 - $300,000*

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

TRANSIT SIGNAL PRIORITY

WHAT IS IT?

- Typically applied when using queue jump or bus-only lanes.

WHAT ARE THE BENEFITS?

- Utilize separate signal heads that show white bars, rather than colors, to avoid confusing drivers.
- Can also incorporate sensors that adjust the operation of the signal to allow buses to flow along the corridor with less impedance.

Estimated Cost Per Intersection:
$8,000 – $35,000*

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

Image Source: Chris Phan October 2005

What enhacements would you like to see to the current transit system?

Write your ideas on a post-it note and add them to this board.

Rider Amenities

Image Source: Stantec Consulting Services, Inc.

Image Source: ABC 7 San Francisco, CA

Rider amenities increase accessibility and usability of the transit system.

- Real-time rider information provided at transit stops, or via smart phone applications, web sites, or call-in numbers.
- Posted schedules at bus stops.
- Concrete pads, benches, or bus shelters.
- Larger climate-controlled bus shelters at high-volume stops.
- Use a color or name to brand a corridor.
- Establish major commuter park and rides with amenities such as coffee/news stands.
- On-board amenities:
    - Free Wi-Fi
    - Larger, more comfortable seating
    - Work surfaces/tray tables
    - Cup holders
    - Televisions

Image Source: NJ TRANSIT

Image Source: NJ TRANSIT

IN-THE-WORKS

By 2014 Centro intends to install real-time transit information on all its buses, including:

- Real-time bus arrival information system with dynamic message signs & web-services;
- Automated on-vehicle stop announcement;
- Automated passenger counters.

Image Source: WMATA

What amenities are important to you?

Write your ideas on a post-it note and add them to this board.

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.

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.

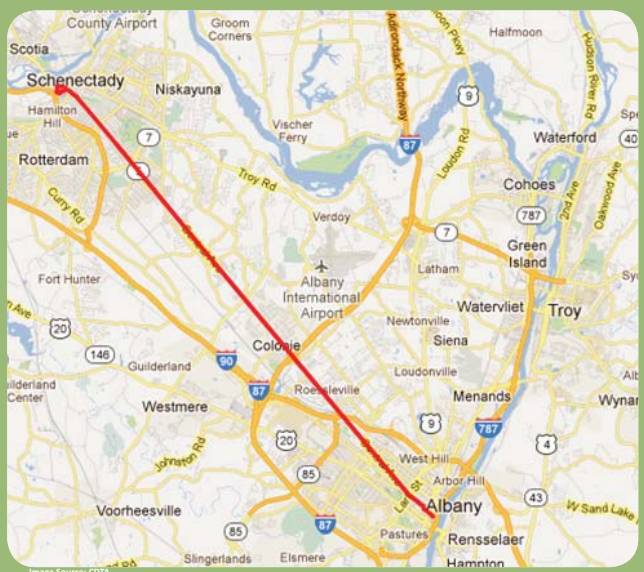


Image Source: CDTA

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 Iensovet: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

What do you think?

I like BRT because...

I don’t like BRT because...

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 R.O.W.

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.

Image Source: Stantec Consulting Services, Inc.

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.

Image Source: Stantec Consulting Services, Inc.

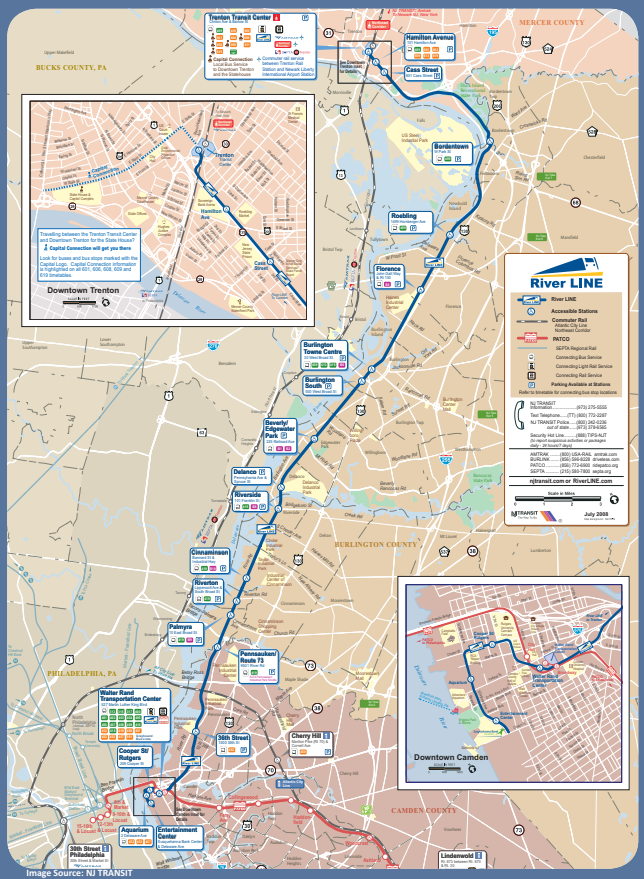


Image Source: NJ TRANSIT

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

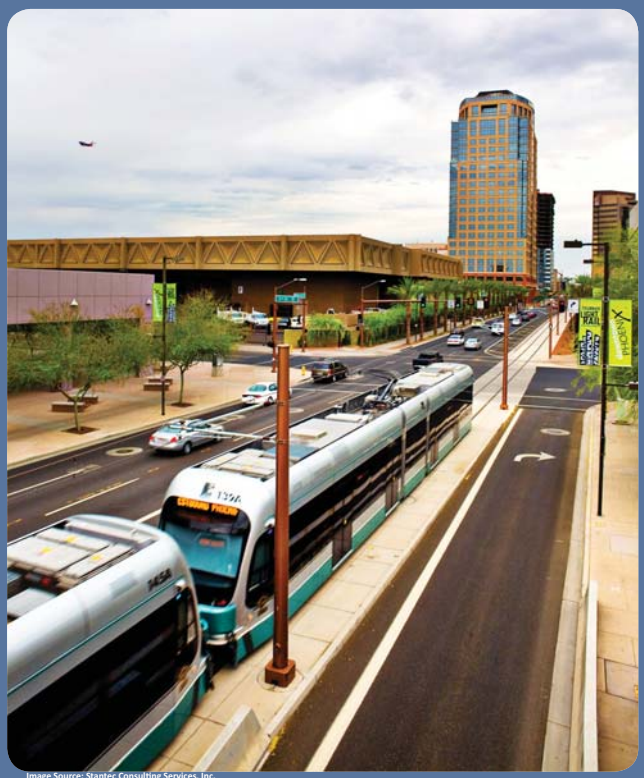


Image Source: Stantec Consulting Services, Inc.

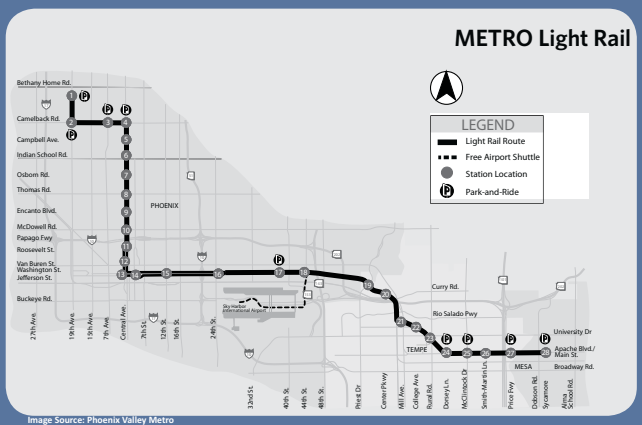


Image Source: Phoenix Valley Metro

What do you think?

I like LRT because...

I don’t like LRT because...

Where would you like to see enhancements in the Syracuse Area?

Write your ideas on a post-it note and add them to this board.

Tell us what you think

Please take a moment to fill out a transit survey:

Rider Survey

Do you currently use transit? Whether you use transit every day, or just occasionally, please fill out this survey:

Non-Rider Survey

Don't Ride Transit? Don't worry, we want to hear from you as well. Please fill out this survey: