

Transit Considerations for Broadway Corridor

Presented by Southern Arizona Transit
Advocates (SATA)
(formerly Tucsonans for Sensible Transportation)

SATA

Formed in 2002 to oppose COT referendum
for road construction with limited transit

Put transit Initiative on 2003 ballot

Proposed streetcar plan in 2003

Lead effort for an RTA

We are your neighbors:

- Joy – Sam Hughes
- Ron – El Encanto
- Clague – Peter Howell
- Steve – Blenman-Elm

PRESENTATION OUTLINE

PREVIOUS PLANS

GUIDING PRINCIPLES

TRANSIT 101

CONSIDERATIONS FOR BROADWAY
HIGHER SPEED TRANSIT

PREVIOUS PLANS

Broadway Corridor Study (1987) –

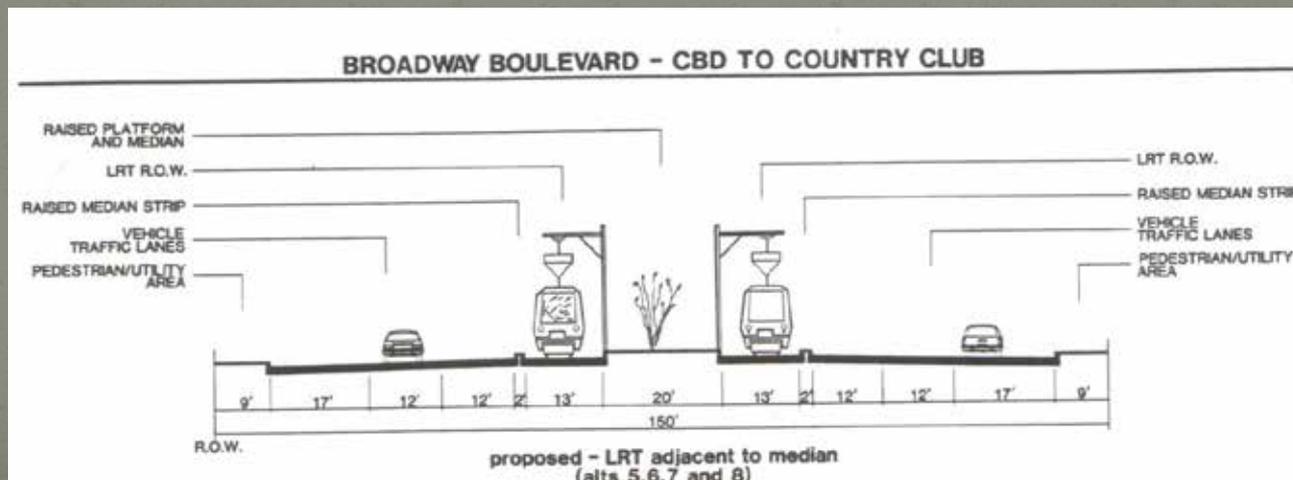
Ø Not a roadway study

Ø Requested by CTAC and Modern Transit Society

Ø Funded by FTA – so primarily a transit study – purpose to see if LRT feasible

Ø Study defined Broadway as a transit arterial – due to fundamentally different land uses compared to other arterials

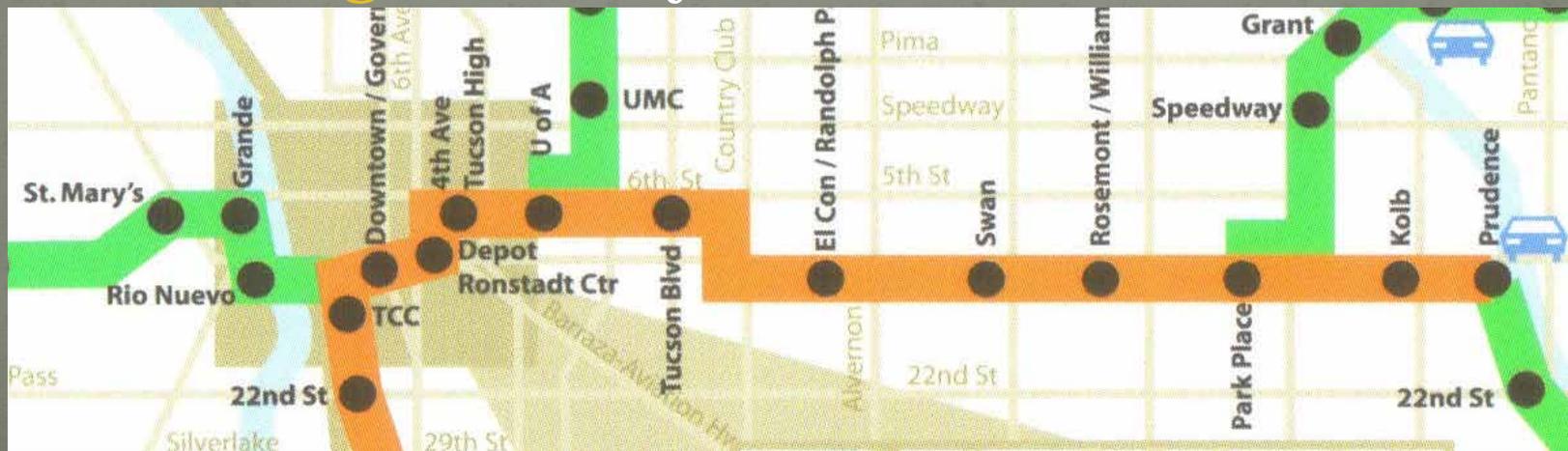
Ø Study recommended widening west of Columbus to accommodate LRT



PREVIOUS PLANS

Tucsonans for Sensible Transportation Initiative - 2003

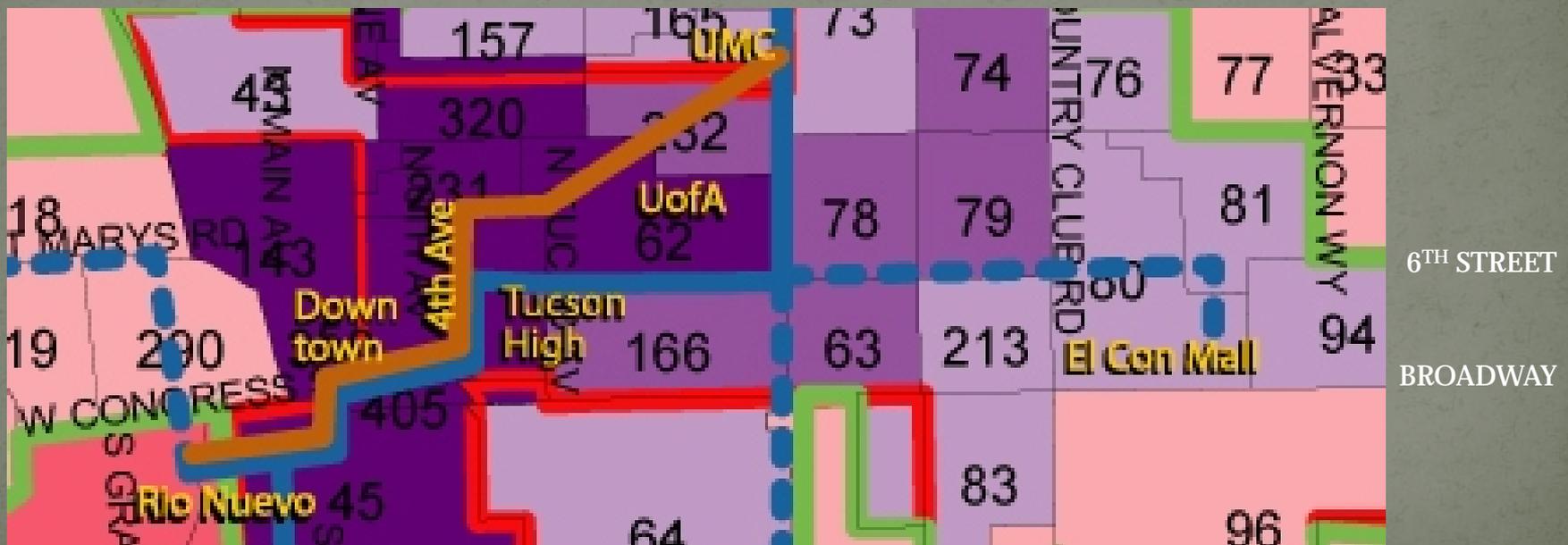
Ø Included LRT on Broadway east to Pantano Road, but **moved it to 6th St.** west of Country Club to better serve the UA and **to avoid widening Broadway**



PREVIOUS PLANS

Tucsonans for Sensible Transportation Streetcar Plan - 2003

Ø Included modern streetcar in same location as LRT, but ending at El Con



PREVIOUS PLANS

PAG, High Capacity Transit (HCT) Study

Ø Recommended BRT, convertible to LRT,
on Broadway

Ø Streetcar on Broadway to El Con



SPEEDWAY

BROADWAY

22ND ST.

Southern Arizona Transit Advocates position on Broadway Corridor Study:

- Ø Transit is most important part of project
 - core concept
- Ø Study must provide space for HCT
- Ø Want to see first phase built



GUIDING PRINCIPAL 1 – All arterials are not created equal

Ø Broadway was recognized as a transit arterial in the 1987 study

Ø CTAC tried to have Major Streets and Routes Plan designate different types of arterials with Broadway as a transit arterial

Ø Broadway already is a heavy transit arterial – transit today moves 9% of the people traveling on Broadway (5,500 daily transit trips)

Ø Diamond lanes east of Columbus give Broadway the feel of a transit arterial. Their continuation to the west is very important

Ø The Broadway bus route carries 9% of the Sun Tran system total

Ø A new Park and Ride, funded by the RTA, is about to be constructed at Houghton and Broadway

Ø Broadway is the most logical location for the region's first LRT line – only regional corridor containing a community college campus, two major hospitals, downtown, the U. of A., a regional park, 2 regional shopping centers, and a corporate center

GUIDING PRINCIPAL 2 - Enhanced transit will benefit Broadway businesses and residents, and other parts of the city

Ø Enhanced transit will add immediate travel capacity and eliminate the need for future roadway widening – LRT has the capacity to handle 90,000 people per day – twice the automobile ADT on Broadway today –

Ø Cap auto capacity like UA did parking spaces

Ø Increase transit share in traffic model

Ø Enhanced transit will bring additional customers to Broadway businesses

Ø Enhanced transit will ease traffic on adjacent arterials (Speedway and 22nd St.) because HGT draws from a broad area

GUIDING PRINCIPAL 3 – Travel density, not population density justifies investment in HCT

Ø Travel density is created by the number and intensity of activity centers (nodes) along an arterial roadway – Broadway qualifies as noted in Guiding Principle 1

Ø Broadway qualifies with 44,000 cars a day average and the best bus route in region

Ø HCT draws passengers from substantial distances (rider shed) via feeder bus lines, bike, drive and park (Park and Ride), and drop off (Kiss and Ride), not just within walking distance of the corridor. Thus **LRT & BRT do not depend high density development adjacent to the station** like Heavy Rail (Subway) typically does

We have established that Broadway supports enhanced transit

What are our choices?

Only 3 types of transit

- LOCAL
- LIMITED
- EXPRESS



TRANSIT 101

Fixed-Route Transit types – determined by frequency of stops which determines speed

| ROUTE TYPE | SPEED | STOP FREQ. | COMMENT |
|------------|----------|------------|--|
| LOCAL | Slow | Frequent | Every few blocks – Sun Tran is ¼ mile |
| LIMITED | Moderate | Limited | ½ to 1 ½ miles – at arterials or major nodes |
| EXPRESS | Fast | Infrequent | 4 to 5 miles without stopping |

Really about HST (Higher Speed Transit) not HCT

TRANSIT 101

On a given route, these types can be mixed and matched:

TYPES OF TRANSIT

LOCAL



LIMITED



EXPRESS



TRANSIT 101

Vehicle Types Defined

| VEHICLE | POWER LOCATION | POWER TRANSMISSION | MOTOR/ ENGINE | VECHICLE CAPACITY |
|---------------------|----------------|-----------------------------|--|-------------------|
| Bus | On board | None – self propelled | Engine – diesel, CNC, LNG, propane, methanol, hybrid diesel-electric | Low |
| Cable Car | Remote | Cable | Electric motor at power house | Low |
| ETB, Streetcar/ LRT | Remote | Overhead electric conductor | Electric traction motor on vehicle | Low/ Intermediate |
| Heavy Rail/ Subway | Remote | Third rail | Electric traction motor on vehicle | High |
| Commuter Rail | Locomotive | Cars coupled to locomotive | Diesel-electric locomotive, or electric locomotive | High |

ETB = Electric Trolley Bus

TRANSIT 101

Vehicle Type by Route Type & Lane Location

| ROUTE TYPE | VEHICLES TYPICALLY USED | LANE (or TRACK) LOCATION | EXAMPLE |
|------------|--|--|---|
| LOCAL | Standard Bus, ETB, Streetcar (trolley) | Mixed travel in curb lane | |
| LIMITED | Larger Bus*, LRT | Exclusive lanes as much as possible, but can share single lane or track for both directions, or use auto lanes in some locations | Example: Orange (BRT) line, Los Angeles |
| EXPRESS | Larger Bus*, Commuter Rail, Heavy Rail | Freeway, exclusive guideway, or diamond lanes | Example: El Monte Busway, Los Angeles |

•articulated or double deck

TRANSIT 101

Stop Types & Utilization based on User Volume

| ROUTE TYPE | STOP TYPE | SIZE | AMENITIES |
|------------|---|--------|-----------------------------------|
| LOCAL | Bus or streetcar stop | Small | Sign, bench, single shelter |
| LIMITED | Station | Medium | Two or three shelters/benches |
| EXPRESS | Station, Park and Ride lot, transit center, depot | Large | Many shelters/benches or building |

TRANSIT 101

Vehicle Selection – depends on projected passenger volume

Capacity is one reason to select rail – Rail vehicles are larger and can be trained together

| VEHICLE | SIZE | STANDING CAPACITY |
|---------------------|--|-------------------|
| Standard Bus or ETB | 40' bus | 60 |
| Large Bus or ETB | Articulated or double deck bus | 100 |
| Streetcar | Single articulated car | 125 |
| LRT | 4 car train of articulated light rail vehicles | 520 |
| Heavy Rail/ Subway | Up to 10-car train | 800-2000 |
| Commuter Rail | Up to 12-car train | 1000 to 2200 |

TRANSIT 101

Another Reason for Selecting Rail – Attracts 4 to 8 times the riders of local bus & more than BRT

OLD PUEBLO TROLLEY

| Route 200 | OPT |
|---------------------------------|---|
| 2.5 mile route (UA to Downtown) | 1 mile route (UA to 4 th Avenue) |
| 75 cent fare | \$1.00 fare |
| 6 days a week | 2 ½ days a week |
| 10 minute service | 20 minute service |
| Free transfer to bus | Pay 2 nd fare on bus |
| 5,000 ANNUAL RIDERS | 20,000 ANNUAL RIDERS |

LOS ANGELES

| LINE | AVG. WEEKDAY RIDERS (OCT. 2012) |
|---------------------|---------------------------------|
| Red - Subway | 157,605 |
| Blue – LRT | 92,953 |
| Expo – LRT | 21,382* |
| Green - LRT | 46,544 |
| Gold – LRT | 42,417 |
| Orange – BRT | 32,069 |
| Silver - BRT | 13,765 |

* Only half finished – 1st phase opened April 2012

TRANSIT 101

Vehicle Selection – modern vs. historic

Reasons for using historic vehicles:

- Ø Nostalgic – attracts riders

- Ø Fits district being served

- Ø Saves money (vehicles are far cheaper)



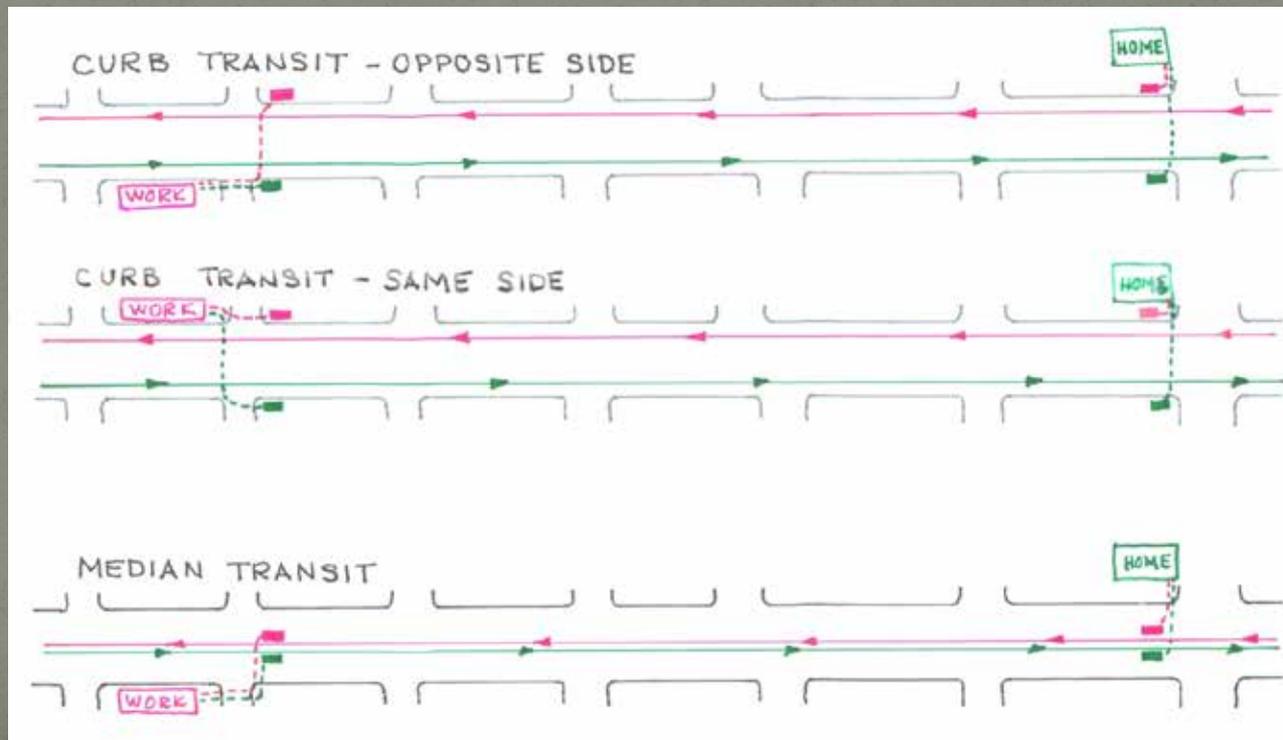
CONSIDERATIONS FOR BROADWAY HIGHER SPEED TRANSIT

Lane Widths – 10 feet for rail, 11 feet for bus

Limited, Express and Local can operate in same lanes if pullouts are provided to get the slower vehicle out of the way

CONSIDERATIONS FOR BROADWAY HIGHER SPEED TRANSIT

Crossing the street – you always cross street twice with any location of the running way



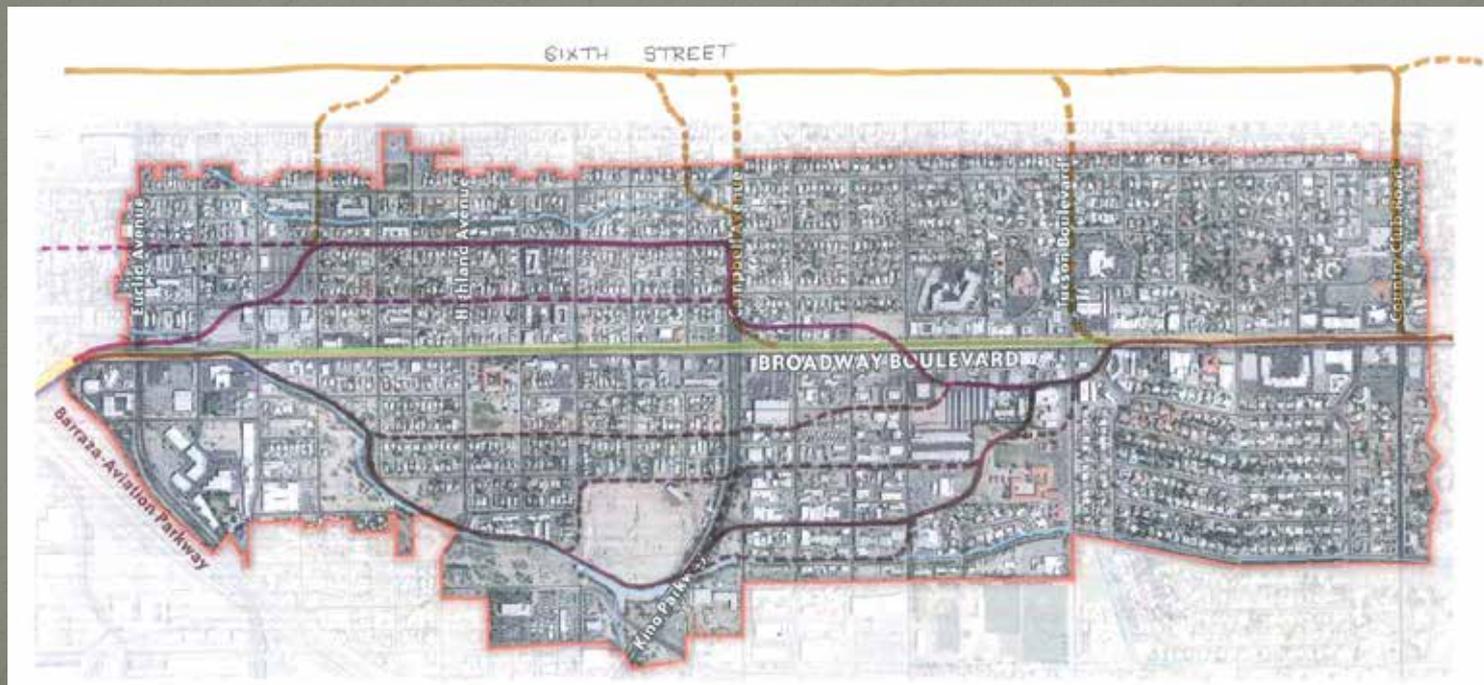
CONSIDERATIONS FOR BROADWAY HIGHER SPEED TRANSIT

Locations for HST –

- On Broadway –
 - Travel lane (streetcar & local bus only)
 - Side of roadway (diamond lane)
 - Median
 - Combination (median & travel lane – single vs. double track)
- On 6th Street
- North of Broadway
- South of Broadway

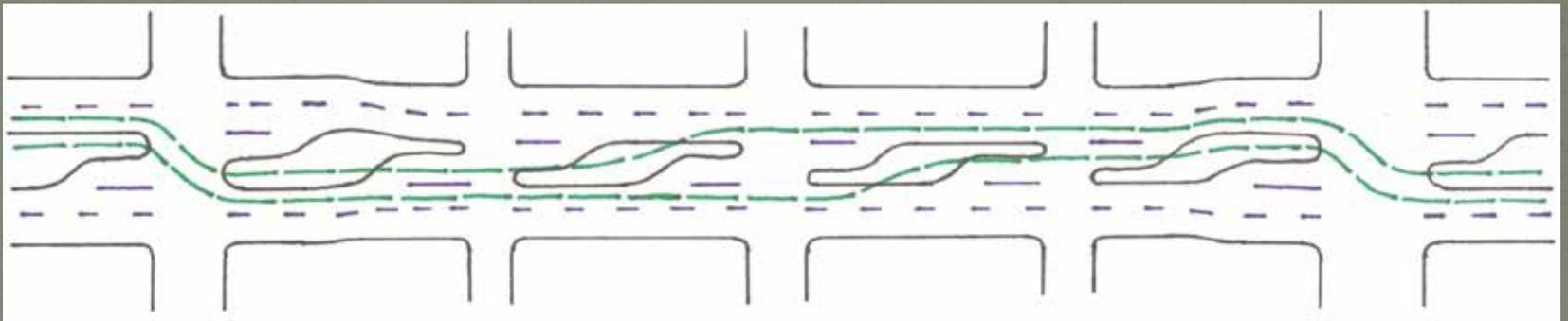
CONSIDERATIONS FOR BROADWAY HIGHER SPEED TRANSIT

Locations for HST – The universe of possibilities



CONSIDERATIONS FOR BROADWAY HIGHER SPEED TRANSIT

Locations for HST – Weaving & Single Lane



IN SUMMARY:

Southern Arizona Transit Advocates position on Broadway Corridor Study:

- Ø Transit is most important part of project – core concept
- Ø Study must provide space for HST
- Ø Want to see first phase built



Thank you for the opportunity to
present our position and inform you
about planning for high capacity transit