



## Fast Facts: LSTAR Regional Intercity Passenger Rail

### LSTAR Summary

The outlook has never been better for passenger rail as part of the mix that keeps Texas moving. The LSTAR route (see LSTAR Route Map, below) and proposed station locations will offer easy connections with the City of Austin's Urban Rail and VIA's Street Car lines, future bus rapid transit (BRT) and current local bus service.

LSTAR will add capacity to the regional transportation system without the disruption and expense of highway expansion. Moreover, increasing rail capacity is as simple as adding another rail car or providing more frequent service. At peak hours LSTAR service can carry the equivalent of two additional lanes in each direction on I-35. Users of the regional transportation systems will see savings in terms of avoided congestion delays and fuel costs savings. Rail offers quality travel time that allows riders the freedom to read, work, or simply enjoy the scenery. Rail travel is predictable, dependable and stress-free. Finally, rail related economic development will benefit the region and State of Texas in terms of additional jobs, increased tax base and increased tax revenues while avoiding the costs associated with constructing additional highway infrastructure and further degraded air quality.

### LSTAR Service

- 75-minute or less express service in both directions between downtown Austin and downtown San Antonio, with stops in San Marcos and New Braunfels.
- Local service in both directions between Georgetown and the south side of San Antonio with stops at all stations in between.
- Up to 32 trains a day, including midday and evening service, seven days a week in each direction for commuters, students and other regional travelers.
- Up to sixteen new stations in convenient locations with ample secure parking, comfortable waiting areas and connections to local transit. Travels 118 miles connecting the cities of San Antonio, Schertz, New Braunfels, San Marcos, Kyle & Buda, Austin, Round Rock and Georgetown.
- Modern, safe, clean and comfortable passenger cars; amenities including wireless Internet access and bicycle racks.
- Service to nearby college and university campuses in Georgetown, Round Rock, Austin, San Marcos and San Antonio; employment centers such as the Domain and Port San Antonio; and the region's top tourist, cultural, entertainment, and lifestyle destinations.

### LSTAR Benefits

#### *Financial/Economic*

LSTAR ridership is forecast to range from **3.2 million** to **5.8 million** annual boardings in 2035. The following high level conclusions about benefits to individual users can be reached from those ridership estimates:

- Annual hours saved by LSTAR passengers are estimated to be between **726,000** and **1,288,000** in the year 2035.
- Average cost of delay to auto commuters averaged about \$24 per person-hour in 2011 according to the US Department of Transportation, so LSTAR passengers would realize between **\$17.4 million** and **\$30.9 million annual savings** at the highest demand level (in 2011 dollars). Total savings over the period of 2017 – 2035 would range from approximately **\$511 million to \$751 million**, assuming an annual inflation rate of 2.5%.

- Estimated annual fuel cost savings at the highest demand level would be **\$25.8 million** for trips utilizing LSTAR service (assuming average vehicle two-way trip length of 22 miles, with average fuel consumption of 15 miles per gallon, and average fuel price of \$3.50 per gallon, in 2011 dollars), which translates to total savings over the period of 2017 – 2035 of more than **\$719 million**, assuming an annual inflation rate of 2.5%.

For the region and state, benefits were estimated broadly based on a literature review and an economic modeling effort conducted as part of an overall economic impact analysis. Some of the conclusions reached include:

- The increasingly competitive economic development environment within the U.S. and between nations highlights the importance of decisions related to public sector investments. Sustained regional economic growth is the product of a variety of interrelated factors that create a collection of assets that make an area competitive in the regional, national, and global economy.
- Transportation accessibility and mobility has shown to be one of several important economic growth factors, which also include an educated and skilled workforce, high levels of worker productivity, local policies that are conducive to business and overall quality of life, and a stable economy.
- The introduction of regional passenger rail service can have positive effects on a region's economy through transportation impacts (e.g., reducing cars on the road), land use patterns, real estate values, corporate recruitment and relocation, tourism, and the overall appeal of a region to potential residents.
- A literature review demonstrates that there is a substantively and statistically significant relationship between the presence of regional passenger rail and long-term economic growth of a region. A model was developed to estimate what the economic impact of regional passenger rail would be on the Austin-San Antonio area.
- Based on the model, the presence of regional passenger rail could enhance per capita income in Austin-San Antonio by **\$5,241** in 2011 dollars. This translates to a personal income increase of **~\$20.4 billion** above what would otherwise be expected.
- Following the same logic, state tax revenue would be **\$1.02 billion** above the baseline, while local tax revenue would increase by **\$1.31 billion**.
- Regional passenger rail promises to be a significant asset in the Austin-San Antonio region's overall portfolio of factors related to economic growth and development, and the area exhibits the economic, demographic, and cultural characteristics to take advantage of the opportunity it represents.

### *Mobility*

As a result of passengers choosing to use LSTAR rather than compete for scarce capacity on congested regional highways, in 2035 at the highest demand level, vehicle trips removed from the highway network are estimated to equal over 16,000 per weekday based on the average US auto occupancy of 1.2 persons per vehicle. This equates to approximately **4.2 million** annual weekday vehicle trips removed from the region's highways.

Due in part to the large number of highway-rail grade crossings on the current UPRR line (nearly 140), and their close spacing through urban cores, freight trains average only about 20 mph in the corridor. Long (1 mile plus) slow freight trains virtually cut towns in half as they occupy and block those grade crossings upwards of 40 or more times per day, bringing vehicular traffic to a halt and negatively affecting local and regional mobility. Lone Star Rail District's urban freight rail bypass line will relocate 30-plus daily through UPRR freight trains from the urban cores of cities and towns along the entire Austin-San Antonio corridor, improving

mobility in the current corridor while ensuring that similar problems are not created along the bypass route, through extensive grade separation. The LSTAR passenger trains which will use the capacity created by the relocation will be much shorter and operate at higher speeds, substantially reducing grade crossing gate “down” times.

Freight mobility will also be enhanced by the urban freight rail bypass line. As currently conceived and conceptually designed, the new line will feature maximum freight train speeds of 79 mph on a substantially grade separated right of way with few speed restrictions. This will expedite the movement of through freight trains in the corridor, and will eliminate a major bottleneck for the UPRR located at Lady Bird Lake in Austin, where the railroad has challenging grades on both sides as the tracks descend to the lake, and a slow-speed reverse curve just north of the lake.

*Capacity*

At the full service level, LSTAR stations will be designed to accommodate 6 to 8 bi-level railcars, mimicking similar train configurations around North America. With 6-car trains accommodating a seated passenger load of approximately 160 passengers per car, a system operating at 15 minute headways (4 times per hour) has a capacity of **3,840 passengers per hour** in each direction. Higher capacities could be attained if standees are accounted for, and/or longer trains (i.e. of 8 cars) are operated – for example, a system operating 8-car trains accommodating a total (seated and standing) passenger load of 260 passengers per car, operating at 15-minute headways (4 times per hour) has a capacity of **8,320 passengers per hour** in each direction.

A typical highway lane at Level of Service (LOS) “C” (the targeted design level of service for most urban highways, representing “stable” conditions at or near free flow) at an average speed of 60 mph can transport a maximum of approximately 1,560 vehicles per hour, according to the FHWA *Highway Capacity Manual*. Average vehicle occupancy in the US has been measured at approximately 1.2 passengers per vehicle, so the capacity of a highway lane under those typical conditions is approximately 1,872 passengers per hour.

The LSTAR then, at its full service level, could add the equivalent of more than **2 highway lanes** of congestion-proof free flow capacity in either direction for the length of the 118-mile corridor. If standees and 8-car trains are considered, LSTAR could add the equivalent of more than **4 highway lanes**.

While the urban freight rail bypass, as currently conceived, is a capacity *replacement* facility, it will be designed to accommodate the future growth and business needs of UPRR, including possible capacity enhancements in the future. A higher capacity freight route through Central Texas could spur some diversion of freight traffic that is currently transported on over the road trucks on I-35 to higher efficiency freight trains.

**LSTAR Affordability**

Capital expenses are anticipated to be covered over time through Federal grants and loans, State Rail Relocation Fund sources, Union Pacific RR cost sharing and public/private partnerships. Capital improvement estimates from the draft *Lone Star Rail District 2014 Business Plan* are as follows:

LSTAR Passenger Line Improvements (track, structures, stations, ops & maintenance facility, rolling stock):

Initial Service	Base Service	Full Service
\$ 700 million	\$840 million	\$ 1,400 million

Freight Bypass Line (right of way acquisition, track, structures):

\$ 1,300 million

As a point of comparison, using an estimate of \$10,000,000 per lane-mile to add lanes to I-35 (including both right of way acquisition and construction, but not accounting for some other costs, such as loss of tax base or congestion costs during construction due to disrupted operations), total project capital cost to add equivalent highway capacity (2 lanes per direction) to 118 miles of the corridor would cost approximately **\$4.7 billion**.

Net operating and maintenance (O&M) and lifecycle expenses will be spread between the local jurisdictions served in order to assure affordability. One third of the costs will be allocated to:

- the City of Austin & Travis County;
- the City of San Antonio & Bexar County; and
- the remaining smaller cities and their counties.

Estimated annual net O&M and lifecycle expenses from the draft *Lone Star Rail District 2014 Business Plan* would then be split as follows:

	Initial Service	Base Service	Full Service
City of Austin & Travis County	\$ 10 million	\$ 19 million	\$ 32 million
City of San Antonio & Bexar County	\$ 10 million	\$ 19 million	\$ 32 million
Smaller Cities and their Counties	\$ 10 million	\$ 19 million	\$ 32 million

These figures account for expected fare revenue, but do not take into account other revenue sources, such as advertising and trackage rights fees from UP, BNSF, and Amtrak – each of which would lower the net O&M costs.

Average annual operations and maintenance and lifecycle costs for highways are roughly equivalent, on average, to those for passenger rail assuming equivalent capacity.

# LSTAR Route Map

## PROPOSED LSTAR ROUTE MAP

### PROPOSED STATION LOCATIONS

- 1 GEORGETOWN
- 2 DOWNTOWN ROUND ROCK
- 3 McNEIL JUNCTION
- 4 BRAKER LN/DOMAIN
- 5 35TH ST/MOPAC
- 6 DOWNTOWN AUSTIN
- 7 SLAUGHTER LN
- 8 KYLE/BUDA
- 9 SAN MARCOS/TEXAS STATE UNIVERSITY
- 10 NEW BRAUNFELS
- 11 SCHERTZ/FM 3009
- 12 LOOP 1604
- 13 LOOP 410/AIRPORT
- 14 DOWNTOWN SAN ANTONIO/UTSA
- 15 PORT SAN ANTONIO
- 16 CITY SOUTH/TAMU



### LEGEND

- Regional Rail Line
- Proposed Future Extension
- Proposed Station Location
- Universities

LONE STAR RAIL DISTRICT