JOEL O. ESPINOZA; DEPARTMENT OF URBAN & REGIONAL PLANNING; mentor DR. RICHARD WILLSON;
KELLOGG HONORS COLLEGE CAPSTONE 2011
presents

ASSESSING THE COSTEFFECTIVENESS OF STREETCAR RIDERSHIP *in* THE PORT OF LOS ANGELES

ABSTRACT

Despite the various tools for city revitalization and economic development, cities are beginning to solicit federal stimulus grants to fund unproven streetcar systems as part of their long-range ability to stimulate blighted historic downtown districts. The Port of Los Angeles is preparing to expand its current waterfront streetcar system into the historic downtown of San Pedro, CA without any guarantee of its potential benefits. This study evaluates three separate funding and ridership scenarios for the downtown San Pedro extension and compares them with comparable statistics of selected streetcar systems in the United States. The results of the proposed Port of Los Angeles streetcar extension cost effectiveness reveals:

1. *the high cost and poor ridership levels of the streetcar extension; and*
2. *the high transit subsidies of the streetcar extension and various streetcar systems in the United States.*

Cities must determine if economic development merits using federal grants to construct and maintain streetcar systems. This project calls for further analysis to measure the ability of streetcar systems to be a component of economic development and city revitalization.

METHODS

To determine the economic feasibility of the proposed streetcar extension, streetcar subsidies will be calculated for six streetcar systems (Kenosha, WI, Little Rock, AR, Memphis, TN, Portland, OR, Savannah, GA, and Tampa, FL) and three potential streetcar scenarios. The existing Port of Los Angeles streetcar system as well as the three case scenarios:

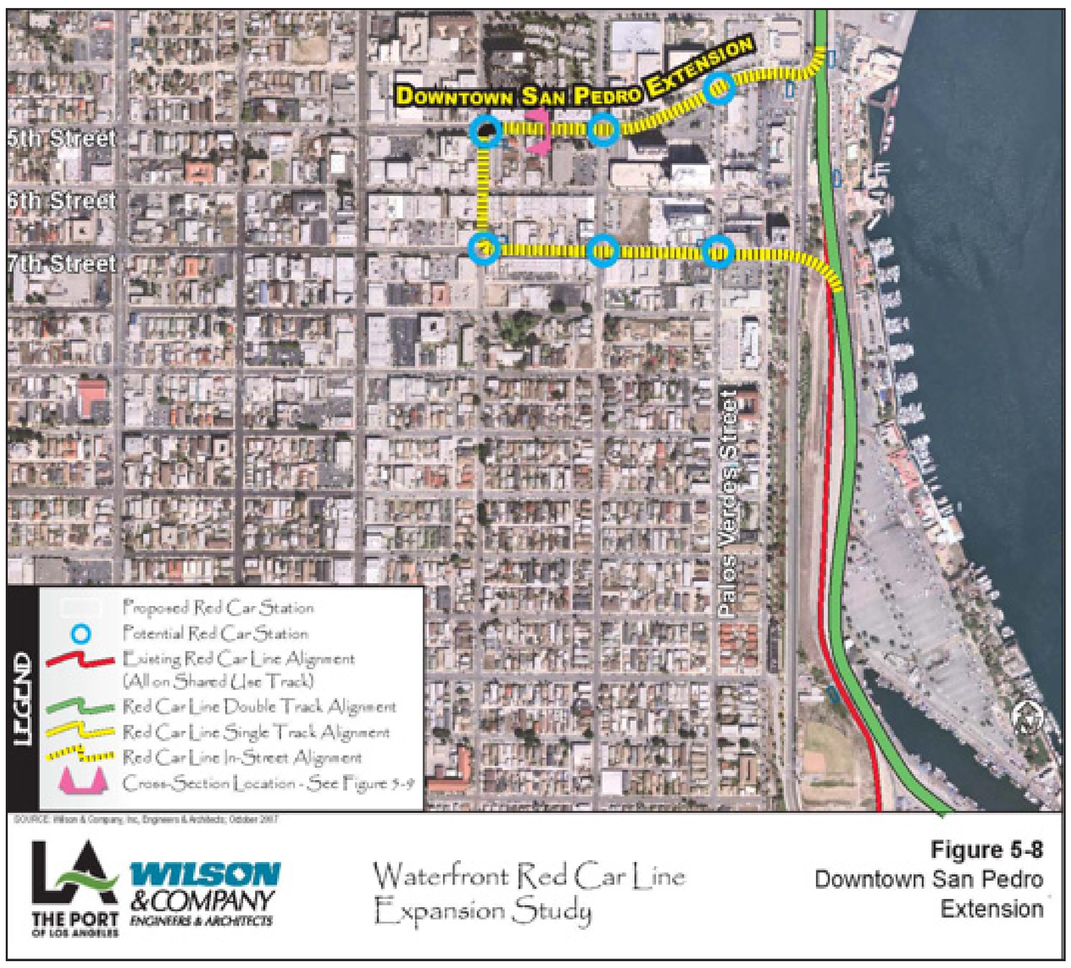
1. *half funded capital costs by the federal government with annual ridership of 100,000;*
2. *no federal funding with annual ridership of 100,000;*
3. *no federal funding and annual ridership of 50,000.*

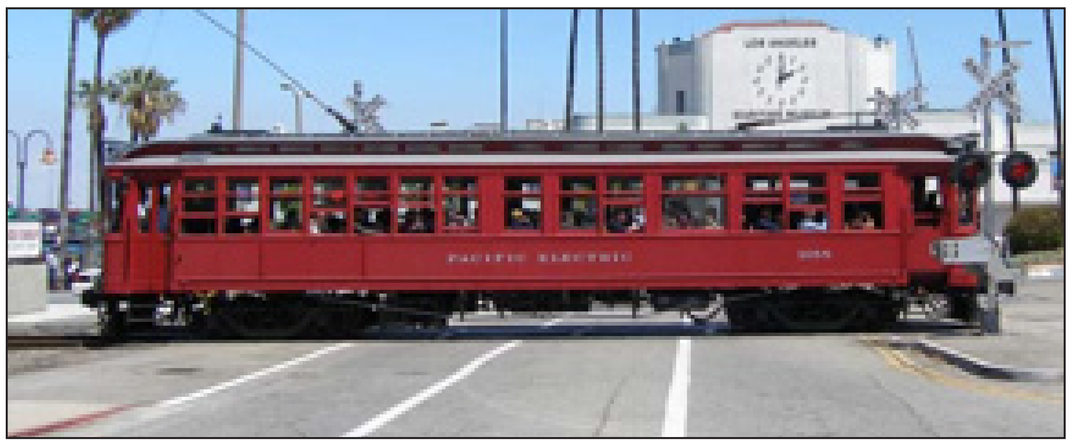
Cost effectiveness will be calculated by amortizing the present day capital cost of each system with a lifespan of 30 years and an annual cost of money of 5 percent. The amortization also calculates annual operating costs minus annual revenue, and summing annualized capital costs and net operating costs and finally dividing the sum by the annual ridership. Each system's capital costs were inflated to present day (2011) dollars using the Bureau of Labor Statistics' consumer price index web tool.

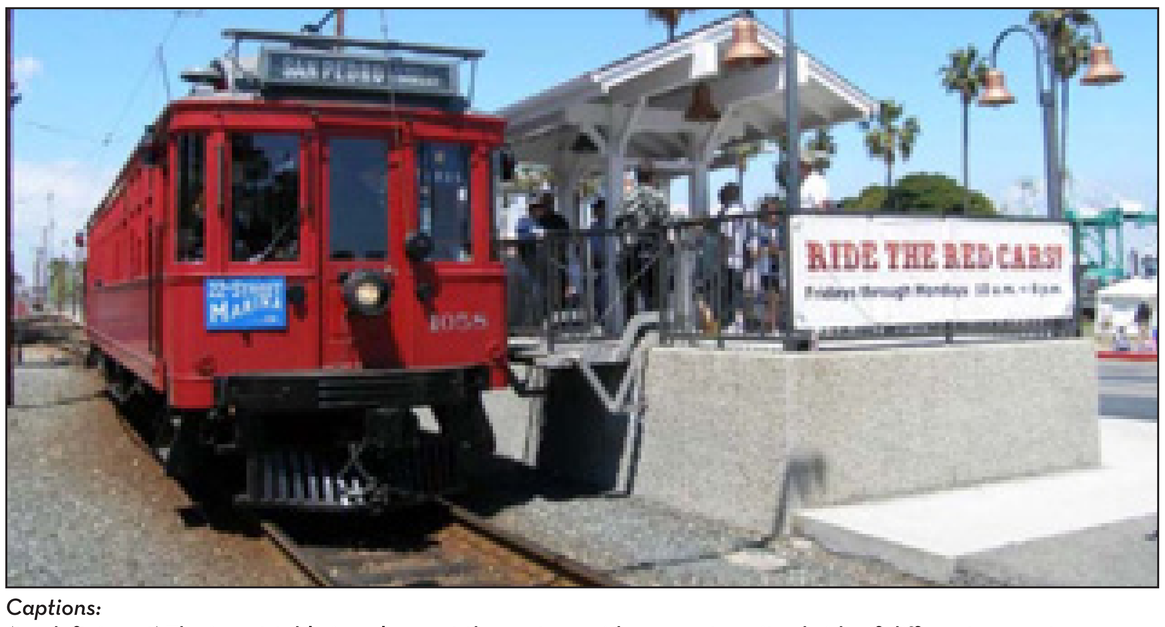
Streetcar Ridership Subsidy	Present Dollars						
	2003	2000	2004	1993	2001	2009	2003
System	San Pedro	Kenosha	Little Rock	Memphis	Portland	Savannah	Tampa
Capital Cost	$18,370,000	$5,115,517	$31,710,247	$167,186,596	$128,266,530	$1,026,504	$37,701,220
Life of System (years)	30	30	30	30	30	30	30
Rate	5%	5%	5%	5%	5%	5%	5%
Payment	$1,194,994.86	$332,771.71	$2,062,797.05	$10,875,727.99	$8,343,921.84	$66,775.53	$2,452,518.47
Ridership	100,000	56,419	135,000	1,387,000	3,309,418	84,000	434,000
Operating Cost	$5,900,000	$65,000	$963,258	$5,250,000	$5,500,000	$1,439,266	$2,400,000
Revenue	($100,000)	($56,146)	($135,000)	($1,387,000)	($500,000)	$0	($1,085,000)
Net Operating	$5,800,000	$8,854	$828,258	$3,863,000	$5,000,000	$1,439,266	$1,315,000
Sum	$6,994,994.86	$341,625.71	$2,891,055.05	$14,738,727.99	$13,343,921.84	$1,506,041.53	$3,767,518.47
Subsidy	$69.95	$6.06	$21.42	$10.63	$4.03	$17.93	$8.68

	Actual	Best Case	Mid case	Low Case
System	San Pedro	RC Extension	San Pedro (Low)	San Pedro (High)
Capital Cost	$11,968,641	$9,185,000	$18,370,000	$18,370,000
Life of System (years)	30	30	30	30
Rate	5%	5%	5%	5%
Payment	$778,577.27	$597,497.43	$1,194,994.86	$1,194,994.86
Ridership	100,000	100,000	100,000	50,000
Operating Cost	$1,400,000	$1,200,000	$1,200,000	$1,200,000
Revenue	($100,000)	($100,000)	($100,000)	($50,000)
Net Operating	$1,300,000	$1,100,000	$1,100,000	$1,150,000
Sum	$2,078,577.27	$1,697,497.43	$2,294,994.86	$2,344,994.86
Subsidy	$20.79	$16.97	$22.95	$46.90

System	Cost per Ride	Fare Subsidy
Existing Red Car	$20.79	$19.79
Red Car Extension Case 1	$16.97	$15.97
Red Car Extension Case 2	$22.95	$21.95
Red Car Extension Case 3	$46.90	$45.90
Kenosha	$6.06	$5.06
Little Rock	$21.42	$20.42
Memphis	$10.63	$9.63
Portland	$4.03	$1.53
Savannah	$17.93	$17.93
Tampa	$8.68	$6.18







Captions:
(top left: insert) **The insert-table is a glance at the cost-per-ride versus transit subsidy of different car systems throughout the U.S.;** ***(top left)*** **The larger table is a costeffective comparison between the select streetcar systems in the U.S. and the San Pedro Streetcar;** ***(bottom right)*** **A vintage Pacific Electric Red Car circa 1907;**
(top right) **An aerial view displaying the Port of Los Angeles Streetcar Extension;**
(right center) **A rendering of the proposed downtown extension;**
(bottom right) **A vintage Red Car of the current street car system.**

Select Reference: Wilson & Company. (2009). Waterfront Red Car Line Expansion Feasibility Report.

RESULTS

The larger table displays the cost effectiveness of the existing Port of Los Angeles streetcar, three case scenarios, and the six selected streetcar systems. The cost per ride is the dollar amount costs in relation to annual cost and ridership. The fare subsidy is the financial contribution that the streetcar agency contributed per ride.

The existing Red Car system cost per ride is $20.79 with a fare subsidy of $19.79. The Red Car subsidy falls above the average of the case study systems that is $10.19 per ride.

Case 1 of the Red Car extension's cost per ride is $16.97 with a fare subsidy of $15.97. This scenario assumes an annual 100,000 riders and half-funded with a Smart Starts grant.

Case 2 of the Red Car extension's cost per ride is $22.95 with a fare subsidy of $21.95. This scenario assumes an annual ridership of 100,000 and funded en·tirely by the Port of Los Angeles.

Case 3 of the Red Car extension's cost per ride is $46.90 with a fare subsidy of $45.90. This scenario assumes an annual ridership of 50,000 and fully funded by the Port of Los Angeles.

CONCLUSION

Although the cost and ridership levels of the streetcar extension appear dismal, it is best to consider the streetcar's cost effectiveness. Current calculations demonstrate that the current Port of Los Angeles streetcar is heavily subsidized. Regardless of any federal funding or whether the streetcar extension can shuttle over 100,000 riders per year, the real question is if the investment in a large infrastructure project can deliver the economic benefits that other cities have experienced. This analysis invites further discussion on the use of streetcars as a tool for city revitalization and economic development.