

Tie Demand Finds

HIGH WATER MARK

Steady Procurement Predicted Following 2006 Peak

By Jim Gauntt

For years, tie suppliers have sought steady-state tie demand that would allow for maximum efficiency in planning procurement and production.

This is an elusive prize akin to Ponce de Leon's search for the Fountain of Youth. There are so many factors involved in the marketplace that for a true steady-state to occur it would almost be mirac-

ulous. History has proven time and again that both the railroad and railroad supply industries, while mature businesses, are inherently cyclical.

But, if the surveys and forecasting models are to be believed, following a peak in demand in 2006 the industry is about as close to that Holy Grail as may be possible. To provide the best viewpoint from which to evaluate this statement, a look at this year's exclusive Railway Tie Association (RTA) surveys, econometric model and historical numbers is in order.

History First

From roughly 1993 to 1998, tie suppli-

ers appeared to enjoy a period of relatively steady demand for their products (Table 1). The historical numbers show that, during that time period, the number of ties produced and consumed ranged between 16 and 17 million ties. But, to say that suppliers enjoyed this situation belies two important facts. First, for the amount of tie production capacity that existed during this time, the level of demand was well below what was necessary for industry-wide economic health. A fair amount of consolidation occurred in the industry in the mid-90s because of this.

The other disconcerting issue during that time period was that railroads were undergoing massive changes.

Consolidation of the Class 1 railroads, fragmentation of the marketplace as many new short lines took their place in the world of tie buyers, and the fact that the railroad industry as a whole was struggling to earn its cost of capital all had tie suppliers on the edge of their seats daily.

Then, after the Burlington Northern and Santa Fe merged, Union Pacific absorbed Southern Pacific, and the consolidation of Conrail assets in the East by CSX and Norfolk Southern occurred. This realignment and restructuring throughout the railroad industry precipitated a few dire years. From 17 million ties in 1998 to 15.7 million in 1999, followed by 14.8 million in 2000, tie suppliers absorbed several body blows as the railroad industry transformed itself.

And the recovery was fitful. The years 2001 to 2004 saw large swings in annual tie demand numbers. No one really knew what to expect from one year to the next.

But, then, a very solid year of 18 million ties in 2004 was followed by another 18 million-plus year in 2005. And backing this up, wow, railroads

TABLE 1—Railway Tie Association Econometric Model—August 2007
Thousands Of New Wood Ties

Year	Total Purchases	Class 1 Purchases	Small Market Purchases
HISTORICAL SUMMARY			
1993	16,073	12,887	3,186
1994	16,557	12,371	4,186
1995	16,772	12,129	4,642
1996	16,953	12,632	4,321
1997	17,238	13,150	4,088
1998	17,082	13,021	4,060
1999	15,729	12,072	3,657
2000	14,805	11,706	3,099
2001	15,127	11,805	3,322
2002	17,135	13,498	3,637
2003	16,473	13,578	2,895
2004	18,001	14,307	3,695
2005	18,805	15,029	3,776
2006	20,647	15,937	4,709
FORECAST SUMMARY			
2007	20,252	15,981	4,271
2008	20,605	16,367	4,238
2009	20,721	16,573	4,148
2010	20,961	16,859	4,102

purchased 20.7 million ties in 2006. Finally, it seemed that the combination of a strong U.S. economy and the sound restructuring measures undertaken by the railroads was paying off for both producers and users of ties.

Would 2006 be the peak? Would the industry experience increased volatility moving forward? Or had railroads reached a new sustainable level of traffic

and revenue volume that would lead to even greater demand?

As 2006 came to a close, the RTA econometric forecast suggested that, if the U.S. economy remained strong, 2007 could see almost 21 million ties procured by railroads. But a decelerating economy and a slowdown in freight traffic, including coal shipments, have put a dent in this prediction.

At least for the near term, it looks like 2006 was the peak year of tie demand. But, even if this is the case, both the RTA surveys and model agree that the future has good things in store. Strong tie demand at stable levels appears to be at hand.

The 2007 Surveys & Forecasts

The Class 1 and short line market ▶

TABLE 2—Railway Tie Association Annual Survey*

**Estimated Crosstie Requirements • Class 1 Railroads
2007-2010 Inclusive**

AUTHORIZED CROSSTIES FOR 2007

Region	Total Track Miles	New Wood Crossties		Wood Relay Crossties	New Non-Wood Crossties			Switch Ties (Units)		Bridge Timbers Units
		Hardwood	Softwood		Concrete	Steel	Other	Wood	Other	
Eastern U.S.	51,695	5,736,700	0	0	19,600	60,000	0	261,000	735	64,000
Western U.S.	74,696	7,050,000	350,000	4,576	1,374,000	5,100	180,300	297,032	0	16,918
Canada & Canadian Owned U.S. Track	33,300	2,750,000	425,000	40,000	54,298	14,142	0	85,000	4,140	1,800
TOTAL	159,691	15,536,700	775,000	44,576	1,447,898	79,242	180,300	633,482	4,875	82,718

AUTHORIZED CROSSTIES FOR 2008

Region	Total Track Miles	New Wood Crossties		Wood Relay Crossties	New Non-Wood Crossties			Switch Ties (Units)		Bridge Timbers Units
		Hardwood	Softwood		Concrete	Steel	Other	Wood	Other	
Eastern U.S.	51,695	5,779,750	0	0	91,600	69,868	0	258,900	21,360	64,000
Western U.S.	74,696	7,275,000	250,000	10,615	1,355,000	5,000	201,425	330,067	0	17,000
Canada & Canadian Owned U.S. Track	33,300	2,600,000	240,000	40,000	51,000	3,500	0	85,000	2,000	1,800
TOTAL	159,691	15,654,750	490,000	50,615	1,497,600	78,368	201,425	673,967	23,360	82,800

AUTHORIZED CROSSTIES FOR 2009

Region	Total Track Miles	New Wood Crossties		Wood Relay Crossties	New Non-Wood Crossties			Switch Ties (Units)		Bridge Timbers Units
		Hardwood	Softwood		Concrete	Steel	Other	Wood	Other	
Eastern U.S.	51,695	5,764,500	0	0	49,000	70,000	0	254,100	10,920	64,000
Western U.S.	74,696	7,420,000	150,000	9,049	1,500,000	8,000	252,925	330,000	0	17,000
Canada & Canadian Owned U.S. Track	33,300	2,600,000	75,000	0	50,000	0	0	40,000	0	0
TOTAL	159,691	15,784,500	225,000	9,049	1,599,000	78,000	252,925	624,100	10,920	81,000

AUTHORIZED CROSSTIES FOR 2010

Region	Total Track Miles	New Wood Crossties		Wood Relay Crossties	New Non-Wood Crossties			Switch Ties (Units)		Bridge Timbers Units
		Hardwood	Softwood		Concrete	Steel	Other	Wood	Other	
Eastern U.S.	51,695	5,752,000	0	0	24,000	68,000	0	251,800	6,300	64,000
Western U.S.	74,696	7,860,000	50,000	4,333	1,500,000	11,274	304,150	350,000	0	17,000
Canada & Canadian Owned U.S. Track	33,300	2,600,000	200,000	40,000	51,000	3,500	0	85,000	2,000	1,800
TOTAL	159,691	16,212,000	250,000	44,333	1,575,000	82,774	304,150	686,800	8,300	82,800

*Eastern Railroads reporting - CSX Transportation and Norfolk Southern. Western Railroads reporting - Burlington Northern Santa Fe, Kansas City Southern Railway and Union Pacific. Canadian Railroads reporting - Canadian Pacific Railway (includes Soo Line) and CN/IC (includes GTW).

Volume of Wood Necessary To Produce Estimated Crosstie Requirements For Class 1 Railroads (000's omitted)

	Thousand Board Feet		
	2007	2008	2009
Crossties - U.S. & Canada	652,468	642,190	631,138
Switch Ties - U.S. & Canada	41,176	43,808	40,556
Bridge Timbers - U.S. & Canada	11,167	11,178	10,934
TOTAL BOARD FEET	704,811	697,176	682,628

surveys are exclusive RTA products designed to shed light on the next few years as it pertains to crosstie purchases. And, this year the numbers projected for 2007 are very similar to what was projected a year ago. In 2006, Class 1s (United States and Canada) projected that a total of 16,336,000 new wood crossties would be procured in 2007. Now, as of this August, the 2007 year-end totals projected are 16,311,000. Very little difference.

The look forward for 2008 sees 16,144,000 total demand for the same Class 1 railroads. A little less, but within 165,000 ties of 2007 numbers. In fact, all the way through 2010 the surveys show virtually steady-state in Class 1 tie demand of between 16 and 16.4 million.

The short line surveys also project virtual steady-state. In this year's snapshot of the short line industry, respondents said that annually 3.5 to 3.6 million ties will be procured industry-wide over the next 2.5 years.

Thus, the totals predicted by these buyers of ties, excluding other smaller market purchases by contractors and government entities, stay between

19.6 and 20.1 for the foreseeable future (*Table 2 and 3*).

If one were to speculate that other buyers of ties would tack on at least 300,000 ties, then the overall market could easily be 19.9 to 20.4 million ties through 2010. Very robust and very steady.

How does this compare to other information such as the RTA econometric forecast?

Based on revised economic indicators and new data on railroad traffic, the RTA model has seen downward revisions throughout 2007. Using the latest data available, the projections for 2007 to 2010 "all markets" range between 20.3-20.9 million ties (*Table 1*). Again quite robust and steady.

The computer model forecast is consistently higher on the smaller market purchases than the short line surveys. Although the numbers are different, both may be accurate. One reason is that the computer model is projecting the entire "smaller market" purchases, not just short line purchases, as is the case with the short line surveys.

And, the other discrepancy may come

from the survey itself. Whereas, RTA receives consistently great response from short lines, thanks in large part to the fact that the ASLRRA helps enormously in the data collection process, the fact is that the response is not as complete as the Class 1 survey.

On one hand, all seven Class 1 roads respond to the survey efforts each year, but short line response changes each year. Sometimes the results are projected from as much as 60 percent of track mileage represented by the responding companies, and sometimes it's less than 40 percent. Thus, the variability in response can lead to different projections from year to year.

Given these two issues, it isn't surprising there would be some differences between the survey and the forecast model. Is there a way to either confirm or at least make an educated guess as to which number planners should use?

That's where the monthly RTA statistics come in. A look at (*Table 4*) reveals that through July the rolling 12-month total of tie purchases is tracking along at 20.3 million ties. This argues that the surveys may be projecting too few ties

TABLE 3—The Railway Tie Association* 2007 Regional & Short Line Crosstie Survey

<u>Tie Categories</u>	<u>2006 Usage</u>	<u>2007 Projected</u>	<u>2008 Projected</u>	<u>2009 Projected</u>
New 7" Ties	1,191,966	1,233,758	1,610,803	1,646,066
New 6" Ties	821,753	757,008	768,618	764,671
Sub-Total New	2,013,718	1,990,766	2,379,421	2,410,737
Relay 7" Ties	250,192	285,553	219,934	172,500
Relay 6" Ties	37,658	27,947	15,197	15,197
Sub-Total Relay	287,850	313,500	235,132	187,697
Industrial 7" Ties	627,153	849,124	666,711	632,368
Industrial 6" Ties	624,789	384,613	371,555	382,237
Sub-Total Industrial	1,251,942	1,233,737	1,038,266	1,014,605
Grand Total All Wood Ties	3,553,511	3,538,003	3,652,818	3,613,039
Switch Ties	108,466	111,779	113,529	108,921
Bridge Timbers	52,100	50,434	48,361	50,684

***In cooperation with the American Short Line and Regional Railroad Association.**
 Note: Calculation based on survey responses from 115 roads, representing approximately 37% of operating trackage.

The Railway Tie Association wishes to thank the American Short Line and Regional Railroad Association for its expertise and assistance in conducting the Short Line Survey used in developing the tables for this report.

in total and that the computer model is likely closer to the overall total that will be procured in 2007.

Something Else

The most interesting thing not revealed in the actual numbers—and only uncovered by follow-up phone surveys of Class 1 roads—is that there may be a limiting factor in place that may inhibit growth in tie demand beyond 21 million ties.

Two roads reported that there was more capacity to purchase ties beyond their projected demand, but that getting “track time” to do more installations was a real constraint due to increasing traffic. Another road reported that their tie gangs were at capacity, and yet others reported employing every possible strategy to keep necessary maintenance ongoing to meet high traffic demands. One road in particular reported that employing unit trains to distribute ties and using the night time hours for maintenance were key strategies keeping them ahead of the maintenance curve.

Does this mean that there is a theoretical limit to tie demand based on these constraints? Is that limit 21 million ties?

The answer is an unequivocal “maybe.” On one hand there may indeed be a physical constraint that limits installations and thus purchases by some Class 1s right now. But, not every road reports being maxed out for track time or tie gang installation capacity. And, as an example, if one constraint is tie gang capacity, and putting together a new gang is impractical because it could not be optimally utilized throughout the year, contractors could be employed to do some maintenance in a pinch. And that is just one of many strategies that railroads could choose to increase installations in a constrained environment.

Also, short lines are certainly not at capacity as it relates to maintenance. If the short line tax credit is extended for a few years and the revenue is present, tie suppliers could well be the beneficiaries of yet even higher demand.

Then there is the question of the U.S. and North American economies. Consumer spending, the housing market and the other drivers of the nation’s Gross Domestic Product will certainly play a role in the expansion of railroads and the freight traffic that will ride on the rails. Even under some

of the most pessimistic scenarios, freight traffic within the United States is forecasted to continue to grow. Thus, railroads will likely find even greater demand for their services. As it stands now, that would mean building new capacity.

For the time being, we know that the market can be as large as 20.7 million ties as evidenced by what happened in 2006.

Will it reach 21 million ties any time soon? That is yet to be seen, but both the surveys and the RTA forecast would suggest that, while we wait for that time, tie suppliers should reap the benefit of a very steady market near the 20.2 to 20.4 million mark. That’s a very high mark indeed, and one that should leave tie producers feeling very good about the future. § ▶

TABLE 4 –Tie Production, Purchases & Inventory (000's omitted)

Year	Month	Tie Production	Annual Production Rolling Total	Tie Inventory	Change In Inventory	Tie Purchases	Annual Purchases Rolling Total	Inventory To Sales Ratio
2003	Jan	1,288	17,309	13,782	376	912	16,585	0.83
	Feb	1,143	17,054	13,748	(34)	1,177	16,424	0.84
	Mar	1,255	16,997	13,544	(204)	1,459	16,213	0.84
	Apr	1,525	17,152	13,354	(190)	1,714	16,280	0.82
	May	1,439	17,232	13,148	(206)	1,645	16,080	0.82
	Jun	1,365	17,197	13,037	(111)	1,476	15,894	0.82
	Jul	1,577	17,242	13,136	98	1,479	15,856	0.83
	Aug	1,587	17,181	12,997	(139)	1,725	15,786	0.82
	Sep	1,651	17,221	13,020	23	1,628	16,207	0.80
	Oct	1,725	17,053	13,403	383	1,342	16,577	0.81
	Nov	1,378	17,061	13,658	255	1,124	16,577	0.82
	Dec	1,280	17,214	13,426	(232)	1,512	17,194	0.78
2004	Jan	1,615	17,541	14,022	596	1,019	17,301	0.81
	Feb	1,470	17,868	14,129	107	1,363	17,487	0.81
	Mar	1,927	18,540	14,140	12	1,916	17,943	0.79
	Apr	1,583	18,598	14,254	113	1,470	17,699	0.81
	May	1,497	18,656	14,284	30	1,467	17,521	0.82
	Jun	1,876	19,166	14,384	100	1,776	17,820	0.81
	Jul	1,532	19,121	14,343	(41)	1,573	17,914	0.80
	Aug	1,656	19,190	14,243	(100)	1,755	17,943	0.79
	Sep	1,789	19,328	14,342	99	1,691	18,006	0.80
	Oct	1,655	19,258	14,728	386	1,269	17,933	0.82
	Nov	1,373	19,253	14,865	136	1,236	18,046	0.82
	Dec	1,366	19,338	15,015	150	1,216	17,749	0.85
2005	Jan	1,273	18,996	14,898	(117)	1,390	18,120	0.82
	Feb	1,270	18,797	14,707	(191)	1,461	18,218	0.81
	Mar	1,451	18,320	14,410	(297)	1,748	18,051	0.80
	Apr	1,421	18,158	13,951	(459)	1,880	18,460	0.76
	May	1,502	18,162	13,984	33	1,469	18,462	0.76
	Jun	1,793	18,079	13,988	5	1,788	18,475	0.76
	Jul	1,590	18,137	13,927	(62)	1,651	18,553	0.75
	Aug	1,860	18,341	14,143	216	1,643	18,441	0.77
	Sep	1,882	18,434	14,699	556	1,326	18,077	0.81
	Oct	1,774	18,553	14,691	(8)	1,782	18,590	0.79
	Nov	1,786	18,966	14,904	213	1,572	18,926	0.79
	Dec	1,661	19,261	15,531	626	1,035	18,745	0.83
2006	Jan	1,734	19,721	15,747	217	1,517	18,872	0.83
	Feb	1,674	20,125	15,890	142	1,532	18,943	0.84
	Mar	2,128	20,803	16,178	288	1,840	19,035	0.85
	Apr	1,744	21,126	15,981	(197)	1,941	19,097	0.84
	May	2,405	22,030	15,711	(269)	2,674	20,302	0.77
	Jun	1,981	22,218	15,573	(139)	2,120	20,633	0.75
	Jul	1,609	22,237	15,606	33	1,577	20,559	0.76
	Aug	2,169	22,547	16,002	396	1,773	20,688	0.77
	Sep	1,967	22,632	16,317	316	1,651	21,014	0.78
	Oct	1,724	22,583	16,586	268	1,456	20,688	0.80
	Nov	1,713	22,510	16,654	68	1,645	20,761	0.80
	Dec	1,599	22,449	16,646	(7)	1,606	21,333	0.78
2007	Jan	1,609	22,324	16,367	(280)	1,889	21,705	0.75
	Feb	1,426	22,076	15,936	(430)	1,857	22,029	0.72
	Mar	1,768	21,716	16,537	601	1,167	21,356	0.77
	Apr	1,633	21,604	16,280	(257)	1,890	21,305	0.76
	May	1,863	21,063	16,074	(207)	2,070	20,700	0.78
	Jun	1,942	21,023	16,745	671	1,271	19,851	0.84
	Jul	1,611	21,025	16,270	(475)	2,086	20,361	0.80

NOTE: The information in this chart is calculated from reported production and inventory numbers by RTA members. This represents more than 95% of the U.S. and Canadian market for wood crossties.

AAR Class 1 Statistics For 2006

2006 was a banner year for U.S. installations of crossties. Compared to 2005, wood crosstie installations increased by more than 1 million ties in track owned and operated in the U.S. by Class 1 railroads. Replacement rates increased in both the Eastern and Western regions as railroad operating revenues reached new highs. Alternative tie materials also increased slightly. This includes increases in concrete "maintenance" ties and modest increases in the use of both steel and composite ties. Interestingly, new construction concrete ties were down by 10 percent from 2005. Switch and bridge maintenance ties increased by approximately 100,000 board feet.

RTA wishes to thank AAR's Clyde Crimmel for his assistance in preparing the tables presented here.

District & Railroad	Treated wooden crossties laid in addition (number)		New crossties laid in replacement other than wooden (number) (12)	Switch and bridge ties laid in addition (board ft.) (13)
	New Ties (10)	Second-hand ties (11)		
Eastern District				
CSX	44,487	169	(c) 571	24,356
Grand Trunk Western (CN)	0	0	0	0
Norfolk Southern	66,346	0	0	6,557
Total Eastern District	110,833	169	571	30,913
Western District				
Burlington Northern Santa Fe	47,726	0	(c) 271,288	12,780
Kansas City Southern	8,522	0	0	0
Soo Line (CPR)	0	0	0	0
Union Pacific	157,496	8,960	(c) 182,594	(f) 277,946
Total Western District	213,744	8,960	453,882	290,726
Total United States	324,577	9,129	454,453	321,639

Source: R-1 Annual Reports to the Surface Transportation Board

(c) Concrete ties. (f) Includes 160 concrete ties which were assigned 65 board feet per tie.

TABLE 6—Crossties Laid In Replacement Statistics For Class 1 Railroads In The U.S. In 2006

District & Railroad	Treated wooden crossties laid in replacement (#)		New crossties laid in replacement other than wooden (#)	Track maintained by reporting railroad		Crossties per mile (1967) (6)	New crosstie replacement avg.		Switch and bridge ties laid in addition (board ft.) (9)
	New Ties (1)	Second-Hand Ties (2)		Miles occupied by crossties (a) (4)	Total crossties (b) (5)		% renewal to all ties (7)	# laid per mile (8)	
Eastern District									
CSX	3,287,673	8,139	(c) 1,701	30,595	91,417,860	2,988	3.60%	108	6,963,607
Grand Trunk Corp. (CN)	989,237	0	0	10,196	32,168,380	3,155	3.08%	97	1,708,137
Norfolk Southern	2,597,463	203,133	0	30,426	93,590,376	3,076	2.78%	85	8,796,519
Total Eastern District	6,874,373	211,272	1,701	71,217	217,176,616	3,050	3.17%	97	17,468,263
Western District									
Burlington Northern Santa Fe	2,523,970	0	(c) 114,170	39,778	123,112,910	3,095	2.14%	66	3,670,570
Kansas City Southern	460,433	0	0	3,919	12,536,881	3,199	3.67%	117	160,994
Soo Line (CPR)	225,283	0	0	2,557	7,719,583	3,019	2.92%	88	565,518
Union Pacific	3,607,930	66,806	(d) 615,731	44,091	131,391,180	2,980	3.21%	96	(e) 6,512,710
Total Western District	6,817,616	66,806	729,901	90,345	274,760,554	3,041	2.75%	84	10,909,792
Total United States	13,691,989	278,078	731,602	161,562	491,937,170	3,045	2.93%	89	28,378,055

29,548 second-hand, other-than-wooden ties, not shown on this page, were laid in replacement in 2006.

Source: R-1 Annual Reports to the Surface Transportation Board

(a) Total mileage operated at the end of year, excluding mileage under trackage rights. (b) Based on crossties per mile of track in 1967, the last year reported. (c) Concrete ties. (d) 487,719 concrete ties, and 128,012 non-wooden-non-concrete ties. (e) Includes 35 steel switch ties and 126 concrete switch ties, all assigned 65 board feet per tie.