Crosstie Forecast Changes:

Looking Up For 2014 & 2015

By Fred Norrell

RTA's forecast of new wood tie purchases is essentially unchanged for the current year, but has been revised upward for the years 2014 and 2015. Two significant changes have been incorporated into the forecast model: first, the history of real GDP has been re-estimated; second, the equation for coal shipments has been bypassed, as explained below.

GDP Revisions

Every few years, the Bureau of Economic Analysis re-estimates GDP and related descriptive statistics. The latest revisions go back as far as 1929. Since real GDP is one of the major drivers in RTA's forecast model, equations were re-estimated, and this flows through to the bottom line: ties purchased.

Coal Shipments

The second change to RTA's forecast model has to do with coal shipments. These feed into freight movements, which in turn feed into ties purchased. Past versions of RTA's forecast model predicted coal shipments based on GDP and oil prices; as those prices fell (and a time lag is involved) coal experienced greater competition, and coal shipments fell. However, the energy market has changed dramatically: new supplies of natural gas are exerting pressure on oil prices and on coal. U.S. coal production peaked in 2008; the U.S. Department of Energy predicts coal production will fall, and by 2015 will be about 17 percent lower than this 2008 peak. RTA's coal shipment equation did not reflect changes of this magnitude, and has not been used in the current forecast. Rather, coal shipments are assumed to fall, on a percentage basis, in line with coal production.

Tie Purchases Forecast

With the two major changes cited above, along with a number of minor model adjustments, the tie forecast is presented. ■

Forecast Summary

New Wood Crossties (in thousands)

Year approx.	Real GDP	Class 1 Purchases	Small Market Purchases	Total Purchases	Pct.
2008	-0.3%	16,761	3,907	20,668	0.2%
2009	-2.8%	16,216	3,432	19,648	-4.9%
2010	2.5%	16,379	3,200	19,579	-0.4%
2011	1.8%	16,525	5,363	21,888	11.8%
2012	2.8%	16,968	6,054	23,023	5.2%
2013	2.7%	17,112	5,754	22,865	-0.7%
2014	3.1%	17,339	6,027	23,366	2.2%
2015	2.9%	17,569	6,209	23,778	1.8%

A Tale Of Two Realities

Market Forces Collide, Conflict, Search For Equilibration

By Jim Gauntt

For more than two decades, the September/October issue of *Crossties* has published exclusive survey data of the railroad industry and an update on trends shaping the marketplace. This year's analyses will not stray from this norm but will reveal divergent realities that have seldom been seen in the modern era of crosstie supply and demand.

In order to establish some cohesion for the tale it will be presented in three parts—historical tie usage, future demand (based on surveys and econometrics), and supply-side dynamics.

History Of Use: Class 1 Railroads, Short Lines & Smaller Markets

Class 1 tie usage, along with the entire market demand for crossties, has been on an upward trend for several years. 2012 was no exception to this rule.

Reviewing 2011 R-1 actual installation history, as published in the 2012 Sept/Oct issue, readers will note that Class 1 railroads, operating in the United States, installed 14.15 million new wood ties in maintenance applications and 223,000 in new construction.

In 2012 (see tables 1 and 2) Class 1s expanded from 2011 installations by nearly 1 million wood ties. That's a full 7 percent increase in installation activity in one year.

According to RTA purchases data (reported monthly at www.rta.org), the rest of the market followed along with this trend, yielding an overall demand increase from 2011 to 2012 of 1.4 million ties total—an increase of 6.4 percent from 21.7 million ties in 2011 to 23.1 million in 2012.

Overall conditions in the U.S. economy improved in 2012 and the short line tax credit was in effect, so it makes sense that this increase in freight railroad track maintenance and construction would improve as well. However, the railroads certainly showed more vibrant activity than many U.S. economic sectors with this much larger-than-expected demand surge in such a short period of time.

Going into 2013, tie suppliers were poised for additional growth in railroad activity. RTA's January 2013 econometric tie demand model was clearly as optimistic predicting a 2.7 percent increase in purchases forecast for the year.

Since then, however, the U.S. economy has hit headwinds for a variety of reasons. This and other factors, such as slowed coal shipments, have impacted RTA forecasts with each subsequent report reflecting slightly lower demand for 2013 than the original forecast.

The updated 2013 forecast (see article above) calls for purchases of 22.9 million ➤

TABLE 1—For Calendar Year 2012
Crossties Laid In Addition Statistics For Class 1 Railroads In The U.S.

District & Railroad	Treated wooden crossties laid in addition (number) New Ties (10)	Treated wooden crossties laid in addition (number) Second-hand ties (11)	New crossties laid in replacement other than wooden (number) (12)	Switch and bridge ties laid in addition (board ft.) (13)
Eastern District				
CSX	38,245	0	3,450(c)	216,002
Grand Trunk Western (CN)	0	0	0	0
Norfolk Southern	21,854	0	17,923 (s)	40,551
Total Eastern District	60,099	0	21,373	256,553
Western District				
Burlington Northern Santa Fe	31,945	0	99,790 (c)	212,120
Kansas City Southern	31,006	0	0	36,776
Soo Line (CPR)	43,408	0	0	32,556
Union Pacific	156,815	0	224,748 (c)	544,309 (d)
Total Western District	263,174	0	324,538	825,761
Total United States	**323,273**	**0**	**345,911**	**1,082,314**

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

Footnotes: (c) Concrete ties (d) Includes 2,394 concrete ties, all assigned 65 board feet per tie. (s) Steel ties

ties. This is a mere 0.7 percent reduction from 2012 highs, yet not what tie suppliers had so optimistically anticipated earlier in the year.

Interestingly, 2013 Class 1 demand appears to be slightly ahead of 2012 (0.8 percent), but the rest of the market, short lines and contractors included, may contract by as much as 5 percent.

And The Survey Reveals. . . .

RTA's exclusive surveys of the railroad industry reveal that railroads themselves have become more conservative in their outlook. In mid-2012, Class 1s projected they would require 17.7 million new hardwood and softwood ties in 2013 for installation in the U.S. and Canada.

By mid-2013, that expectation was down to 16.7 million for 2013. Interestingly, these roads do expect a rebound to 17.6 million new wood tie demand for U.S. and Canada in 2014. The RTA forecast is generally in agreement for 2014 with wood tie demand estimated to increase to 17.3 million.

All of this, of course, requires economic conditions for 2014 that will be more robust than 2013. Economy-related ➤

TABLE 2—Crossties Laid In Replacement Statistics For Class 1 Railroads In The U.S. In 2012

District & Railroad	Treated wooden crossties laid in replacement (#) New Ties (1)	Treated wooden crossties laid in replacement (#) Second-Hand Ties (2)	New crossties laid in replacement other than wooden (#) (3)	Track maintained by reporting railroad Miles occupied by crossties (a) (4)	Track maintained by reporting railroad Total crossties (b) (5)	Crossties per mile (1967) (6)	New crosstie replacement avg. % renewal to all ties (7)	New crosstie replacement avg. # laid per mile (8)	Switch and bridge ties laid in addition (board ft.) (9)
Eastern District									
CSX	3,403,379	0	3,686 (c)	30,027	89,720,676	2,988	3.80%	113	11,629,635
Grand Trunk Corp. (CN)	790,652	0	660 (c)	9,638	30,407,890	3,155	2.60%	82	2,063,588
Norfolk Southern	2,655,827	362,169	13,142 (d1)	29,216	89,868,416	3,076	2.97%	91	9,765,929
Total Eastern District	**6,849,858**	**362,169**	**17,488**	**68,881**	**209,996,982**	**3,049**	**3.27%**	**100**	**23,459,152**
Western District									
Burlington Northern Santa Fe	3,535,946	0	117,002 (c)	40,126	124,189,970	3,095	2.94%	91	6,779,520
Kansas City Southern	570,214	0	0	4,016	12,847,184	3,199	4.44%	142	215,621
Soo Line (CPR)	248,623	0	0	5,648	17,051,312	3,019	1.46%	44	537,033
Union Pacific	3,609,080	97,085	445,192 (d2)	43,141	128,560,180	2,980	3.15%	94	7,362,757 (e)
Total Western District	**7,963,863**	**97,085**	**562,194**	**92,931**	**282,648,646**	**3,041**	**3.02%**	**92**	**14,894,931**
Total United States	**14,813,721**	**459,254**	**579,682**	**161,812**	**492,645,628**	**3,045**	**3.12%**	**95**	**38,354,083**

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

General Notes

Zero Second-Hand Other-Than-Wooden ties, not shown in the table above, were laid in replacement in 2012.

Footnotes (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 (d1) No concrete ties and 13,142 non-wooden-non-concrete ties. (d2) 420,562 concrete ties and 24,630 non-wooden-non-concrete ties. (e) Includes 252 concrete or steel switch ties, all assigned 65 board feet per tie.

constraints that could appear, either domestically or internationally, would erode those prognoses.

Compare the survey optimism expressed for 2014 in the Class 1 world to short line railroads and one sees a similar pattern.

Short lines responding to the 2012 survey expected 2013 would see a 3.5 million tie demand for that market. By mid-year 2013, that anticipated demand for the year was down to 3.4 million—roughly a 3 percent reduction. Yet, unlike last year, the prediction for 2014 is upbeat with a rebound to 3.5 million ties. Not quite as optimistic as the Class 1s, but optimistic nonetheless.

What could go wrong other than economic bumps in the road?

Hold Your Horses

Oh, yeah—supply. That could be an interesting question mark for the rest of 2013 and the next year or two. Where is tie supply headed?

At this juncture, it is actually a larger question mark than the industry has seen in quite some time. With current YTD (thru July 2013) tie production numbers down a whopping 19.8 percent, will tie suppliers be able to keep up going forward?

Some tie producers are unsure, at least for the next 18-20 months. Recent marketplace price increases established by the Class 1 railroads may help stem the tide, but the big question is whether production will rebound.

The following article on supply (pg. 12)

TABLE 3—The Railway Tie Association* 2012 Short Line Crosstie Survey

Tie Categories	2012 Usage	2013 Projected	2014 Projected	2015 Projected
New 6" & 7" Ties	1,172,428	1,391,461	1,423,864	1,396,735
Relay 6" & 7" Ties	235,174	280,681	290,075	271,393
Grand Total All Wood Ties	**1,407,602**	**1,672,142**	**1,713,939**	**1,668,128**
Switch Ties	28,384	34,184	33,207	33,961
Bridge Timbers	14,125	22,950	36,336	26,575
Concrete Ties	21,424	5,620	1,000	1,000
Steel Ties	400	2,424	400	400
Composite/Plastic Ties	200	0	1,700	0

	2013	2012	2011	2010	2009
Track Miles Reporting	25,391	18,217	21,116	26,696	15,116
Total Track Miles	**51,584**	**51,584**	**51,584**	**50,859**	**50,859**
% Reporting	49.22%	35.3%	40.9%	52.5%	30%
Total Roads Reported	192	157	185	191	117
Total Short lines	**572**	**572**	**572**	**572**	**572**
% Reporting	33.57%	27.4%	32.3%	33.4%	20.5%

***In cooperation with the American Short Line and Regional Railroad Association.**

Note: Calculation based on Survey responses from 192 roads representing 49% of operating trackage.

TABLE 4—Railway Tie Association Annual Survey*

Estimated Crosstie Requirements • Class 1 Railroads
2011-2013 Inclusive

Authorized Crossties for 2013

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.	66,329	5,525,000	0	10,000	30,000	20,000	0	235,000	0	44,000
Western U.S.	86,153	7,424,638	800,793	65,000	500,000	15,000	55,000	330,000	125	95,000
Canada & Canadian Owned U.S. Track	37,000	2,880,000	80,000	35,000	56,000	1,200	0	73,000	800	28,000
TOTAL	**189,482**	**15,829,638**	**800,793**	**110,000**	**586,000**	**36,200**	**55,000**	**638,000**	**925**	**167,000**

Authorized Crossties for 2014

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.	66,329	5,800,000	0	10,000	30,000	20,000	0	235,000	0	44,000
Western U.S.	86,153	7,625,000	1,075,000	65,000	550,000	15,000	5,000	330,000	125	95,000
Canada & Canadian Owned U.S. Track	37,000	3,050,000	90,000	50,000	50,000	2,500	0	80,000	1,500	24,154
TOTAL	**189,482**	**16,475,000**	**1,165,000**	**125,000**	**630,000**	**37,500**	**5,000**	**645,000**	**1,625**	**163,154**

Authorized Crossties for 2015

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.	66,329	5,800,000	0	10,000	30,000	20,000	0	235,000	0	44,000
Western U.S.	86,153	7,625,000	1,075,000	65,000	550,000	15,000	5,000	330,000	125	95,000
Canada & Canadian Owned U.S. Track	37,000	3,050,000	90,000	50,000	50,000	2,500	0	80,000	1,500	24,154
TOTAL	**189,482**	**16,475,000**	**1,165,000**	**125,000**	**630,000**	**37,500**	**5,000**	**645,000**	**1,625**	**163,154**

Notes: From CP: 2013 installations were slightly higher than expected due to a Corporate initiative to improve track speeds while maintaining safe track. This trend is expected to continue. From CN: Estimates for 2014-2016 extremely rough. We do not have any forecast on requirements at this time. From UP: Concrete tie warranty ties received/owed are not included in the estimated purchase quantities above.

goes into more detail on the dynamics of the tie marketplace, but it does not change the bottom line. Supply could very well be the most important limiting factor in fulfilling the current demand forecasts for 2014 and 2015.

When these situations occur, treated tie suppliers often find themselves in the unenviable position of being asked to provide ties faster than they can air-dry them to treat. When that occurs, even if solid sawn tie production rebounds and treaters stack for air-drying immediately, if railroads can't wait, more ties must be Boulton seasoned. In the Boulton process, ties are not air-dried in stacks but are placed in the treating cylinder "green." Preservative is then introduced to the cylinder and heated to a temperature hot enough to boil off the water before the preservative is pressed into the wood.

Supply could very well be the most important limiting factor in fulfilling the current demand forecasts for 2014 and 2015.

While this can certainly produce a quality tie, Boultonizing takes up to 100 percent more cylinder time, lots more energy, and additional labor costs to treat the same number of ties. This adds additional and different types of constraint to the capacity and costs of producers. A shortage on the green tie side of the equation can rapidly degrade the treating capacity side, making a rebound to equilibrium in supply and demand a much longer process.

Plus, the money for increasing marketplace prices for ties is finite. Obviously, railroads can't create new maintenance and construction dollars out of thin air. So, budgets may be impacted and the number of ties purchased reduced or alternatives considered.

None of these outcomes is optimal, but may now be on the horizon.

A long time sawmill owner/RTA board member once said, however, "as soon as you say exactly what is going to happen in the supply of ties for a given market situation, something comes along and makes a fool out-a-ya."

So, far be it from this article to forecast what "will" happen in tie supply now that some price increases have been realized in the marketplace. Yet, an analysis of tie supply for the next 18-24 months would suggest that in an improving housing market and with a marketplace hungry for low-grade wood fiber for crane mats, board road and pellets/wood biomass fuels, reaching balance in the hardwood tie market anytime soon will face some tough sledding.

The tale of two realities thus begins. One reality is a marketplace that wants more ties. The other is a supply situation that may very well struggle to keep pace for an extended time. With apologies to Dickens, the answer to the question "is it the best of times, or is it the worst of times?" probably depends on which side of the tie supply equation the scenarios are viewed. If there does occur some despair in tie supply this winter, there at least may be hope for balance in the nearest spring. ■