



# 2015 NORTH CAROLINA INCIDENT ANALYSIS

Detailed County by County Data Analysis Through Use of  
NC 811 Ticket Data and DIRT Reported Incidents

## ABSTRACT

Tracking reported incident data by county, work type, “failure to call” root cause, membership impact and education efforts. This report uses the Supermega Spreadsheet to identify counties that have improved using damages per 1000 transmissions as a benchmark

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***The author encourages readers to draw their own conclusions from the data presented. This report is meant to be a starting place for conversation about effective measures that can be taken to reduce overall damages.***



## NORTH CAROLINA 2015 INCIDENT ANALYSIS Overview and Results Analysis

### OVERVIEW

The Supermega™ Spreadsheet (SMS) was developed in 2013 to compare damage information by county using a variety of variables, including positive response codes, first time caller survey data and percentages, “failure to call” root cause and a wide range of education activities. The purpose of the sheet is to identify counties in which “incidents per thousand” tickets and transmissions have increased or decreased from year to year.

In October, 2014 the law changed and included a requirement for excavators to notify NC 811 of damages. Prior to this change, NC 811 had been accumulating voluntary damage reports from a variety of members and creating damage tickets when notified. Because of the fact that the mandatory notification happened in the last quarter of 2014, the 2015 data will serve as the baseline for future reports and will provide the best “apples to apples” comparisons.

*Because stakeholders can also report “near miss” situations we continue to report these as incidents vs. damages when reporting DIRT outcomes. It should be noted, however, that the majority of data present in this report reflects actual damages and not near miss incidents. Only ½ of one percent of the incidents reported were not damages.*

Was Facility Damaged?	Events	% of Grand Total
Y	8448	99.48%
N	44	0.52%
Grand Total	8492	100.00%



NC811, Year 2015: 8,492 Damage Events in 98 Counties

Due to the contributions received voluntarily in 2014, the data comparing 2014 to 2015 still has meaning.

All damage data included in this report was also supplied to the national CGA DIRT system.

### WHAT MAKES NC UNIQUE?

#### Multi-stakeholder data contribution

North Carolina has been recognized as one of the “sweet sixteen” states that contributes data to DIRT. This is due to the fact that historically NC has been able to secure a good cross section of stakeholders, willingly supplying damage information to the virtual private DIRT.

## County-specific data

North Carolina has been able to connect the dots between all data points at a county level. This includes ticket information but also the associated positive response information, education and marketing outreach and first time caller surveys.

## Recently enacted legislation (2014)

The legislation that went into effect on October 1, 2014 added many components that enhanced public safety including mandatory membership, mandatory positive response and enforcement. The data from the SMS gives us a glimpse into the impact of those changes on the damages.

The new law change in 2014 also made it a requirement to report damages by the excavator. This has resulted in a higher amount of reported damages from excavators at the time of the damage. Our spreadsheet includes all of the damages reported directly to us and those shared with NC 811 through the DIRT data grant method.

## Intense growth in excavation

A final element that makes NC unique is the incredible increase in volume experienced in the past two years. We have taken to calling it a “new normal” as counties with intensive new telecommunications activity have actually doubled in locate ticket volume in some cases. This increased pressure on the process provides a great backdrop as we look into how we can bring down the numbers of damages in the face of the new volume.

## WHAT IS CONTAINED IN THE SUPERMEGA SPREADSHEET?

The SMS contains raw data from a variety of sources. Data that could be gathered on a per county basis that was deemed as potentially relevant was included. There are 100 counties in North Carolina and there are 124 data cells populated for the each of the counties. **This results in 12,400 cells of data.** As was stated in previous SMS analysis, the intent is to look for patterns in the data itself without making presumptions about causation.

### Color coded column headers

Column headers have been color coded to group like categories and to make it easier to focus on a particular area.

The first 9 columns are colored green and relate to raw numbers of members, population and ticket and transmission volumes. These also calculate the rate of change in volume by county.

The next 34 columns are colored blue and these are specific to positive response codes received for the tickets by county.

Two light green columns follow addressing Remote Ticket Entry (RTE) percentages and Update Lite percentages.

The next 7 columns, colored red, deal specifically with the incidents themselves. This means incidents per 1000 tickets, incidents per 1000 transmission, rate of change between the comparative years and the “failure to call” percentage and rate of change. Also included are the [Code 70 with no 999](#) and the actual 999 code percentage. These are included in this section because they reflect high opportunity for risk. The 999 code is added by the system when an operator has failed to provide positive response within the 3 full business days allowed.

Two light purple columns follow, addressing homeowner and first time caller percentages.

The next 50 columns deal with the first time caller survey data. If the system has determined that a person has not called within the past 6 months, the caller is considered a first time caller. When this occurs the CSR is prompted to ask

the caller how they knew to contact NC 811. As shown below, this method has resulted in almost 66,000 data points. The yellow section breaks down the results by county to track where a statistically higher percentage of people may be responding to a particular program or promotion technique.

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Show 25 entries Search:

Surveys for 01/01/2015 through 12/31/2015

Category	Percent	Count
Just knew to call	32.17%	21217
Contractor or Locator	19.80%	13062
Utility Company	12.72%	8390
Word of Mouth	8.52%	5618
Website	6.65%	4385
Billboard	3.10%	2047
Phonebook	2.75%	1813
TV	2.57%	1693
Friend	2.54%	1676
Town Planning Department/Utility Commission/City Hall	1.86%	1229
Pedestal/Utility Box	1.33%	875
Neighbor	1.24%	818
Municipality	1.22%	804
Bumper stickers/Pamphlet	0.91%	602
Radio	0.62%	409
Lease Agreement HOA/Realtor	0.47%	311
Base Property	0.45%	295
Manual came w/Installation for fence/Lowes	0.44%	290
Fuel Tanks	0.31%	202
Newspaper	0.16%	107
Magazine	0.14%	94
Race Car	0.03%	19
Ingles	0.00%	1
Movie Theater	0.00%	2
Total	100%	65959

Showing 1 to 24 of 24 entries

First Previous 1 Next Last

Finally, the orange columns all deal with education efforts. These columns show the numbers of people in each county that were impacted in some way by the efforts of the liaisons. These efforts include the radio, billboard, tv, internet, UCC, home shows and PIPES Plus meetings.

Taken together these groupings allow sorting along multiple categories to identify trends, challenges and opportunities to reduce damages in counties that are experiencing increases.

### ROOT CAUSE

The only root cause the NC 811 and the SMS shine a light on is “failure to call” as this is the only element we can objectively report. Was a valid ticket called in for the location in advance of the incident? This question is answered by researching every incident location, regardless of whether the person reporting indicated they had a ticket or not. In some cases we found reported tickets were expired or not valid. Conversely we found situations where the person reporting a damage or incident indicated there was not a ticket but research revealed that there was actually a valid ticket at that time.

Because of the research done on this root cause, NC 811 is confident in the percentage of “failure to call” for the events that are known and reflected in this report. ***The report reflects a reduction in this root cause from 33.27% in 2014 to 24.7% in 2015.***

## MEMBERSHIP

The new law change in 2014 made it mandatory for all owners and operators to become members of NC 811. The required dates of membership were based on size and numbers of customers served. As of October 1, 2015 all medium sized members (defined as Operators with more than 25,000 customers or 500 miles of facilities) were active members of NC 811. The remaining small members and the NCDOT have until October 1 of 2016 to become members.

The SMS reflects that as of the end of 2015 there were 95 identified small operators who had yet to join. As of the time of this writing, member services and liaison activity have resulted in 19 more signing on with more coming in every month. While it is not NC 811's responsibility to find every operator, staff makes every attempt to educate the known operators of their responsibilities under the Act for membership compliance.

### WHAT'S NEW IN THE 2015 SUPERMEGA SHEET?

#### Tabs for facility types

In addition to the total damages by county, the 2015 report includes tabs to show the industry-specific facility damages. This allows the user to pinpoint particular counties with higher than average damages per thousand by a specific type and to compare that against the overall percentages.

#### Tab for national marketing efforts

This tab has been included to showcase the reach national programs, such as those conducted in participation with One Calls of America and the CGA, have in educating people in NC. These programs are broken out if we are unable to assign a specific county reach to the activity.

19	CATAWBA	22	0	100.00%	157078	16368	87595	0.91%	32383	36.97%	1	0.00%	3	0.00%	32011	36.54
20	CHATHAM	38	0	100.00%	69170	17532	97462	1.01%	26032	26.71%	0	0.00%	59	0.06%	34367	35.26

Ready

## ANALYSIS

Several factors influence the reported number of damages in the state in 2015. An increase in excavation activity is an obvious reason for the increase in raw numbers. 2015 saw an increase of 18.3% overall tickets being requested over 2014. The largest impact in 2015 has been the installation of fiber, particularly in the Mecklenburg and Wake County markets.

Interestingly the damage ratio has remained relatively stable between 2014 and 2015 as illustrated below.

	2014 reported incidents	2014 Incidents per 1000 transmissions	2014 incidents per 1000 tickets	2014 % failure to call	% failure to call change rate	% no
	6845	0.88	5.27	33.27%	-0.83%	
	2015 reported incidents	2015 Incidents per 1000 transmissions	2015 incidents per 1000 tickets	2015 % failure to call	% failure to call change rate	% no
	8492	0.89	5.54	24.7%	-8.6%	

*Another interesting point is that between 2013 and 2014 the "failure to call" percentage fell less than one percentage point. As previously stated, in 2015 the rate dropped 8.6 percentage points.*

## Top 10 Counties for Ticket Volume in 2015

County	Number of active members	Number of identified potential members	Census population data	2015 Ticket Volume	2015 Transmissions	2015 vs 2014 ticket increase	2015 vs 2014 ticket percentage increase	% of 2015 Total Tickets	% of 2015 total transmissions
<b>Totals</b>	<b>2108</b>	<b>95</b>	<b>9980919</b>	<b>1536803</b>	<b>9606233</b>	<b>237276</b>	<b>18.26%</b>	<b>100.00%</b>	<b>100.00%</b>
WAKE	56	1	987572	219058	1429224	61295	38.9%	14.3%	14.88%
MECKLENBURG	50	2	1008208	210175	1648663	40364	23.8%	13.7%	17.16%
GUILFORD	41	2	516589	86519	578448	18818	27.8%	5.6%	6.02%
FORSYTH	35	2	365546	61227	380599	16041	35.5%	4.0%	3.96%
DURHAM	39	1	296297	54246	364612	18352	51.1%	3.5%	3.80%
CUMBERLAND	34	1	337415	43404	276466	-4886	-10.1%	2.8%	2.88%
UNION	25	1	212945	42731	288352	7097	19.9%	2.8%	3.00%
NEW HANOVER	31	1	217606	38925	279646	3706	10.5%	2.5%	2.91%
CABARRUS	35	1	189499	37698	238388	4564	13.8%	2.5%	2.48%
BUNCOMBE	33	3	251621	35069	263840	2879	8.9%	2.3%	2.75%

As previously stated, Wake County and Mecklenburg Counties saw the highest increases in raw tickets being created. In terms of numbers, Wake and Mecklenburg saw an increase of 61,295 and 40,364 respectively.

These top ten counties in volume make up 54% of the overall ticket volume. And in fact Wake and Mecklenburg alone make up roughly 1/3 of the overall volume (32.04%).

### DAMAGE RATES FOR TOP 10 VOLUME COUNTIES

County	2015 Ticket Volume	2015 Transmissions	2015 vs 2014 ticket increase	2015 vs 2014 ticket percentage increase	2014 reported incidents	2015 reported incidents	2014 incidents per 1000 transmissions	2014 incidents per 1000 tickets	2015 incidents per 1000 transmissions	2015 incidents per 1000 tickets	2014 - 2015 incidents per 1000 tickets rate of change	2014 - 2015 incidents per 1000 transmissions rate of change	2015 % failure to call	% failure to call change rate	%70- no 999	999
<b>Totals</b>	<b>1536803</b>	<b>9606233</b>	<b>237276</b>	<b>18.3%</b>	<b>6845</b>	<b>8492</b>	<b>0.88</b>	<b>5.27</b>	<b>0.89</b>	<b>5.54</b>	<b>0.27</b>	<b>0.01</b>	<b>24.7%</b>	<b>-8.6%</b>	6.71%	4.92%
WAKE	219058	1429224	61295	38.9%	902	1551	0.88	5.72	1.09	7.08	1.36	0.20	19.6%	-10.8%	10.59%	4.76%
MECKLENBURG	210175	1648663	40364	23.8%	1418	1687	1.14	8.35	1.02	8.03	-0.32	-0.12	27.3%	-7.8%	9.75%	4.61%
GUILFORD	86519	578448	18818	27.8%	455	541	1.12	6.72	0.94	6.25	-0.47	-0.18	23.1%	-5.0%	5.69%	3.22%
FORSYTH	61227	380599	16041	35.5%	305	344	1.20	6.75	0.90	5.62	-1.13	-0.30	23.8%	-4.4%	3.34%	2.95%
DURHAM	54246	364612	18352	51.1%	207	423	0.86	5.77	1.16	7.80	2.03	0.30	23.4%	-8.0%	7.46%	10.43%
CUMBERLAND	43404	276466	-4886	-10.1%	98	148	0.33	2.03	0.54	3.41	1.38	0.21	21.6%	-17.2%	4.86%	6.00%
UNION	42731	288352	7097	19.9%	210	379	0.91	5.89	1.31	8.87	2.98	0.41	24.0%	-7.4%	0.34%	3.00%
NEW HANOVER	38925	279646	3706	10.5%	188	119	0.72	5.34	0.43	3.06	-2.28	-0.30	31.1%	-6.7%	7.37%	7.81%
CABARRUS	37698	238388	4564	13.8%	158	180	0.74	4.77	0.76	4.77	0.01	0.01	27.8%	5.0%	1.77%	2.82%
BUNCOMBE	35069	263840	2879	8.9%	364	290	1.63	11.31	1.10	8.27	-3.04	-0.53	21.0%	-15.2%	1.13%	4.53%

### A few interesting notes from this data sort:

- 1) Although both Wake and Mecklenburg experienced ticket increases, Mecklenburg showed an overall reduction in in damages per 1000 tickets and transmissions while Wake showed an overall increase.
- 2) It should be noted that Wake had the highest increase in ticket volume of the 10 counties (38.9%) however Forsyth and Guilford also showed high increase percentages (35.5% and 27.8% respectively) and yet demonstrated a decrease in damages per 1000.
- 3) Wake also showed a below average "failure to call" root cause which suggests the higher number of damages were not necessarily a result of failing to call.
- 4) Of the top ten counties, Union County reported the highest increase in damages per 1000 tickets from 2014 to 2015 (up 2.98 damages per 1000)

### WORK PERFORMED WHEN DAMAGE OCCURRED

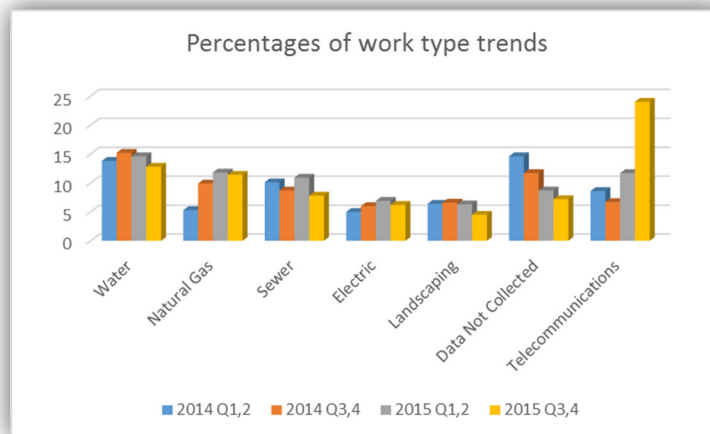
As stated earlier, ticket volume has been directly impacted by extensive fiber installation with work happening in Wake, Mecklenburg, Durham and Guilford Counties particularly. This work really began to pick up speed in the second half of 2015. Consequently, this has been reflected in the work type being performed when the damages occurred.

Q1 - Q2 2014 Damages			Q3 - Q4 2014 Damages		
Work Performed	Events	% of Grand Total	Work Performed	Events	% of Grand Total
Data Not Collected	444	14.58%	Water	577	15.18%
Water	420	13.79%	Data Not Collected	443	11.66%
Sewer	308	10.11%	Natural Gas	377	9.92%
Telecommunications	263	8.64%	Sewer	330	8.68%
Landscaping	194	6.37%	Telecommunications	253	6.66%
Natural Gas	161	5.29%	Landscaping	250	6.58%
Cable TV	159	5.22%	Electric	231	6.08%
Electric	152	4.99%	Cable TV	231	6.08%
Fencing	148	4.86%	Fencing	171	4.50%

Q1 - Q2 2015 Damages			Q3 - Q4 2015 Damages		
Work Performed	Events	% of Grand Total	Work Performed	Events	% of Grand Total
Water	520	14.55%	Telecommunications	1174	23.87%
Natural Gas	422	11.81%	Water	628	12.77%
Telecommunications	417	11.67%	Natural Gas	559	11.37%
Sewer	388	10.86%	Sewer	385	7.83%
Data Not Collected	312	8.73%	Data Not Collected	355	7.22%
Electric	248	6.94%	Electric	305	6.20%
Landscaping	225	6.30%	Cable TV	267	5.43%
Cable TV	211	5.90%	Landscaping	220	4.47%

**Note: The "Data not collected" type is becoming less of an issue over time with mandatory reporting.**

Looking at 6 month blocks of time we can see the trend in work type when we compare these side by side:



**What the trend suggests is a dramatic increase in the number of damages occurring when the work type is telecommunications related.**

#### CODE 70 NO 999

A positive response code of 70 means "the excavator completed the work prior to the due date." If this code is applied during the 3 full days the excavator was to wait for the response it means that the work was started before the locate process was complete. If this code is applied after the three full days the report ignores the code because the excavator has the right to dig with care if, after waiting, there was no response from the operator and there are no visible signs of facilities. The report concerns itself with Code 70 when there are no 999 codes present. This represents a potential risk to facilities as it means all the operators responded within the 3 full business days yet the work was begun before the end of the three full days. Was there a correlation?



County	2015 Ticket Volume	2015 Transmissions	2015 vs 2014 ticket increase	2015 vs 2014 ticket percentage increase	2014 reported incidents	2015 reported incidents	2014 Incidents per 1000 transmissions	2014 incidents per 1000 tickets	2015 Incidents per 1000 transmissions	2015 incidents per 1000 tickets	2014 -2015 incidents per 1000 tickets rate of change	2014 -2015 incidents per 1000 transmissions rate of change	2015 % failure to call	% failure to call change rate	%70- no 999
LINCOLN	10810	62849	827	8.3%	34	27	0.59	3.41	0.43	2.50	-0.91	-0.16	44.4%	15.0%	23.11%
BURKE	8807	58873	732	9.1%	29	23	0.63	3.59	0.39	2.61	-0.98	-0.24	39.1%	1.2%	22.78%
SCOTLAND	3133	12235	-361	-10.3%	17	4	1.23	4.87	0.33	1.28	-3.59	-0.90	50.0%	-8.8%	21.74%
ROBESON	15006	71804	1059	7.6%	39	33	0.58	2.80	0.46	2.20	-0.60	-0.12	48.5%	7.5%	16.63%
PENDER	9890	52303	918	10.2%	24	18	0.51	2.67	0.34	1.82	-0.85	-0.17	27.8%	-9.7%	16.07%
WAYNE	15895	75003	-761	-4.6%	76	43	0.95	4.56	0.57	2.71	-1.86	-0.37	39.5%	-6.5%	15.73%
GASTON	28896	181656	4014	16.1%	192	197	1.25	7.72	1.08	6.82	-0.90	-0.16	28.4%	-13.2%	15.12%
BLADEN	4427	22499	1252	39.4%	7	9	0.42	2.20	0.40	2.03	-0.17	-0.02	22.2%	-20.6%	14.71%
DUPLIN	4624	20975	153	3.4%	5	4	0.25	1.12	0.19	0.87	-0.25	-0.06	0.0%	-40.0%	14.60%
RUTHERFORD	5430	21670	-231	-4.1%	42	16	1.71	7.42	0.74	2.95	-4.47	-0.97	12.5%	-37.5%	11.80%
CLEVELAND	11251	68833	630	5.9%	63	53	0.95	5.93	0.77	4.71	-1.22	-0.18	18.9%	-11.3%	11.66%
WAKE	219058	1429224	61295	38.9%	902	1551	0.88	5.72	1.09	7.08	1.36	0.20	19.6%	-10.8%	10.59%
MECKLENBURG	210175	1648663	40364	23.8%	1418	1687	1.14	8.35	1.02	8.03	-0.32	-0.12	27.3%	-7.8%	9.75%
CHOWAN	1217	5250	162	15.4%	3	4	0.65	2.84	0.76	3.29	0.44	0.11	50.0%	16.7%	9.20%
ONSLOW	19935	126601	-2290	-10.3%	42	31	0.29	1.89	0.24	1.56	-0.33	-0.05	41.9%	6.2%	8.65%
RICHMOND	4395	27961	284	6.9%	21	3	0.89	5.11	0.11	0.68	-4.43	-0.78	66.7%	28.6%	8.49%
CHATHAM	17532	97462	5031	40.2%	66	135	0.99	5.28	1.39	7.70	2.42	0.40	15.6%	-11.7%	8.47%
GRANVILLE	6998	33645	694	11.0%	28	23	0.96	4.44	0.68	3.29	-1.15	-0.28	21.7%	-3.3%	8.03%
DURHAM	54246	364612	18352	51.1%	207	423	0.86	5.77	1.16	7.80	2.03	0.30	23.4%	-8.0%	7.46%
NEW HANOVE	38925	279646	3706	10.5%	188	119	0.72	5.34	0.43	3.06	-2.28	-0.30	31.1%	-6.7%	7.37%
HARNETT	13960	83414	1735	14.2%	38	60	0.52	3.11	0.72	4.30	1.19	0.20	20.0%	6.8%	7.13%
ORANGE	22430	136849	3050	15.7%	123	194	1.05	6.35	1.42	8.65	2.30	0.37	19.1%	-15.1%	6.90%
ALAMANCE	19391	106701	2105	12.2%	82	104	0.87	4.74	0.97	5.36	0.62	0.11	24.0%	-6.4%	6.89%
Totals	790372	4617505	-509155	-39.2%	6845	8492	0.88	5.27	0.89	5.54	0.27	0.01	24.7%	-8.6%	6.71%

Intuitively we know that excavating before the locate has been performed puts the facilities at a much higher risk. In this case the average percentage statewide for instances of code 70 with a 999 was 6.71%. Identifying the counties with a higher than average percentage shows the highest percentages in lower to middle volume counties with improved damage ratios. The major exceptions include Wake, Mecklenburg and Durham counties. Of course even though Mecklenburg county showed improvement, the damage rate per thousand tickets is the highest of the three large counties and combined these three counties account for 35% of the overall damages reported.

**Note: CGA Volume 11 DIRT Report estimates the 2014 national average at 1.6 damages per transmission. North Carolina is averaging .9 currently.**

### WHAT COUNTIES ARE SHOWING THE GREATEST IMPROVEMENT?

Fifty-two counties have shown improvement from 2014-2015 in terms of damages per 1000 transmissions. Several interesting things jump out. Of course, we see the highest improvement in small volume counties. This is to be expected when a small reporting of incidents occurs year to year.

County	2015 Ticket Volume	2015 Transmissions	2015 vs 2014 ticket increase	2015 vs 2014 ticket percentage increase	2014 reported incidents	2015 reported incidents	2014 Incidents per 1000 transmissions	2014 incidents per 1000 tickets	2015 Incidents per 1000 transmissions	2015 incidents per 1000 tickets	2014 -2015 incidents per 1000 tickets rate of change	2014 -2015 incidents per 1000 transmissions rate of change
ALEXANDER	3495	16839	-425	-10.8%	48	4	2.64	12.24	0.24	1.14	-11.10	-2.40
RUTHERFORD	5430	21670	-231	-4.1%	42	16	1.71	7.42	0.74	2.95	-4.47	-0.97
SCOTLAND	3133	12235	-361	-10.3%	17	4	1.23	4.87	0.33	1.28	-3.59	-0.90
DAVIE	5632	26405	515	10.1%	36	17	1.51	7.04	0.64	3.02	-4.02	-0.86
MITCHELL	1778	8340	446	33.5%	10	7	1.68	7.51	0.84	3.94	-3.57	-0.84
ASHE	2993	12450	871	41.0%	5	0	0.79	2.36	0.00	0.00	-2.36	-0.79
RICHMOND	4395	27961	284	6.9%	21	3	0.89	5.11	0.11	0.68	-4.43	-0.78
WATAUGA	4181	16471	-94	-2.2%	23	10	1.37	5.38	0.61	2.39	-2.99	-0.76
GREENE	1915	5265	-167	-8.0%	10	6	1.88	4.80	1.14	3.13	-1.67	-0.74
ANSON	3778	17921	1534	68.4%	20	20	1.82	8.91	1.12	5.29	-3.62	-0.70
ROWAN	19182	109602	3901	25.5%	106	62	1.24	6.94	0.57	3.23	-3.70	-0.68
MACON	2357	10056	634	36.8%	8	5	1.12	4.64	0.50	2.12	-2.52	-0.62
BUNCOMBE	35069	263840	2879	8.9%	364	290	1.63	11.31	1.10	8.27	-3.04	-0.53

**Note: Buncombe County stands out as a top ten volume county that has shown significant improvement, both in numbers of damages and percentage of damages per 1000 transmissions reduced.**



Two other counties that stand out in terms of reduction in incidents are Guilford and Forsyth Counties. In October 2014, The City of Greensboro and the City of Winston Salem became members of NC 811. These were the last two large members to join and did so in response to the legislation change.

Although we cannot point specifically to their joining as a cause of the reduction, it is certainly encouraging to see the following results:

FORSYTH	61227	380599	16041	35.5%	305	344	1.20	6.75	0.90	5.62	-1.13	-0.30	23.8%
GRANVILLE	6998	33645	694	11.0%	28	23	0.96	4.44	0.68	3.29	-1.15	-0.28	21.7%
VANCE	6516	28851	991	17.9%	17	13	0.72	3.08	0.45	2.00	-1.08	-0.27	46.2%
CAMDEN	1237	7517	-33	-2.6%	5	3	0.65	3.94	0.40	2.43	-1.51	-0.25	0.0%
BURKE	8807	58873	732	9.1%	29	23	0.63	3.59	0.39	2.61	-0.98	-0.24	39.1%
EDGECOMBE	4938	24613	457	10.2%	16	15	0.83	3.57	0.61	3.04	-0.53	-0.22	13.3%
GUILFORD	86519	578448	18818	27.8%	455	541	1.12	6.72	0.94	6.25	-0.47	-0.18	23.1%

Note that in both of these counties the actual damages reported went up. However, these counties experienced 27%-37% increases in ticket and transmission volume over the same period, ultimately resulting in a decrease in the overall damage ratio.

### WHAT COUNTIES REPRESENT A CHALLENGE?

Based on the data, the following counties have increased the ratio of damages per 1000 transmissions:

County	2015 Ticket Volume	2015 Transmissions	2015 vs 2014 ticket increase	2015 vs 2014 ticket percentage increase	2014 reported incidents	2015 reported incidents	2014 Incidents per 1000 transmissions	2014 incidents per 1000 tickets	2015 Incidents per 1000 transmissions	2015 incidents per 1000 tickets	2014 -2015 incidents per 1000 tickets rate of change	2014 -2015 incidents per 1000 transmissions rate of change	2015 % failure to call
POLK	2852	11967	605	26.9%	7	26	0.76	3.12	2.17	9.12	6.00	1.41	30.8%
GRAHAM	384	1054	59	18.2%	0	1	0.00	0.00	0.95	2.60	2.60	0.95	100.0%
SWAIN	1089	4395	-110	-9.2%	0	4	0.00	0.00	0.91	3.67	3.67	0.91	50.0%
STOKES	5023	21224	1172	30.4%	9	29	0.55	2.34	1.37	5.77	3.44	0.81	10.3%
MARTIN	1529	8453	-1153	-43.0%	2	6	0.14	0.75	0.71	3.92	3.18	0.57	66.7%
TRANSYLVANIA	2627	9318	30	1.2%	9	14	1.00	3.47	1.50	5.33	1.86	0.51	42.9%
YANCEY	2635	9046	890	51.0%	1	6	0.16	0.57	0.66	2.28	1.70	0.50	50.0%
JACKSON	2878	12507	410	16.6%	2	8	0.19	0.81	0.64	2.78	1.97	0.45	50.0%
UNION	42731	288352	7097	19.9%	210	379	0.91	5.89	1.31	8.87	2.98	0.41	24.0%
MOORE	15409	80809	601	4.1%	30	63	0.38	2.03	0.78	4.09	2.06	0.40	27.0%
CHATHAM	17532	97462	5031	40.2%	66	135	0.99	5.28	1.39	7.70	2.42	0.40	15.6%
ORANGE	22430	136849	3050	15.7%	123	194	1.05	6.35	1.42	8.65	2.30	0.37	19.1%
WILSON	9364	46492	2676	40.0%	19	44	0.58	2.84	0.95	4.70	1.86	0.37	18.2%
ALLEGHANY	3174	9152	815	34.5%	0	3	0.00	0.00	0.33	0.95	0.95	0.33	0.0%
DURHAM	54246	364612	18352	51.1%	207	423	0.86	5.77	1.16	7.80	2.03	0.30	23.4%
CATAWBA	16368	87595	448	2.8%	49	76	0.60	3.08	0.87	4.64	1.57	0.27	38.2%
LENOIR	5076	24146	-1262	-19.9%	15	19	0.53	2.37	0.79	3.74	1.38	0.26	57.9%
PERSON	4374	19165	33	0.8%	5	9	0.26	1.15	0.47	2.06	0.91	0.21	33.3%
CUMBERLAND	43404	276466	-4886	-10.1%	98	148	0.33	2.03	0.54	3.41	1.38	0.21	21.6%
DARE	11248	60504	2138	23.5%	20	37	0.40	2.20	0.61	3.29	1.09	0.21	29.7%
HARNETT	13960	83414	1735	14.2%	38	60	0.52	3.11	0.72	4.30	1.19	0.20	20.0%
WAKE	219058	1429224	61295	38.9%	902	1551	0.88	5.72	1.09	7.08	1.36	0.20	19.6%
NORTHAMPTON	2583	13529	-1021	-28.3%	3	5	0.17	0.83	0.37	1.94	1.10	0.20	0.0%
RANDOLPH	13962	74082	-191	-1.3%	41	56	0.58	2.90	0.76	4.01	1.11	0.18	23.2%

**Note: Union, Durham, Cumberland and Wake are all part of the top 10 ticket receiving counties in 2015.**

Although a few of the counties (Catawba, Person, Lenoir, Dare) show 30% or higher “failure to call” root cause, the majority of these fall at or below the 24% threshold identified statewide. This takes into account the outliers as well such as Graham, Swain, Martin, Yancey and Jackson that had minor reported damages.

## USE OF REMOTE TICKET ENTRY (RTE)

In North Carolina, excavators choosing to enter their tickets online may do so using our RTE program. Excavators are trained in the use of the system and allowed to create their tickets 24/7 with a full pass through to the operators. In 2015 NC 811 received over 60% of all tickets online. When sorting the counties by highest to lowest percentage of RTE usage we there is a slightly higher number of improved counties in the group when RTE was used more than 65% of the time.

County	2015 Ticket Volume	2015 Transmissions	2015 vs 2014 ticket increase	2015 vs 2014 ticket percentage increase	2015 RTE %	2015 Update Lite %	2015 Incidents per 1000 transmissions	2015 incidents per 1000 tickets	2014 -2015 incidents per 1000 tickets rate of change	2014 -2015 incidents per 1000 transmissions rate of change	2015 % failure to call	% failure to call change rate	%70- no 999	999
ALLEGHANY	3174	9152	815	34.5%	78.13%	64.15%	0.33	0.95	0.95	0.33	0.0%	DNE	0.22%	6.96%
YANCEY	2635	9046	890	51.0%	76.28%	59.73%	0.66	2.28	1.70	0.50	50.0%	50.0%	0.00%	0.53%
VANCE	6516	28851	991	17.9%	72.87%	6.95%	0.45	2.00	-1.08	-0.27	46.2%	22.6%	6.37%	4.72%
HAYWOOD	5775	31854	636	12.4%	72.50%	4.54%	0.69	3.81	-1.83	-0.36	36.4%	-32.6%	0.29%	3.09%
JOHNSTON	28644	157869	5849	25.7%	71.88%	5.47%	0.86	4.71	-0.29	-0.05	20.0%	-4.6%	6.47%	7.06%
WAYNE	15895	75003	-761	-4.6%	69.47%	11.68%	0.57	2.71	-1.86	-0.37	39.5%	-6.5%	15.73%	4.71%
WAKE	219058	1429224	61295	38.9%	69.40%	6.08%	1.09	7.08	1.36	0.20	19.6%	-10.8%	10.59%	4.76%
GRANVILLE	6998	33645	694	11.0%	69.31%	2.54%	0.68	3.29	-1.15	-0.28	21.7%	-3.3%	8.03%	4.92%
WARREN	3525	11873	838	31.2%	69.30%	23.01%	0.34	1.13	0.02	0.02	0.0%	-33.3%	3.09%	4.72%
DUPLIN	4624	20975	153	3.4%	69.12%	6.73%	0.19	0.87	-0.25	-0.06	0.0%	-40.0%	14.60%	6.10%
FRANKLIN	9171	44784	1435	18.5%	69.04%	5.40%	1.00	4.91	-0.01	0.00	28.9%	10.5%	5.55%	1.97%
WILSON	9364	46492	2676	40.0%	68.93%	10.50%	0.95	4.70	1.86	0.37	18.2%	-23.9%	2.94%	2.91%
GUILFORD	86519	578448	18818	27.8%	67.96%	14.03%	0.94	6.25	-0.47	-0.18	23.1%	-5.0%	5.69%	3.22%
STANLY	9100	39803	725	8.7%	67.81%	29.29%	0.88	3.85	0.86	0.16	40.0%	-4.0%	0.32%	8.22%
SAMPSON	10782	55414	3073	39.9%	67.41%	42.08%	0.22	1.11	0.20	0.02	41.7%	-1.2%	2.16%	7.15%
MITCHELL	1778	8340	446	33.5%	66.14%	11.92%	0.84	3.94	-3.57	-0.84	28.6%	-41.4%	0.22%	4.13%
ROWAN	19182	109602	3901	25.5%	65.95%	20.00%	0.57	3.23	-3.70	-0.68	21.0%	-17.7%	3.94%	4.53%
ANSON	3778	17921	1534	68.4%	65.80%	13.34%	1.12	5.29	-3.62	-0.70	25.0%	0.0%	3.12%	6.70%

Again we see Guilford County in this group operating at almost 68% RTE usage with statistical improvements in 2015 over 2014 damages per 1000.

We also see Wake County at almost 70% RTE usage, unfortunately trending toward higher damages.

### COUNTIES WITH THE HIGHEST GROWTH IN VOLUME

Do counties with faster growth generate more damages per 1000? Not necessarily. When the data is sorted along the lines of percentage of growth in ticket volume among the top 10 counties there are significant differences in rate of change for reported damages. As already identified, there are increases in damages occurring in two large counties (Wake and Durham) while reductions are occurring in three others (Guilford, Mecklenburg and Forsyth.) It should be noted that the growth in Wake and Durham is faster than the other three.

County	2015 vs 2014 ticket percentage increase	2015 RTE %	2014 reported incidents	2015 reported incidents	2014 Incidents per 1000 transmissions	2014 incidents per 1000 tickets	2015 Incidents per 1000 transmissions	2015 incidents per 1000 tickets	2014 -2015 incidents per 1000 tickets rate of change	2014 -2015 incidents per 1000 transmissions rate of change	2015 % failure to call	% failure to call change rate	%70- no 999	999
DURHAM	51.1%	63.51%	207	423	0.86	5.77	1.16	7.80	2.03	0.30	23.4%	-8.0%	7.46%	10.43%
WAKE	38.9%	69.40%	902	1551	0.88	5.72	1.09	7.08	1.36	0.20	19.6%	-10.8%	10.59%	4.76%
FORSYTH	35.5%	60.76%	305	344	1.20	6.75	0.90	5.62	-1.13	-0.30	23.8%	-4.4%	3.34%	2.95%
GUILFORD	27.8%	67.96%	455	541	1.12	6.72	0.94	6.25	-0.47	-0.18	23.1%	-5.0%	5.69%	3.22%
MECKLENBURG	23.8%	63.17%	1418	1687	1.14	8.35	1.02	8.03	-0.32	-0.12	27.3%	-7.8%	9.75%	4.61%
UNION	19.9%	63.14%	210	379	0.91	5.89	1.31	8.87	2.98	0.41	24.0%	-7.4%	0.34%	3.00%
CABARRUS	13.8%	62.07%	158	180	0.74	4.77	0.76	4.77	0.01	0.01	27.8%	5.0%	1.77%	2.82%
NEW HANOV	10.5%	64.82%	188	119	0.72	5.34	0.43	3.06	-2.28	-0.30	31.1%	-6.7%	7.37%	7.81%
BUNCOMBE	8.9%	59.80%	364	290	1.63	11.31	1.10	8.27	-3.04	-0.53	21.0%	-15.2%	1.13%	4.53%
CUMBERLAND	-10.1%	56.41%	98	148	0.33	2.03	0.54	3.41	1.38	0.21	21.6%	-17.2%	4.86%	6.00%

When sorting all of the 100 counties based on rate of growth we find among the top 20 counties 11 that have an increase in the damages per 1000 transmission ratio. Significantly Durham County ranks third in growth and among the 20 has the second highest increase in damages per 1000 tickets and transmissions.

County	2015 Ticket Volume	2015 Transmissions	2015 vs 2014 ticket increase	2015 vs 2014 ticket percentage increase	2015 RTE %	2015 Incidents per 1000 transmissions	2015 incidents per 1000 tickets	2014 -2015 incidents per 1000 tickets rate of change	2014 -2015 incidents per 1000 transmissions rate of change	2015 % failure to call	% failure to call change rate	%70- no 999	999
TYRRELL	1385	5844	1147	481.9%	14.37%	0.17	0.72	0.72	0.17	0.0%	DNE	0.29%	2.12%
ANSON	3778	17921	1534	68.4%	65.80%	1.12	5.29	-3.62	-0.70	25.0%	0.0%	3.12%	6.70%
DURHAM	54246	364612	18352	51.1%	63.51%	1.16	7.80	2.03	0.30	23.4%	-8.0%	7.46%	10.43%
YANCEY	2635	9046	890	51.0%	76.28%	0.66	2.28	1.70	0.50	50.0%	50.0%	0.00%	0.53%
HYDE	891	3077	262	41.7%	50.17%	0.00	0.00	0.00	0.00	DNE	DNE	0.67%	2.40%
ASHE	2993	12450	871	41.0%	35.25%	0.00	0.00	-2.36	-0.79	DNE	DNE	0.40%	11.37%
CHATHAM	17532	97462	5031	40.2%	64.90%	1.39	7.70	2.42	0.40	15.6%	-11.7%	8.47%	9.82%
MONTGOMERY	4161	15216	1190	40.1%	60.01%	0.46	1.68	0.00	-0.03	28.6%	-31.4%	0.96%	3.78%
WILSON	9364	46492	2676	40.0%	68.93%	0.95	4.70	1.86	0.37	18.2%	-23.9%	2.94%	2.91%
SAMPSON	10782	55414	3073	39.9%	67.41%	0.22	1.11	0.20	0.02	41.7%	-1.2%	2.16%	7.15%
BLADEN	4427	22499	1252	39.4%	51.07%	0.40	2.03	-0.17	-0.02	22.2%	-20.6%	14.71%	1.43%
WAKE	219058	1429224	61295	38.9%	69.40%	1.09	7.08	1.36	0.20	19.6%	-10.8%	10.59%	4.76%
MACON	2357	10056	634	36.8%	48.15%	0.50	2.12	-2.52	-0.62	40.0%	-35.0%	0.13%	8.70%
FORSYTH	61227	380599	16041	35.5%	60.76%	0.90	5.62	-1.13	-0.30	23.8%	-4.4%	3.34%	2.95%
ALLEGHANY	3174	9152	815	34.5%	78.13%	0.33	0.95	0.95	0.33	0.0%	DNE	0.22%	6.96%
LEE	8497	50109	2133	33.5%	49.26%	0.74	4.35	1.05	0.11	16.2%	-7.6%	0.26%	2.56%
MITCHELL	1778	8340	446	33.5%	66.14%	0.84	3.94	-3.57	-0.84	28.6%	-41.4%	0.22%	4.13%
WARREN	3525	11873	838	31.2%	69.30%	0.34	1.13	0.02	0.02	0.0%	-33.3%	3.09%	4.72%
STOKES	5023	21224	1172	30.4%	50.11%	1.37	5.77	3.44	0.81	10.3%	-34.1%	0.70%	5.73%
GUILFORD	86519	578448	18818	27.8%	67.96%	0.94	6.25	-0.47	-0.18	23.1%	-5.0%	5.69%	3.22%

### EDUCATION IMPACTS ON DAMAGES

Education throughout the state comes in a variety of forms. The “call before you dig” message is shared through billboards, television, radio and Internet banners as well as utility messaging in billing, signs and displayed banners. More in depth education takes place with PIPES Plus, onsite training of NCDOT, Surveyors and excavators throughout the state. This training covers all of the components of safe excavation from One Call through the proper ways to excavate with care.

Sorting the data by PIPES Plus attendees reveals an even spread of counties that increased and decreased damages per 1000. That being said the two highest attended counties also included strong UCC participation, billboards and (in Guilford) the Colonial tanks with 811 messaging. Because this messaging can only influence a person contacting 811 it does not speak to what happens when the ticket is created and distributed. Other factors, such as timely accurate locates and excavating with care, impact the damage ratio as previously shown.

For this reason, the next two sections will focus on 999 codes and impact on “failure to call” ratio to see if these statistically reflect the increased damages in some counties.

County	2015 Incidents per 1000 transmissions	2015 incidents per 1000 tickets	2014 -2015 incidents per 1000 tickets rate of change	2014 -2015 incidents per 1000 transmissions rate of change	2015 % failure to call	% failure to call change rate	PIPES Plus	Billboards (Eyes On)	Sports Radio (Audience Reach)	CW Television (Audience Reach)	CW Internet (Impressions)	UCC
GUILFORD	0.94	6.25	-0.47	-0.18	23.1%	-5.0%	109	463,170				191
MECKLENBURG	1.02	8.03	-0.32	-0.12	27.3%	-7.8%	105	1,607,866				207
WAKE	1.09	7.08	1.36	0.20	19.6%	-10.8%	63		3,089,500			403
CUMBERLAND	0.54	3.41	1.38	0.21	21.6%	-17.2%	61	55,208	7,300			90
ROWAN	0.57	3.23	-3.70	-0.68	21.0%	-17.7%	52					106
CABARRUS	0.76	4.77	0.01	0.01	27.8%	5.0%	49	220,626				150
NEW HANOVER	0.43	3.06	-2.28	-0.30	31.1%	-6.7%	45					202
CATAWBA	0.87	4.64	1.57	0.27	38.2%	1.4%	42					88
JACKSON	0.64	2.78	1.97	0.45	50.0%	0.0%	35					20
ROCKINGHAM	1.02	5.14	0.30	0.04	28.6%	-5.9%	29	36,555				40
RICHMOND	0.11	0.68	-4.43	-0.78	66.7%	28.6%	28	51,562				111
FORSYTH	0.90	5.62	-1.13	-0.30	23.8%	-4.4%	25	339,917				82
DAVIDSON	0.97	6.96	1.81	0.18	10.2%	-10.6%	22	160,697				83
CHATHAM	1.39	7.70	2.42	0.40	15.6%	-11.7%	21		4,100			
GASTON	1.08	6.82	-0.90	-0.16	28.4%	-13.2%	20	511,638				89
JOHNSTON	0.86	4.71	-0.29	-0.05	20.0%	-4.6%	10	163,537	12,500			53
BUNCOMBE	1.10	8.27	-3.04	-0.53	21.0%	-15.2%	8	848,990		2,300,000	285,000	214

Data sorted by PIPES Plus attendees

### IMPACT OF 999 CODES ON DAMAGES

County	2015 Ticket Volume	2015 Transmissions	2015 vs 2014 ticket increase	2015 vs 2014 ticket percentage increase	2014 -2015 incidents per 1000 tickets rate of change	2014 -2015 incidents per 1000 transmissions rate of change	2015 % failure to call	% failure to call change rate	%70- no 999	999
ASHE	2993	12450	871	41.0%	-2.36	-0.79	DNE	DNE	0.40%	11.37%
DURHAM	54246	364612	18352	51.1%	2.03	0.30	23.4%	-8.0%	7.46%	10.43%
SWAIN	1089	4395	-110	-9.2%	3.67	0.91	50.0%	DNE	1.38%	10.17%
CHATHAM	17532	97462	5031	40.2%	2.42	0.40	15.6%	-11.7%	8.47%	9.82%
PASQUOTANK	5338	28843	994	22.9%	-0.01	0.03	27.3%	5.1%	3.71%	9.54%
MACON	2357	10056	634	36.8%	-2.52	-0.62	40.0%	-35.0%	0.13%	8.70%
STANLY	9100	39803	725	8.7%	0.86	0.16	40.0%	-4.0%	0.32%	8.22%
TRANSYLVANIA	2627	9318	30	1.2%	1.86	0.51	42.9%	31.7%	1.10%	7.91%
NEW HANOVER	38925	279646	3706	10.5%	-2.28	-0.30	31.1%	-6.7%	7.37%	7.81%
RUTHERFORD	5430	21670	-231	-4.1%	-4.47	-0.97	12.5%	-37.5%	11.80%	7.34%
SAMPSON	10782	55414	3073	39.9%	0.20	0.02	41.7%	-1.2%	2.16%	7.15%
JOHNSTON	28644	157869	5849	25.7%	-0.29	-0.05	20.0%	-4.6%	6.47%	7.06%
LINCOLN	10810	62849	827	8.3%	-0.91	-0.16	44.4%	15.0%	23.11%	7.06%
CRAVEN	13567	97912	-263	-1.9%	0.90	0.14	26.9%	-15.9%	4.20%	7.05%
PITT	20200	136844	3032	17.7%	1.50	0.16	33.3%	1.9%	1.42%	7.04%
LENOIR	5076	24146	-1262	-19.9%	1.38	0.26	57.9%	-2.1%	2.03%	7.03%
ALLEGHANY	3174	9152	815	34.5%	0.95	0.33	0.0%	DNE	0.22%	6.96%
JACKSON	2878	12507	410	16.6%	1.97	0.45	50.0%	0.0%	1.15%	6.81%
ANSON	3778	17921	1534	68.4%	-3.62	-0.70	25.0%	0.0%	3.12%	6.70%
HERTFORD	2298	11419	-487	-17.5%	-0.13	-0.03	33.3%	8.3%	5.09%	6.68%
ORANGE	22430	136849	3050	15.7%	2.30	0.37	19.1%	-15.1%	6.90%	6.57%
BRUNSWICK	25547	148518	2822	12.4%	0.41	0.06	30.2%	-9.8%	4.51%	6.54%
ALAMANCE	19391	106701	2105	12.2%	0.62	0.11	24.0%	-6.4%	6.89%	6.50%
SURRY	8359	40635	1182	16.5%	0.07	0.02	36.4%	-19.2%	0.91%	6.16%

**DEFINITION: The 999 code is applied to the ticket by the system when a member that was notified failed to provide electronic positive response within the 3 full business days.**

Although it is hard to draw any direct correlation, when the tickets are sorted by highest to lowest occurrence of 999 codes by county, the top 24 counties show only 8 that improved while double that number or 16 increased in damages per 1000 transmissions. Again, Durham County is at the high end in this sort as the second highest county with an occurrence of 999 codes.

**“FAILURE TO CALL” IMPACT ON DAMAGES**

For this important discussion the data has been sorted by “failure to call” from highest to lowest. **As the data indicated, the state average was 24.7%.** That was based on all tickets and all damages accounted for in this SMS. Of the 100 counties, 64 fell above the 24.7 threshold. Ashe and Hyde counties did not report any damages in 2015 so we can eliminate them from the totals. 32 of the remaining 62 improved from 2014 to 2015.

Totaling up all of the damages in 2015 for the 30 counties that **increased in damages from 2014 AND** fell higher than the 24.7% yields 1,065 damages.

**Of the 8492 damages reported this means only 12.5% of the total damages occurred in counties with higher than the 24.7 average for root cause “failure to call” that reported an increase in damage.**

**3450 of the total damages occurred in the 62 counties that were higher than the 24.7% This means that 62% of the 100 counties fell above the 24.7 “failure to call” threshold but only 40.6% of the damages occurred in those counties.**

Interestingly, when the top 10 counties for transmission volume are identified 7 of the 10 fell below the 24.7% average.

County	2015 Ticket Volume	2015 Transmissions	2015 vs 2014 ticket increase	2015 vs 2014 ticket percentage increase	2014 reported incidents	2015 reported incidents	2014 Incidents per 1000 transmissions	2014 incidents per 1000 tickets	2015 Incidents per 1000 transmissions	2015 incidents per 1000 tickets	2014 -2015 incidents per 1000 tickets rate of change	2014 -2015 incidents per 1000 transmissions rate of change	2015 % failure to call	% failure to call change rate	%70- no 999	999
Totals	1536803	9606233	237276	18.3%	6845	8492	0.88	5.27	0.89	5.54	0.27	0.01	24.7%	-8.6%	6.71%	4.92%
WAKE	219058	1429224	61295	38.9%	902	1551	0.88	5.72	1.09	7.08	1.36	0.20	19.6%	-10.8%	10.59%	4.76%
MECKLENBURG	210175	1648663	40364	23.8%	1418	1687	1.14	8.35	1.02	8.03	-0.32	-0.12	27.3%	-7.8%	9.75%	4.61%
GUILFORD	86519	578448	18818	27.8%	455	541	1.12	6.72	0.94	6.25	-0.47	-0.18	23.1%	-5.0%	5.69%	3.22%
FORSYTH	61227	380599	16041	35.5%	305	344	1.20	6.75	0.90	5.62	-1.13	-0.30	23.8%	-4.4%	3.34%	2.95%
DURHAM	54246	364612	18352	51.1%	207	423	0.86	5.77	1.16	7.80	2.03	0.30	23.4%	-8.0%	7.46%	10.43%
CUMBERLAND	43404	276466	-4886	-10.1%	98	148	0.33	2.03	0.54	3.41	1.38	0.21	21.6%	-17.2%	4.86%	6.00%
UNION	42731	288352	7097	19.9%	210	379	0.91	5.89	1.31	8.87	2.98	0.41	24.0%	-7.4%	0.34%	3.00%
NEW HANOVE	38925	279646	3706	10.5%	188	119	0.72	5.34	0.43	3.06	-2.28	-0.30	31.1%	-6.7%	7.37%	7.81%
CABARRUS	37698	238388	4564	13.8%	158	180	0.74	4.77	0.76	4.77	0.01	0.01	27.8%	5.0%	1.77%	2.82%
BUNCOMBE	35069	263840	2879	8.9%	364	290	1.63	11.31	1.10	8.27	-3.04	-0.53	21.0%	-15.2%	1.13%	4.53%

**USE OF CODE 32**

Code 32 “Locate not complete, additional communication with the excavator required. Unable to contact the excavator.” **The average statewide occurrence of this code is .31%.** The top 13 counties with this percentage are represented in the sheet below. It should be noted that of the top 13 counties in which this code was used 10 of the counties improved in terms of their damages per 1000 ratio in 2015.

**It should also be noted that of the 54 counties that fell below the .31% ratio, a total of 1344 damages were reported or 16% of the 8492 total.**

**These counties represent 28% of the ticket volume but only 16% of the damages.**

County	2015 Ticket Volume	2015 Transmissions	2015 vs 2014 ticket increase	2015 vs 2014 ticket percentage increase	Code 32 - Not complete, additional communication	Code 32 %	2015 Incidents per 1000 transmissions	2015 incidents per 1000 tickets	2014 -2015 incidents per 1000 tickets rate of change	2014 -2015 incidents per 1000 transmissions rate of change
LINCOLN	10810	62849	827	8.3%	2172	3.46%	0.43	2.50	-0.91	-0.16
GRANVILLE	6998	33645	694	11.0%	865	2.57%	0.68	3.29	-1.15	-0.28
FORSYTH	61227	380599	16041	35.5%	9686	2.54%	0.90	5.62	-1.13	-0.30
RUTHERFORD	5430	21670	-231	-4.1%	541	2.50%	0.74	2.95	-4.47	-0.97
TRANSYLVANIA	2627	9318	30	1.2%	228	2.45%	1.50	5.33	1.86	0.51
BUNCOMBE	35069	263840	2879	8.9%	6364	2.41%	1.10	8.27	-3.04	-0.53
CLEVELAND	11251	68833	630	5.9%	1610	2.34%	0.77	4.71	-1.22	-0.18
ORANGE	22430	136849	3050	15.7%	3158	2.31%	1.42	8.65	2.30	0.37
GASTON	28896	181656	4014	16.1%	3871	2.13%	1.08	6.82	-0.90	-0.16
PERSON	4374	19165	33	0.8%	404	2.11%	0.47	2.06	0.91	0.21
ROWAN	19182	109602	3901	25.5%	2210	2.02%	0.57	3.23	-3.70	-0.68
DAVIE	5632	26405	515	10.1%	502	1.90%	0.64	3.02	-4.02	-0.86
MECKLENBURG	210175	1648663	40364	23.8%	28534	1.73%	1.02	8.03	-0.32	-0.12

**Top 13 counties with percentages of Code 32 usage**

**MORE DAMAGE ANALYSIS**

The average number of total reported damages per 1000 transmissions in 2015 was .89.

County	2015 Ticket Volume	2015 Transmissions	2015 vs 2014 ticket increase	2015 vs 2014 ticket percentage increase	Code 32 - Not complete, additional communication	Code 32 %	2015 reported incidents	2014 Incidents per 1000 transmissions	2014 incidents per 1000 tickets	2015 Incidents per 1000 transmissions	2015 incidents per 1000 tickets	2014 -2015 incidents per 1000 tickets rate of change	2014 -2015 incidents per 1000 transmissions rate of change
POLK	2852	11967	605	26.9%	89	0.74%	26	0.76	3.12	2.17	9.12	6.00	1.41
TRANSYLVANIA	2627	9318	30	1.2%	228	2.45%	14	1.00	3.47	1.50	5.33	1.86	0.51
HENDERSON	14385	83596	-2186	-13.2%	1236	1.48%	124	1.38	7.97	1.48	8.62	0.65	0.10
ORANGE	22430	136849	3050	15.7%	3158	2.31%	194	1.05	6.35	1.42	8.65	2.30	0.37
CHATHAM	17532	97462	5031	40.2%	797	0.82%	135	0.99	5.28	1.39	7.70	2.42	0.40
STOKES	5023	21224	1172	30.4%	329	1.55%	29	0.55	2.34	1.37	5.77	3.44	0.81
UNION	42731	288352	7097	19.9%	1287	0.45%	379	0.91	5.89	1.31	8.87	2.98	0.41
DURHAM	54246	364612	18352	51.1%	3571	0.98%	423	0.86	5.77	1.16	7.80	2.03	0.30
GREENE	1915	5265	-167	-8.0%	27	0.51%	6	1.88	4.80	1.14	3.13	-1.67	-0.74
CHEROKEE	1890	5312	336	21.6%	17	0.32%	6	1.13	3.22	1.13	3.17	-0.04	0.00
ANSON	3778	17921	1534	68.4%	5	0.03%	20	1.82	8.91	1.12	5.29	-3.62	-0.70
BUNCOMBE	35069	263840	2879	8.9%	6364	2.41%	290	1.63	11.31	1.10	8.27	-3.04	-0.53
WAKE	219058	1429224	61295	38.9%	18632	1.30%	1551	0.88	5.72	1.09	7.08	1.36	0.20
GASTON	28896	181656	4014	16.1%	3871	2.13%	197	1.25	7.72	1.08	6.82	-0.90	-0.16
MECKLENBURG	210175	1648663	40364	23.8%	28534	1.73%	1687	1.14	8.35	1.02	8.03	-0.32	-0.12
ROCKINGHAM	13625	68660	1028	8.2%	548	0.80%	70	0.98	4.84	1.02	5.14	0.30	0.04
FRANKLIN	9171	44784	1435	18.5%	148	0.33%	45	1.01	4.91	1.00	4.91	-0.01	0.00
PITT	20200	136844	3032	17.7%	379	0.28%	135	0.82	5.18	0.99	6.68	1.50	0.16
ALAMANCE	19391	106701	2105	12.2%	1154	1.08%	104	0.87	4.74	0.97	5.36	0.62	0.11
DAVIDSON	21113	151695	2484	13.3%	346	0.23%	147	0.79	5.15	0.97	6.96	1.81	0.18
IREDELL	30591	188986	3852	14.4%	1534	0.81%	181	1.09	6.51	0.96	5.92	-0.59	-0.13
GRAHAM	384	1054	59	18.2%	11	1.04%	1	0.00	0.00	0.95	2.60	2.60	0.95
WILSON	9364	46492	2676	40.0%	40	0.09%	44	0.58	2.84	0.95	4.70	1.86	0.37
GUILFORD	86519	578448	18818	27.8%	5486	0.95%	541	1.12	6.72	0.94	6.25	-0.47	-0.18
SWAIN	1089	4395	-110	-9.2%	12	0.27%	4	0.00	0.00	0.91	3.67	3.67	0.91
FORSYTH	61227	380599	16041	35.5%	9686	2.54%	344	1.20	6.75	0.90	5.62	-1.13	-0.30
Totals	601522	3332314	-698005	-53.7%	9686	0.31%	8492	0.88	5.27	0.89	5.54	0.27	0.01

Counties with statistically higher percentages totaled 26 and made up 65% of the total transmissions. Only 10 of those 26 showed improvement and of those 4 counties (Buncombe, Mecklenburg, Guilford and Forsyth) were in the top 10 volume. Union and Durham, two of the top 10 counties, were 7<sup>th</sup> and 8<sup>th</sup> respectively in this list.

## CONCLUSIONS

It is important to state right up front that it is difficult to draw a straight line to causation from any of this data. As stated earlier, the only root cause that is identified is the “failure to call” percentage. This has significantly improved as has the quality of the data being collected (as evidenced by the reduction over time in the “data not collected” category).

Despite the improvement in this area there are significantly higher instances of damages per 1000 in some key counties.

This data will not reflect two key areas that affect damages: locate accuracy and timeliness and safe excavation practices.

Counties that have a higher instance of 999 codes applied by the system, on average trend higher in terms of damages.

Counties with less than an average instance of 32 codes, on average trend lower in terms of damages.

Four counties stand out in terms of being in the top 10 of overall volume and also trending up in terms of damages per 1000 transmissions: Durham, Union, Cumberland and Wake. Cumberland is still below the state average of damages per 1000 tickets and transmissions but should be monitored as increased damage reporting is occurring.

Counties in the top 10 of overall volume that are also statistically above the .89 damages per 1000 transmissions include Union, Durham, Buncombe, Wake, Mecklenburg, Guilford and Forsyth. It is noted that four of these improved from 2014 to 2015: Buncombe, Mecklenburg, Guilford and Forsyth.

Damages due to the installation of telecommunications has significantly increased in Q3 and 4 of 2015 as a percentage of overall work type.

***The author encourages readers to draw their own conclusions from the data presented. This report is meant to be a starting place for conversation about effective measures that can be taken to reduce overall damages.***