



Infrastructure Protection Coalition

American Pipeline Contractors Association • www.americanpipeline.org Distribution Contractors Association • www.dcaweb.org National Utility Contractors Association • www.nuca.com Nulca – representing utility locating professionals • www.nulca.org Power & Communication Contractors Association • www.pccaweb.org

About the Infrastructure Protection Coalition

The Infrastructure Protection Coalition is a coalition of industry groups who represent regular users and stakeholders in the 811 system and who want to see it run safely and efficiently. Members include: the American Pipeline Contractors Association (APCA); Distribution Contractors Association (DCA); National Utility Contractors Association (NUCA); Nulca — representing utility locating professionals; and Power & Communications Contractors Association (PCCA).

Study Conducted By:

CONTINUUM

Capital

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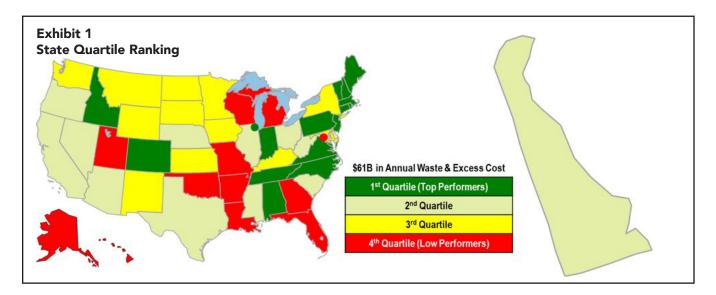
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811 EMERGENC

\$61 Billion Lost in System to Protect Underground Utilities

Delaware Executive Summary

Delaware is ranked in the 2nd Quartile (Exhibit 1 - State Quartile Ranking) and overall, its current structure and process is efficient and effective. A total of 8 areas were used to rate and rank each state in order to place them into an overall quartile rank for performance. Delaware performed in the 4th Quartile for four characteristics, the 3rd Quartile for one characteristic, the 2nd Quartile for one characteristic, and the 1st Quartile for two characteristics (Exhibit 2 - State Overall Performance).



The 2019 estimated total damage cost in Delaware is approximately \$21 million in annual and out of pocket cost to the system. In addition to this observable cost is an invisible cost originating from the following:

- 1) daily unneeded locate requests;
- 2) locators wasted time due to poor instructions; 3) daily locator wasted

Exhibit 2 State Overall Per	formance		
Continuum Rating	PHMSA DP Rate	Stakeholder Rating	Unneeded Loc.?
Very Satisfied	Inadequate	Dissatisfied	Daily
Poor Instructions	Destroyed Marks	Cont. Wait Time	Est. Damage Cost (Millions)
Sometimes	Daily	Daily	\$21.22

time due to destroyed marks; and 4) 20% in daily contractor wasted time waiting for asset owner compliance with locate request or taking "defensive excavation" practices at additional cost and lost productivity in an attempt to avoid unlocated facilities.

These costs amount to an additional \$360 million in waste, inefficiency, and excess cost that is embedded in the system and largely invisible. Regardless from whom or where these costs originate, they migrate over a 3-5 year timeline toward the most professional contractors and locators, and by default to their utility customers who are primarily the highly regulated electric and gas utilities and ultimately their rate payers.

Once known and visible, these costs can be eliminated and mitigated. The 5 recommendations proposed, will eliminate \$300 million of these costs over a 3-5 year timeline and while there are implementation expenditures associated with these recommendations, the gain achieved outweighs the cost of by a factor of 20x over the 3-5 year implementation timeline. These savings represent both the waste embedded in the system and some modest reduction in damage frequency. Additional achieved improvements to public safety and estimated damage costs will be on top of these figures.

Ultimately, it is possible to drive out waste, inefficiency, and excess cost from the damage prevention and utility locate process while improving public safety and lowering the total cost to rate payers, asset owners, and operators (utilities, department of transportation, municipalities).

811 EMERGENCY

\$61 Billion Lost in System to Protect Underground Utilities

Exhibit 3 One Page Summary

				Delaware				
State Quartile	Continuum Rating		Stakeholder Rating	Unneeded Loc.?	Poor Instructions	0.70	Cont. Wait Time	Est. Damage Cos (Millions)
2nd Quartile	Very Satisfied	Inadequate	Dissatisfied C4-4- D	Daily	Sometimes	Daily	Daily	\$21.22
				emographic Info	rmation	St Count Suca	di Casuath Data	nc = not calculate
State Capital	State Population	Density per Mile		st MSA statistical area)	# MSA>250,000	St. Const. Spen	ions)	
Dover	705,749	506.32	Wilmington Metro	723,993	2	\$4,338	11.6%	
	id; Growth Rate		d; Growth Rate					
\$2,894	13.1%	\$ 16	3.4%					
			811 S	ystem Characte	ristics			
		His	CONTRACTOR OF THE CONTRACTOR O			System Name	Law Adopted	Last Updated
established in 199	itle 26 - Public Utilities 95, and was most rec occurrence. Revisior Commission to revi	ently revised in 2018	to include mandatory	y damage reporting fo General and the Pub	r facility operators	Miss Utility of Delmarva (Utilities Service Protection Center of Delmarva, Inc. (USPCD))	1979	2018
Inbound Tickets	Outbound Tickets	24-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1	811 Exempt?	Total Locate Days	Call Day?	Notice Days	Notice Exempt?	Ticket Life (Days
164,916	1,026,698	6.2	No	3	1	2	Yes	Undefined
Whitelining Req.?	Pos. Resp. Excv.	Pos. Resp. 811	Who 811 Exempt? None	3rd Party Board No	Mand. Report U?	Mand. Report C?	Who Exempt? Agr/Resi	Enforce Auth.? Attorney General
	_		811	Deand Commen		W.		te.
The second secon	Board Size		Board Composition		Balanced?	3rd Party Operator? One Call Concents	For Profit?	
State Law Define? No	Board Size	2021 = Asset Owne		n avator Community: 0;			For Profit? Not-For-Profit, 501(c)(12)	
State Law Define? No	# 10 CO	2021 = Asset Owne	Board Composition rs or Utilities: 8; Exca ty: 1; Engineering: 1;	n avator Community: 0;	Balanced? Medium	Operator?	Not-For-Profit,	
No DIRT (Damage	12 Reporting Information histate as a total, dan	2021 = Asset Owne Locator Communit	Board Composition rs or Utilities: 8; Exca ty: 1; Engineering: 1; 811 resents the number opund tickets (Per 100	nvator Community: 0; Other: 1; Vacant: 1 I Performance I of underground utility 0 Tickets), damages	Balanced? Medium Data damages reported to per 100,000 of the sta	Operator? One Call Concepts the CGA in 2019 (Dillate population (Per 10	Not-For-Profit, 501(c)(12) RT 19 Damages) an	
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Delaware Recommendations

Recommendation Summary

Overall, Delaware achieves satisfactory performance as measured by CGA's DIRT Report, and IPC; however, achieves unsatisfactory performance by PHMSA, and stakeholders. There are weaknesses or gaps in the Delaware dig law as well as processes that are inefficient and ineffective. Opportunities for further improvement include the following:

- 1. Third Party Enforcement Board: Develop or enhance third-party investigation and enforcement board, with a balanced number of representatives from each stakeholder group, imbued with both responsibility and authority to manage the entire damage adjudication process.
- **2. Ineffective Penalty Structure:** Bring balance to the penalty structure or amount so that asset owners, excavators, and locators each face similar risks and responsibility.
- **3. Effective Metrics:** Identify, develop, collect, and track metrics that effectively support trending and continuous improvement of the state damage prevention performance. Mandatory reporting is necessary to accomplish this effort.
 - a. Develop and track metrics that support behavioral change in addition to metrics designed to track violations of the law.
- **4. Annual Reporting to CGA and DIRT:** Require state entity(s) responsible for the oversight of the 811 system and collection and adjudication of compliance or damage reports, ticket volumes, etc. to submit data to the Common Ground Alliance (CGA) to support preparation of the annual DIRT report.
- **5. Standardize Ticket Size Distance, Duration, and Life:** Standardize the ticket size, distance, duration, and life to the described characteristics.

As previously noted, the 2019 Delaware estimated total damage cost is approximately \$21 million in annual and out of pocket cost to the system. There is an additional \$360 million in waste, inefficiency, and excess cost that is imbedded in the system and largely invisible. The 5 recommendations proposed, will eliminate \$300 million of these damage and waste costs over a 3-5 year timeline and these benefits exceed the implementation cost of \$13 million by a factor of 20x over the 3-5 year implementation timeline (Exhibit 4 – State Utility Locate System Cost Impacts).

System Cost Category	Current Conditions	Recommendation Cost (Millions)	Damage & Waste Reduction %	Damage & Waste Reduction \$ (Millions)
2019 Damage Frequency	379	(30%	(\$100.00)
Damage Severity	nc		nc	nc
Unneeded Locates	Daily	#40.00	35%	(\$1.00)
Poor Instruction to Locator	Sometimes	\$13.00	35%	(\$1.00)
Destroyed Marks	Daily		35%	(\$1.00)
Contractor Wait Time	Daily		30%	(\$200.00)
Source: Proprietary Continuum analy	sis.	_	Total Reduction	(\$303.00)

Recommendation Detail

To support investigation and potential implementation of the identified recommendation, the following additional information is provided for research and discussion purposes and includes the following:

- Tactical / Process Issue Addressed: A description of the tactical activity or process breakdown and inefficiency identified.
- Recommendation: Summary description of the proposed recommendation.
- Solution Summary: A description of the condition, characteristic, practice, process, or law that was identified as high functioning in another state and is a starting point for research and discussion purposes.
- Solution Reference: A description of where or how to access additional information about the condition, characteristic, practice, process, or law that was identified as high functioning in another state.

1. Third Party Enforcement Board

Tactical / **Process Issue Addressed** – Tactical: Ineffective or lack of enforcement. Cause a behavior change in responsible parties to support effective damage prevention. Structure system to support continuous improvement efforts through collection of data to identify trends, conduct root cause analysis, and ultimately support building a culture that embraces damage prevention.

Recommendation – Third Party Enforcement Board: Develop or enhance third-party investigation and enforcement board, with a balanced number of representatives from each stakeholder group, imbued with both responsibility and authority to manage the entire damage adjudication process.

Solution Summary – The principal purpose of the Idaho Damage Prevention Board...is to reduce damages to underground facilities and to promote safe excavation practices through education directed toward excavators, underground facility owners and the public at large. The board also shall review complaints of alleged violations. It shall be the responsibility and duty of the administrator to administer the requirements of the law, and the administrator shall exercise such powers and duties as are reasonably necessary to enforce the provisions of the law.

Solution Reference – State of Idaho Title 55 - Property in General, Chapter 22 - Underground Facilities Damage Prevention, Parts 2201 & 2203. (see also Tennessee Code Title 65, Chapter 31, Part 114, 115, 116 & 117) (see also North Carolina Code \$87.129)

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2. Ineffective Penalty Structure

Tactical / **Process Issue Addressed** – Process: Application of penalty structure or amount is not balanced among stakeholders and / or is ineffective in changing future behavior.

Recommendation – Ineffective Penalty Structure: Bring balance to the penalty structure or amount so that asset owners, excavators, and locators all face similar risks and responsibility.

Solution Summary – A person who violates Section 10-21-040 shall be subject to a penalty of \$100. (2) A person who violates Section 10-21-050 shall be subject to a penalty of not less than \$1,000 nor more than \$5,000...three or more such violations within any 12-month period shall be required to satisfy training requirements...(3) A person who owns or operates an underground facility or an underground location service who violates Section 10-21-060 shall be subject to a penalty of \$1,000... three or more such violations within any 12-month period shall be required to satisfy training requirements...(4) A person who violates Section 10-21-070 shall be subject to a penalty of not less than \$1,000 nor more than \$5,000...(5) A person who violates Section 10-21-080 shall be subject to a penalty of \$1,000 for each separate offense, and may be further sanctioned according to the following schedule: (A) For the first incident...issue a formal warning to the responsible person. (B) For the second incident...order the responsible person to satisfy training requirements. (C) For the third incident...may fine the responsible person up to \$1,500. (D) For the fourth incident...may fine the responsible person up to \$3,000. (E) For the fifth and each subsequent incident... may fine the responsible person up to \$3,000. (E) For the fine in increments of \$500 per additional incident, up to a maximum of \$10,000...(Ref. 10-21-040 Membership in DIGGER. 10-21-050 Excavation and demolition requirements. 10-21-060 Facility marking requirements. 10-21-070 Third-party violations. 10-21-080 Damage to underground facilities)

Solution Reference - Municipal Code of Chicago, Chapter 10-21 §110 - Chicago Underground Facilities Damage Prevention Ordinance (see also Municipal Code of Chicago, Chapter 10-21 §130, 210 & 230)

3. Effective Metrics

Tactical / **Process Issue Addressed** – Tactical: Lack of consistent and critical data for the development of continuous improvement efforts designed to change future behaviors and build a culture that embraces damage prevention.

Recommendation – Effective Metrics: Identify, develop, collect, and track metrics that effectively support trending and continuous improvement of the state damage prevention performance.

Solution Summary – The most widely recognized metric is total number of damages per 1000 tickets. This should be further refined to - total number of damages per 1000 transmissions, or outgoing tickets. It should be noted that there are several factors in the locate notification process that vary from state to state that make this metric unpredictable. National standardization of the notification process would potentially transform the industry through the direct result of stable data (see Standardize Ticket Size, Distance, Duration, and Life Recommendation). States that choose not to standardize would require substantial additional analysis in order to develop normalized metrics to support state-to-state and year-to-year analysis. Additional metrics include, but are not limited to:

- # of damages per construction spend or more specifically utility construction spend (normalization)
- # of damages per customer served (normalization)
- # of damages per state population (normalization)
- · the trending of damages against GDP growth
- the trending of damages against urban density or state average density

Solution Reference - North Carolina approach to data requirements, tracking, and analysis.

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4. Annual Reporting to CGA and DIRT

Tactical / Process Issue Addressed – Tactical: Lack of formal requirement to consistently report state performance data to Common Ground Alliance. Structure a system to support continuous improvement efforts through collection of data to identify trends, conduct root cause analysis, and ultimately support building a culture that embraces damage prevention.

Recommendation – Annual Reporting to CGA and DIRT: Require state entity(s) responsible for the oversight of the 811 system and collection and adjudication of compliance or damage reports, ticket volumes, etc. to submit data to the Common Ground Alliance (CGA) in support of the annual DIRT report.

Solution Summary – The Common Ground Alliance (CGA) is established and nationally recognized as the industry standard for continuous improvement and industry best practices specific to damage prevention. CGA's focus is solely on damage prevention and the update or development of best management practices along with the publication of the annual DIRT report highlighting state by state damage prevention performance.

Solution Reference - www.commongroundalliance.com

5. Standardize Ticket Size, Distance, Duration, and Life

Tactical / **Process Issue Addressed** – Tactical: Lack of consistent and ongoing improvements to various processes that support a high functioning damage prevention program.

Recommendation – Standardize Ticket Size, Distance, Duration, and Life: Standardize the ticket size, distance, duration, and life to the described characteristics.

A national standard supports and vastly improve efficiency throughout the utility locate and damage prevention process. Standardizing four basic elements of a notification request opens the possibility to complete robust analysis, build continuous improvement into the system, and simplify training and education programs. The four elements of notification and ticket standardization:

- 1. 3 working day notification time (addressed in Standardize Minimum Notification Time recommendation above)
- 2. 30 calendar day ticket duration
- 3. Ticket type:
 - a. Standard*
 - b. Complex*
 - c. Design
- 4. Ticket size limit:
 - a. Standard urban = 1,000 LF
 - b. Standard rural = 2,500 LF
 - c. Complex = joint meet, 5 working day clear
 - d. Design = joint meet, 10 working day clear

Solution Reference – Brings consistency to the notification process and ticket elements; balancing reasonable notification time for locators with ticket size and ticket life preferences. Creates an opportunity for locators to plan and resource level effectively, raising the likelihood of successful damage prevention and profit generation. In addition, the standardization streamlines locator, excavator, and stakeholder education and training.

^{*} Standard and Complex tickets are limited to one (1) refresh before a new notification is required.

Delaware Summary Conclusions

Overall, Delaware (DE) achieves satisfactory performance as measured by CGA's DIRT Report, and IPC; however, achieves unsatisfactory performance by PHMSA, and stakeholders. There are weaknesses or gaps in the Delaware dig law as well as processes that are inefficient and ineffective. Areas highlighted as needing improvement as rated by the stakeholders include:

1. Average Adjudication Process: No Third-Party Enforcement Board

- a. The Delaware damage adjudication process lacks effective enforcement with no third-party enforcement board to investigate or enforce throughout the adjudication process.
- b. Contractor and utility feedback raised concerns about whether the Delaware PSC is adequately staffed or has the resources to handle damage investigations and follow up. There is also disagreement about what the fines are for damages and violations.

2. Stakeholder Dissatisfaction with 811 System:

- a. Delaware stakeholders are dissatisfied with 811 notification system enforcement and the regulation & law characteristics. The efficiency of the 811 notification process structure and performance metrics were the only characteristics where modest satisfaction was described.
- b. The Delaware 811 notification process is 3 steps longer than the all state average process describing inefficiency in terms of the days and process steps required.
- c. The frequency of Unneeded Locate Requests, destroyed marks, and extensive Contractor Wait Time are rated as occurring daily and fall into the 4th Quartile.

3. <u>811 Board Appropriately Sized & Unbalanced:</u>

a. The board is made up of 12 participants, including eight (8) utilities/asset owners, one (1) locator representative, one (1) engineering representative, one (1) other representative and one (1) vacant seat. The board is an appropriate size and has moderately balanced stakeholder representation.

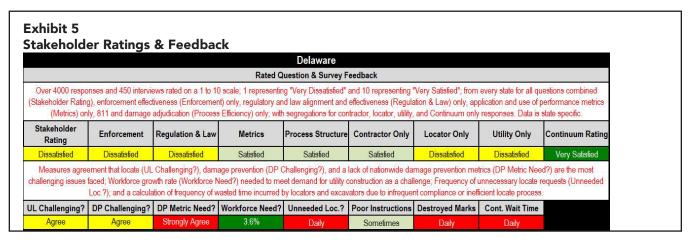
4. 2014, 2019, and 2020 PHMSA Assessments:

- a. 2014 PHMSA Statewide Damage Prevention Programs Assessment some elements were rated as "Program Element Partially Implemented/Not Fully Developed."
- b. 2019 PHMSA Gas State Program Evaluation rating of 94.7 out of 100. Points deducted from "Program Performance" and "State Qualifications" sections.
- c. 2020 PHMSA State Damage Prevention Enforcement Program Assessment rating of "inadequate." PHMSA recognized that the updated dig law from 2018 that had finalized regulatory approach to enforcement actions in October 2020 was a step in the right direction with demonstration of application and enforcement necessary.

Delaware Interview Rated Question Analysis

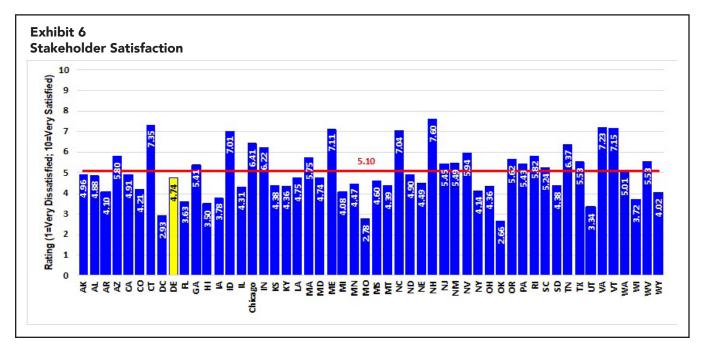
Conclusions

Overall, Delaware is ranked in the 2nd Quartile. Research concludes that Delaware is performing at a higher level, despite stakeholder dissatisfaction. Contributing to Delaware's rated performance is the significant stakeholder dissatisfaction described on multiple aspects of the 811 notification system and damage adjudication processes. Specifically, stakeholders indicated they were "dissatisfied" with enforcement application and approach, and regulation and law structure and application, with these aspects falling into the 3rd Quartile. Stakeholders indicated they were only satisfied with the 811 notification process efficiency, and performance metrics, which fell in the 2nd Quartile. There are multiple areas for improvement which revolve around frequent unneeded locate requests, destroyed marks, and contractor wait time associated with asset owner or locators' non-compliance with the locate request or completion during the notice period (Exhibit 5 - Stakeholder Ratings & Feedback).



Findings & Observations

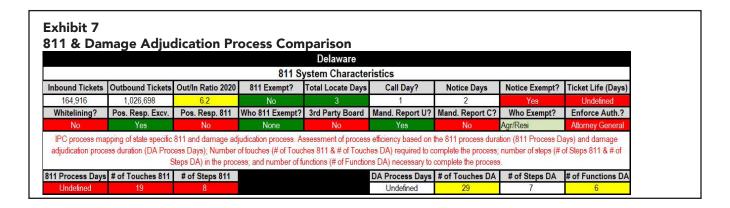
Delaware stakeholders rate all aspects of the DE 811 process as unsatisfactory, excluding the overall process structure and performance metrics, yielding a total score of 4.74 on a 1 to 10 scale (Exhibit 6 – Stakeholder Satisfaction). The standard deviation or variance in responses is very low, indicating consistent opinions. Three areas fell within the 4th Quartile, the frequency of unneeded locate requests, destroyed marks, and contractor wait time associated with asset owner or locators' noncompliance with the locate request or completion during the notice period.



Delaware 811 Process Mapping

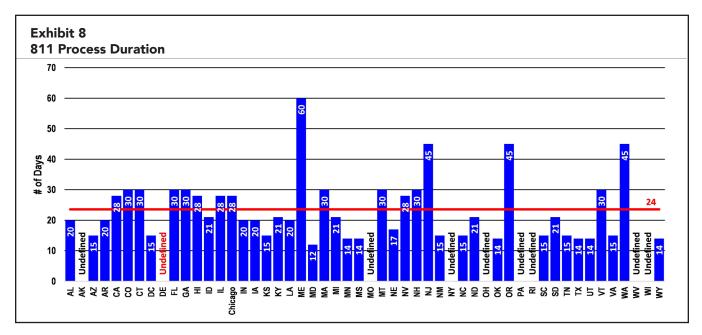
Conclusions

Overall, Delaware is ranked in the 2nd Quartile. An additional factor contributing to this performance is the inefficiency of the 811 notification and damage adjudication processes. Specifically, the 811 notification process is not well defined or efficient compared with other states, with the number of steps and touches throughout the process falling into the 4th Quartile, while the damage adjudication process does not balance stakeholder perspectives with effectiveness and pace, with the number of touches and functions in the process falling into the 3rd Quartile (Exhibit 7 - 811 & Damage Adjudication Process Comparison).



Findings & Observations

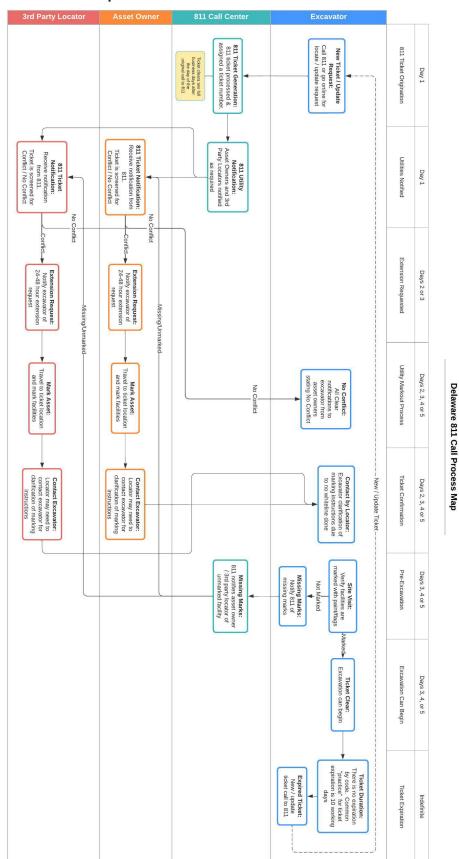
Delaware's ticket life is undefined and does not fit within the preferred range of 15-30 days. This undefined ticket life does not yield an efficient 811 process that balances the needs of the asset owner, locator, and excavator stakeholders. The number of 811 process touches and steps are greater than the industry average, and therefore the process is less efficient in comparison to other states. (Exhibit 8 – 811 Process Duration and Exhibit 9 - Delaware 811 Process Map)



The Damage Adjudication process in DE is not guided by a 3rd party investigation and enforcement board that equally represents all stakeholder groups, streamlines the adjudication process, and provides recommendations to the public utility commission.

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Exhibit 9 811 Process Map



Delaware 811 Board Structure

Conclusions

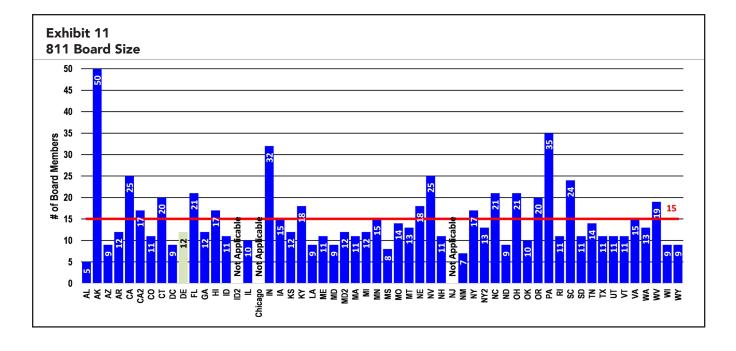
Overall, Delaware is ranked in the 2nd Quartile. Further contributing to this performance is the nature and characteristics of the 811 Board. Specifically, the Delaware 811 Board is only moderately balanced across all stakeholder groups (Exhibit 10 – 811 Board Composition).

		Delaware			
		811 Board Composit	tion		
State Law Define?	Board Size	Board Composition	Balanced?	3rd Party Operator?	For Profit?
No	12	2021 = Asset Owners or Utilities: 8; Excavator Community: 0; Locator Community: 1; Engineering: 1; Other: 1; Vacant 1	Medium	One Call Concepts	Not-For-Profit; 501(c)(12)

Findings & Observations

The composition of the 811 Board is not specifically addressed in the Delaware dig law and results in an moderately balanced board that includes eight (8) asset owners or utilities, one (1) locator representative, one (1) engineering representative, one (1) other representative, and one (1) vacant seat.

Across the US, the Board size is below average at 12 members, and is of an appropriate size (Exhibit 11 - 811 Board Size).



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