



**Missouri
Report**

Updated 06/15/2022

811 EMERGENCY

**\$61 Billion Lost to Waste, Inefficiency
in System to Protect Underground Utilities**

Infrastructure Protection Coalition • www.ipcweb.org





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Inefficiency in System to
Protect Underground Utilities**

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:



(913) 345-0403 • www.continuumcapital.net

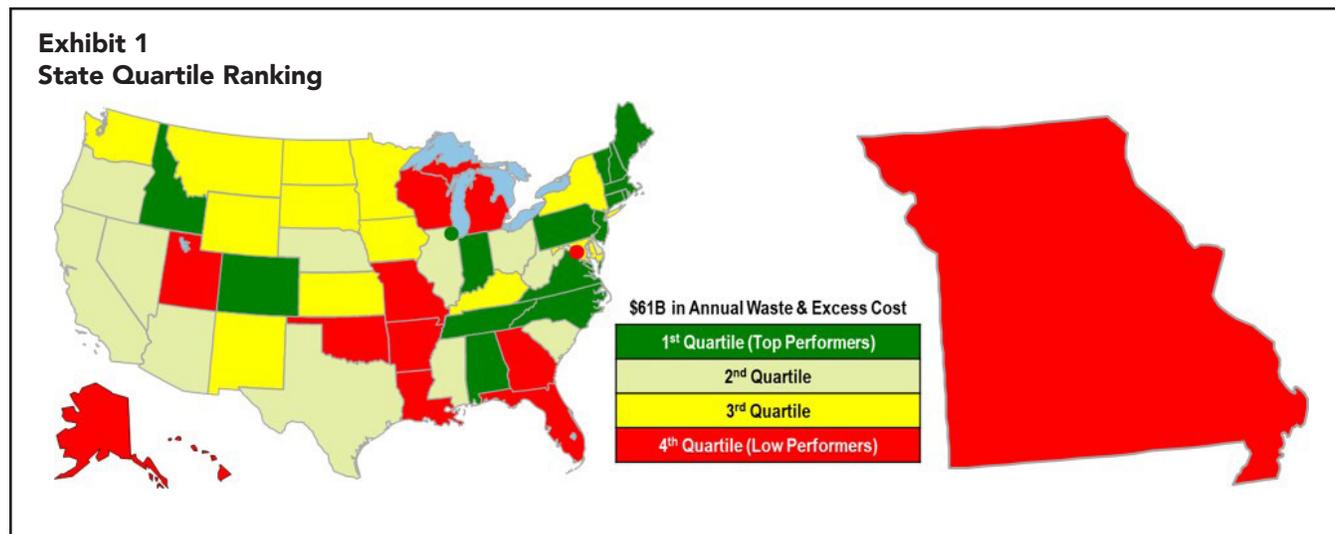


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Missouri Executive Summary

Missouri is ranked in the 4th Quartile (Exhibit 1 - State Quartile Ranking) and overall, the current structure and process in place is not efficient or effective compared to other states. 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. Missouri performed in the 4th Quartile for two characteristics, the 3rd Quartile for two characteristics, the 2nd Quartile for three characteristics, and the 1st Quartile for one characteristic (Exhibit 2 - State Overall Performance).



The 2019 Missouri estimated total damage cost is approximately \$1.1 billion 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) periodic unneeded locate requests;
- 2) periodic locator wasted time due to poor instructions;
- 3) rare locator wasted time due to destroyed marks;
- and 4) frequent 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 \$600 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 8 recommendations proposed, will eliminate \$1.2 billion 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 90x over the 3-5 year implementation timeline. These savings represent both damage frequency and waste embedded in the system. Severe damage reduction and public safety or societal benefits are not calculated and are 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).

**Exhibit 2
State Overall Performance**

Continuum Rating	PHMSA DP Rate	Stakeholder Rating	Unneeded Loc.?
Very Dissatisfied	Qualified Adequate	Dissatisfied	Sometimes
Poor Instructions	Destroyed Marks	Cont. Wait Time	Est. Damage Cost (Millions)
Sometimes	Rarely	Often	\$1,146.60

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Exhibit 3 One Page Summary

Missouri								
State Quartile	Continuum Rating	PHMSA DP Rate	Stakeholder Rating	Unneeded Loc.?	Poor Instructions	Destroyed Marks	Cont. Wait Time	Est. Damage Cost (Millions)
4th Quartile	Very Dissatisfied	Qualified Adequate	Dissatisfied	Sometimes	Sometimes	Rarely	Often	\$1,146.60
State Demographic Information <small>nc = not calculated</small>								
State Capital	State Population	Density per Mile	Largest MSA (metropolitan statistical area)		# MSA>250,000	St. Const. Spend; Growth Rate (millions)		
Jefferson City	6,137,428	89.52	St. Louis	2,803,228	2	\$19,033	1.7%	
St. Utility Spend; Growth Rate (millions)		Locator Spend; Growth Rate (millions)						
\$12,700		3.0%		\$86		14.2%		
811 System Characteristics								
History				System Name	Law Adopted	Last Updated		
Missouri Revised Statutes, Chapter 319, Section 319.010 to Section 319.050, Underground Facility Safety and Damage Prevention Act was adopted in 1991 and was most recently revised in 2015. The 2015 update revised statute RSMO 319.026.10 to include a requirement for all underground electric, gas and pipeline facility owners to submit a report				Missouri One-Call System, Inc.	1976 Limited; 1992 Comprehensive	2015		
Inbound Tickets	Outbound Tickets	Out/In Ratio 2020	811 Exempt?	Total Locate Days	Call Day?	Notice Days	Notice Exempt?	Ticket Life (Days)
1,043,948	5,575,909	5.3	Yes	3	1	2	Yes	Undefined
Whitelining Req.?	Pos. Resp. Excv.	Pos. Resp. 811	Who 811 Exempt?	3rd Party Board	Mand. Report U?	Mand. Report C?	Who Exempt?	Enforce Auth.?
No	No	Yes	Railroad	No	No	Yes	Agr/Rail Maint	Attorney General
IPC process mapping of state specific 811 and damage adjudication process. Assessment of process efficiency based on the 811 process duration (811 Process Days) and damage adjudication process duration (DA Process Days); Number of touches (# of Touches 811 & # of Touches DA) required to complete the process; number of steps (# of Steps 811 & # of Steps DA) in the process; and number of functions (# of Functions DA) necessary to complete the process.								
811 Process Days	# of Touches 811	# of Steps 811			DA Process Days	# of Touches DA	# of Steps DA	# of Functions DA
Undefined	19	8			Undefined	29	7	6
811 Board Composition								
State Law Define?	Board Size	Board Composition			Balanced?	3rd Party Operator?	For Profit?	
Yes	14	Asset Owners or Utilities: 14;			Low	None	Not-For-Profit, 501(c)(6)	
811 Performance Data								
DIRT (Damage Reporting Information Reporting Tool) represents the number of underground utility damages reported to the CGA in 2019 (DIRT 19 Damages) and 2018 (DIRT 18 Damages) for each state as a total, damages per 1000 outbound tickets (Per 1000 Tickets), damages per 100,000 of the state population (Per 100,000 Pop.), damages per square mile (Per sq. Mile), and estimated state damage cost (Est. Damage Cost) in millions based on the 2019 data.								
DIRT 19 Damages	Per 1000 Tickets	Per 100,000 Pop.	Per sq. Mile	Est. Damage Cost	DIRT 18 Damages	Per 1000 Tickets	Per 100,000 Pop.	Per sq. Mile
20,475	4.2	333.6	232.8	\$1,146.60	18,121	3.4	295.8	206.4
PHMSA 2014 Assessment								
2014 PHMSA assessment of 9 characteristics of the utility locate & damage prevention process. IPC converted PHMSA's color coded ratings to a numerical format where 10 represents the highest performance, 5 as average performance, and 1 and the lowest performance.								
Communication	Partnering	Perf. Measures	Training	Public Ed.	Issue Resolution	Fair Enforcement	Tech Use	Cont. Improve
9.5	10.0	10.0	9.0	9.0	5.0	7.5	9.3	7.1
Rated Question & Survey Feedback								
Over 4000 responses and 450 interviews rated on a 1 to 10 scale; 1 representing "Very Dissatisfied" and 10 representing "Very Satisfied", from every state for all questions combined (Stakeholder Rating), enforcement effectiveness (Enforcement) only, regulatory and law alignment and effectiveness (Regulation & Law) only, application and use of performance metrics (Metrics) only, 811 and damage adjudication (Process Efficiency) only; with segregations for contractor, locator, utility, and Continuum only responses. Data is state specific.								
Stakeholder Rating	Enforcement	Regulation & Law	Metrics	Process Structure	Contractor Only	Locator Only	Utility Only	Continuum Rating
Dissatisfied	Very Dissatisfied	Dissatisfied	Dissatisfied	Dissatisfied	Very Dissatisfied	Dissatisfied	Dissatisfied	Very Dissatisfied
Measures agreement that locate (UL Challenging?), damage prevention (DP Challenging?), and a lack of nationwide damage prevention metrics (DP Metric Need?) are the most challenging issues faced; Workforce growth rate (Workforce Need?) needed to meet demand for utility construction as a challenge; Frequency of unnecessary locate requests (Unneeded Loc. ?); and a calculation of frequency of wasted time incurred by locators and excavators due to infrequent compliance or inefficient locate process.								
UL Challenging?	DP Challenging?	DP Metric Need?	Workforce Need?	Unneeded Loc.?	Poor Instructions	Destroyed Marks	Cont. Wait Time	
Agree	Agree	Strongly Agree	4.0%	Sometimes	Sometimes	Rarely	Often	
Legend								
No Quartile Rank		1st Quartile	2nd Quartile	3rd Quartile	4th Quartile			

Missouri Recommendations

Recommendation Summary

Overall, Missouri achieves inadequate performance as measured by PHMSA, CGA's DIRT Report, IPC, and stakeholders. There are weaknesses or gaps in the Missouri dig law that are directly related to its low performance. Opportunities for further improvement include the following:

1. **Mandatory Damage Reporting:** Refine the dig law to require reporting of all damages (not necessarily investigation into all damages) to all underground utility types to support more effective data collection, process improvement, damage adjudication and enforcement.
2. **Balanced Enforcement:** Cause enforcement authority to weigh involvement of all primary participants in a damage and in a fair and balanced fashion hold the asset owner, excavator and locator responsible in the damage adjudication process.
 - a. Bring balance to the penalty structure so that asset owners, excavators, and locators all face similar risks and responsibility.
3. **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.
4. **Ineffective Penalty Structure:** Bring balance to the penalty structure or amount so that asset owners, excavators, and locators all face similar risks and responsibility.
5. **Effective Metrics:** Identify, develop, collect, and track metrics that effectively support trending and continuous improvement of the state damage prevention performance.
6. **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.
7. **Positive Response Requirement:** A web based electronic positive response requirement by all asset owners / locators through the 811 system. Ticket holders can choose how to receive positive response from this electronic system.
8. **Standardize Ticket Size, Distance, Duration, and Life:** Standardize the ticket size, distance, duration, and life to the described characteristics.

The 2019 Missouri estimated total damage cost is approximately \$1.1 billion in annual and out of pocket cost to the system. There is an additional \$600 million in waste, inefficiency, and excess cost that is imbedded in the system and largely invisible. The 8 recommendations proposed, will eliminate \$1.2 billion 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 90x over the 3-5 year implementation timeline. (Exhibit 4 – State Utility Locate System Cost Impacts)

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	20,475	\$13.00	60%	(\$700.00)
Damage Severity	nc		nc	nc
Unneeded Locates	Sometimes		65%	(\$14.00)
Poor Instruction to Locator	Sometimes		65%	(\$3.00)
Destroyed Marks	Rarely		65%	(\$1.00)
Contractor Wait Time	Often		75%	(\$500.00)
			Total Reduction	(\$1,218.00)

Source: Proprietary Continuum analysis.

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. Mandatory Damage Reporting

Tactical / Process Issue Addressed – Process: Hold responsible parties accountable for damages and cause them to change future behavior. 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 – Mandatory Damage Reporting: Refine the dig law to require reporting of all damages (not necessarily investigation into all damages) to support more effective damage adjudication and enforcement.

Solution Summary – New Hampshire law states...each operator shall file monthly, with the commission, on or before the 15th day of the following month, probable violations of PUC 800, damages to underground facilities, or both. Excavators are required to notify 811 of any damage as well as...report the damage within 72 hours, excluding weekends and holidays, to the commission.

Solution Reference - New Hampshire Code of Administrative Rules, Chapter PUC 800 - Underground Utility Damage Prevention Program, parts 802, 804 & 805

2. Balanced Enforcement

Tactical / Process Issue Addressed – Tactical: Fair and balanced enforcement with responsible parties to achieve accountability based on their individual role or contribution to any particular damage.

Recommendation – Balanced Enforcement: Cause enforcement authority to weigh involvement of all primary participants in a damage and in a fair and balanced fashion hold the asset owner, excavator and locator responsible in the damage adjudication process.

Solution Summary – Where...the facility owner...has misidentified, mislocated or failed to identify its facilities pursuant to this act, then in computing the amount of reimbursement to which the facility owner is entitled, the cost of repairing or replacing its facilities shall be diminished in the same proportion that the facility owner's or designer's misidentification, mis-location or failure to identify the facilities contributed to the damage.

Solution Reference - See Pennsylvania Law - Underground Utility Line Protection Law - 806, No. 50, Section 5, §12.i and 12.ii, SB242

3. 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.

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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)

4. 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 \$3,500 for the fifth incident...to increase 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)

5. 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.

6. 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

7. Positive Response Requirement

Tactical / Process Issue Addressed – Tactical: - Increased potential for asset damage due to excavation beginning before all potentially affected utilities have acknowledged an “all clear” or “locate complete”.

Recommendation – Positive Response Requirement: A web based electronic positive response requirement by all asset owners / locators through the 811 system. Ticket holders can choose how to receive positive response from this electronic system.

Solution Summary – Tennessee law states...Each operator participating in a one-call service that has been notified...shall notify the one-call service that the operator has marked the approximate location of all of its underground utilities as required...or that the operator has no underground utilities in the proposed area of excavation. This notice shall fulfill the operator's obligation. When each operator notified...has notified the one-call service that its underground utilities in the proposed area of excavation have been marked or that the operator has no underground utilities in the proposed area of excavation, the person responsible for the excavation or demolition may immediately proceed with the excavation or demolition, notwithstanding the minimum three-working-day notice requirement...

Solution Reference - Tennessee Code Title 65, Chapter 31, Part 108.3.b

8. Standardize Ticket Size, Distance, 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

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

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.

Missouri Summary Conclusions

Overall, Missouri (MO) is ranked in the 4th Quartile of states in the design and implementation of its utility locate and damage prevention process and achieves inadequate performance as measured by PHMSA, CGA's DIRT Report, IPC, and stakeholders. Areas highlighted and contributing to this low performance include:

1. Regressive Damage Adjudication:
 - a. Stakeholder feedback suggests damage prevention is considered a necessary evil by operators in MO, and lacks sincerity.
 - b. The MO damage penalty structure is nonexistent. Penalties are discretionary and only apply to cases that involve expensive property damage or loss of life.
2. Weak Enforcement Structure:
 - a. Damage reporting, other than gas and pipeline related damages, is not required by law.
 - b. MO would benefit from the implementation of a third-party enforcement board.
3. Inconsistent & Inefficient 811 Process:
 - a. The MO locate process overall rating is 2 points below the average across all other states and ranks 50th among them, indicating that it is a very low performing state compared to others.
 - b. The MO 811 notification process is 2 steps longer than the average across states and is therefore less efficient than the industry average in terms of the number of process steps required.
 - c. Stakeholder feedback indicates quality and timeliness of locates has declined as a result of MO's wide usage of third-party locators.
4. Unsatisfactory Performance Perspective from All Stakeholders:
 - a. Missouri's performance is viewed as unsatisfactory by all the stakeholders in the areas of 811 enforcement, regulation and law structure and application, process and structure, metrics, and contractor wait time due to non-compliance.
 - b. All process characteristics are rated in the 3rd and 4th Quartiles, representing dissatisfaction from stakeholders.
 - c. Areas for improvement revolve around contractor wait time associated with asset owner or locators' non-compliance with the locate request or locates not completed during the notification period.
5. 811 Board Composition Unbalanced:
 - a. MO state law describes the Missouri One Call System (MOCS) Board composition and requires members to originate from the general membership. The current Board is made of up 14 utility/asset owner representatives. The Board is unbalanced in makeup.
 - b. A MOCS Operating Committee exists and is a subset of and reports to the MOCS Board. In addition, an Advisory Committee of three members exist representing locator and excavator stakeholders and participate in MOCS Board meetings as non-voting members.
6. 2014, 2019, and /2020 PHMSA Assessments:
 - a. 2014 PHMSA Statewide Damage Prevention Program Assessment – some elements were rated as “Program Element Partially Implemented/Needs Improvement.”
 - b. 2019 PHMSA Gas State Program Evaluation – rating of 100, highest possible score.
 - c. 2020 PHMSA State Damage Prevention Enforcement Program Assessment - rating of “qualified adequate” with the following improvement opportunities highlighted:
 - i. In CY 2019, Missouri's gas distribution operators reported a total of 2,471 excavation damages to their pipeline facilities in the annual reports submitted to PHMSA. Only five (less than one percent) of these damages were submitted as complaints to the Missouri Attorney General and all five led to an enforcement action. Additionally, of the 2,471 damages reported, 945 (38%) were attributed to pipeline operators not having complied with their responsibilities in accordance with Missouri's one-call law. None of the enforcement actions taken were against pipeline operators.

Missouri Interview Rated Question Analysis

Conclusions

Overall, Missouri is ranked in the 4th Quartile. The outstanding factor contributing to this performance is the negative feedback received on every aspect of the 811 notification and damage adjudication processes from all stakeholders. Specifically, stakeholders indicated they were dissatisfied with enforcement application and approach, regulation and law structure and application, the 811 notification process and structure, performance metrics, and contractor wait time. There are multiple areas for improvement which revolve around contractor wait time associated with asset owner or locators' non-compliance with the locate request or locates not completed during the notice period (Exhibit 5 - Stakeholder Ratings & Feedback).

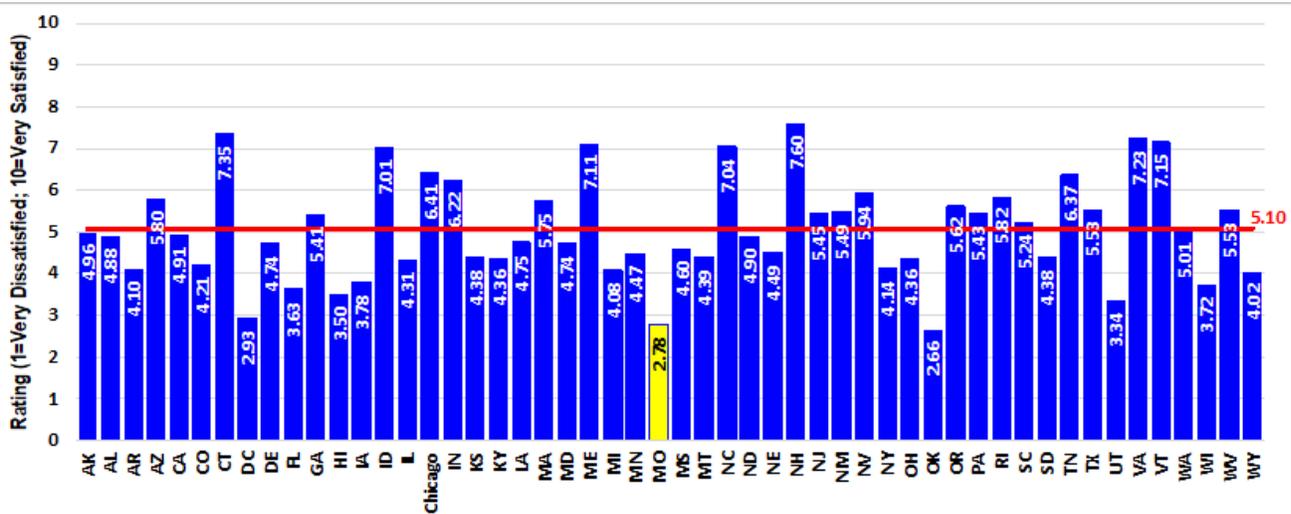
**Exhibit 5
Stakeholder Ratings & Feedback**

Missouri								
Rated Question & Survey Feedback								
Over 4000 responses and 400 interviews rated on a 1 to 10 scale, with 1 representing "Very Dissatisfied" and 10 representing "Very Satisfied", from every state for all questions combined (Stakeholder Rating), enforcement effectiveness (Enforcement) only, regulatory and law alignment and effectiveness (Regulation & Law) only, application and use of performance metrics (Metrics) only, 811 and damage adjudication process efficiency only, followed by segregations for contractor, locator, utility, and Continuum only responses.								
Stakeholder Rating	Enforcement	Regulation & Law	Metrics	Process Structure	Contractor Only	Locator Only	Utility Only	Continuum Rating
Dissatisfied	Very Dissatisfied	Dissatisfied	Dissatisfied	Dissatisfied	Very Dissatisfied	Dissatisfied	Dissatisfied	Very Dissatisfied
Measures agreement that locate (UL Challenging?), damage prevention (DP Challenging?), and a lack of nationwide damage prevention metrics (DP Metric Need?) are the most challenging issues faced; Workforce growth rate (Workforce Need?) needed to meet demand for utility construction as a challenge; Frequency of unnecessary locate requests (Unneeded Loc. ?); and a calculation of frequency of wasted time incurred by locators and excavators due to infrequent compliance or inefficient locate process.								
UL Challenging?	DP Challenging?	DP Metric Need?	Workforce Need?	Unneeded Loc.?	Poor Instructions	Destroyed Marks	Cont. Wait Time	
Agree	Agree	Strongly Agree	4.0%	Sometimes	Sometimes	Rarely	Often	

Findings & Observations

Missouri stakeholders rate all aspects of the MO 811 process as below average, yielding a total score of 2.78 on a 1 to 10 scale (Exhibit 6 – Stakeholder Satisfaction). The standard deviation or variance in response is very low indicating consistent opinions. One area that fell into the 3rd Quartile was the contractor wait time associated with asset owner or locators' non-compliance with the locate request or locate completion during the notice period, and was indicated as a frequent occurrence.

**Exhibit 6
Stakeholder Satisfaction**



Missouri 811 Process Mapping

Conclusions

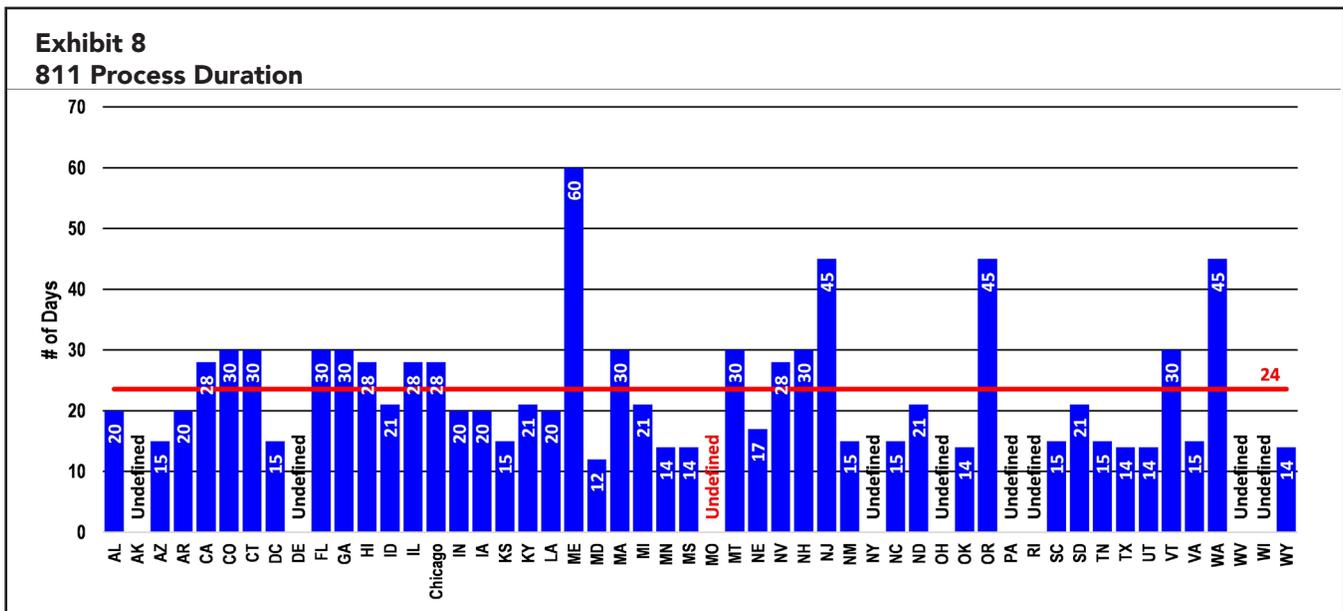
Overall, Missouri is ranked in the 4th Quartile. An additional factor contributing to this performance is the inefficiency of the 811 notification and damage adjudication processes. Specifically, the 811 process is not well defined or consistent, while the damage adjudication process does not balance stakeholder perspectives with effectiveness and pace. (Exhibit 7 - 811 & Damage Adjudication Process Comparison)

Exhibit 7
811 & Damage Adjudication Process Comparison

Missouri									
811 System Characteristics									
Inbound Tickets	Outbound Tickets	Out/In Ratio 2020	811 Exempt?	Total Locate Days	Call Day?	Notice Days	Notice Exempt?	Ticket Life (Days)	
1,043,948	5,575,909	5.3	Yes	3	1	2	Yes	Undefined	
Whitelining?	Pos. Resp. Excv.	Pos. Resp. 811	Who 811 Exempt?	3rd Party Board	Mand. Report U?	Mand. Report C?	Who Exempt?	Enforce Auth.?	
No	No	Yes	Railroad	No	No	Yes	Agr/Rail Maint	Attorney General	
IPC process mapping of state specific 811 and damage adjudication process. Assessment of process efficiency based on the 811 process duration (811 Process Days) and damage adjudication process duration (DA Process Days); Number of touches (# of Touches 811 & # of Touches DA) required to complete the process; number of steps (# of Steps 811 & # of Steps DA) in the process; and number of functions (# of Functions DA) necessary to complete the process.									
811 Process Days	# of Touches 811	# of Steps 811				DA Process Days	# of Touches DA	# of Steps DA	# of Functions DA
Undefined	19	8				Undefined	29	7	6

Findings & Observations

Missouri's ticket life is undefined and falls outside the preferred range of 15-30 days; this undefined timeline does not yield an efficient 811 notification process that balances the needs of the asset owner, locator, and excavator stakeholders, according to stakeholder feedback. The number of 811 notification process touches and steps are higher than the national average, making Missouri's process less efficient in comparison to other states. (Exhibit 8 - 811 Process Duration and Exhibit 9 - Missouri 811 Process Map)

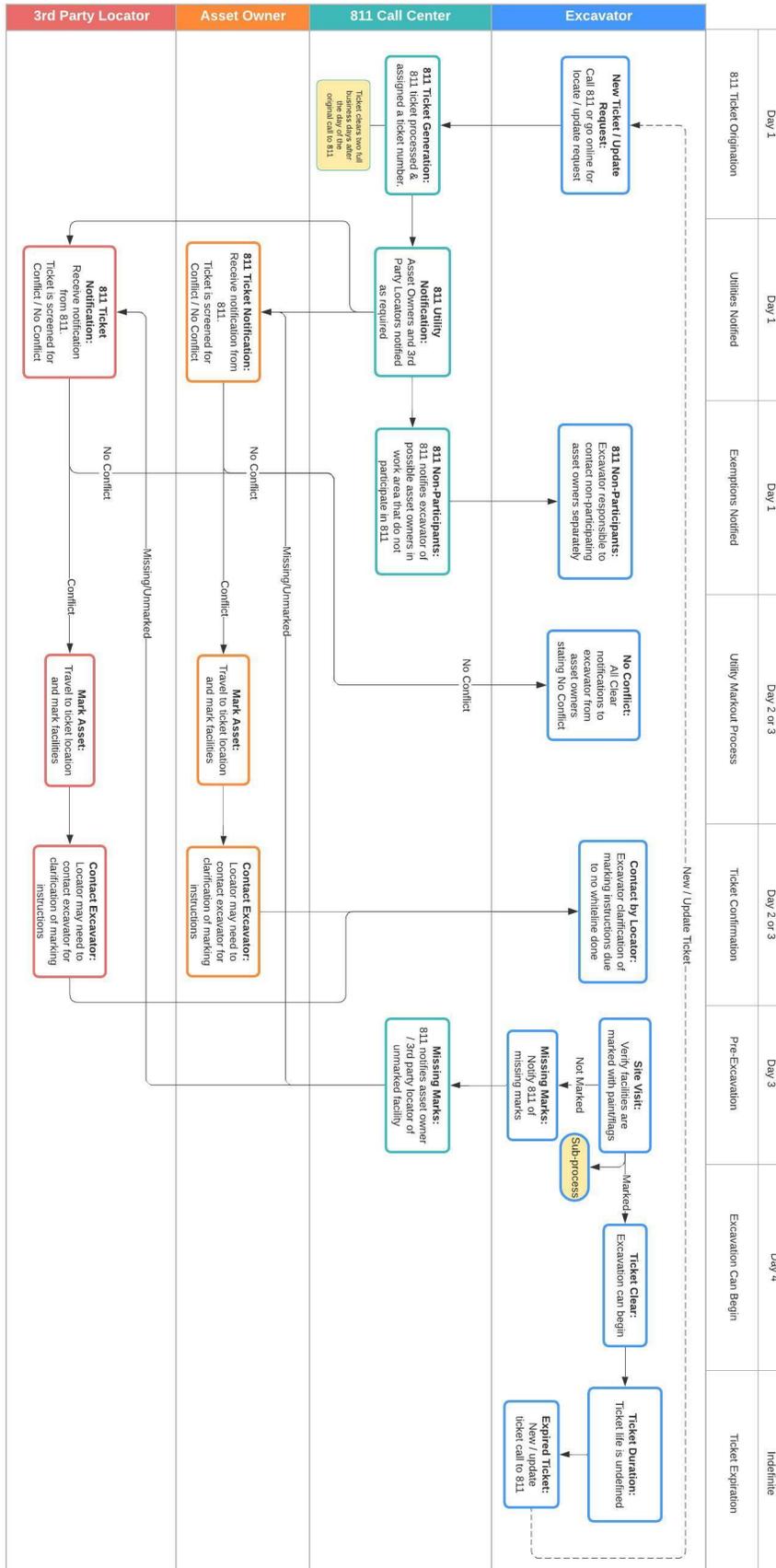


The Damage Adjudication process in MO is not guided by a third-party investigation and enforcement board that equally represents all stakeholder groups, streamlines the adjudication process, and provides recommendations to the public utility commission.

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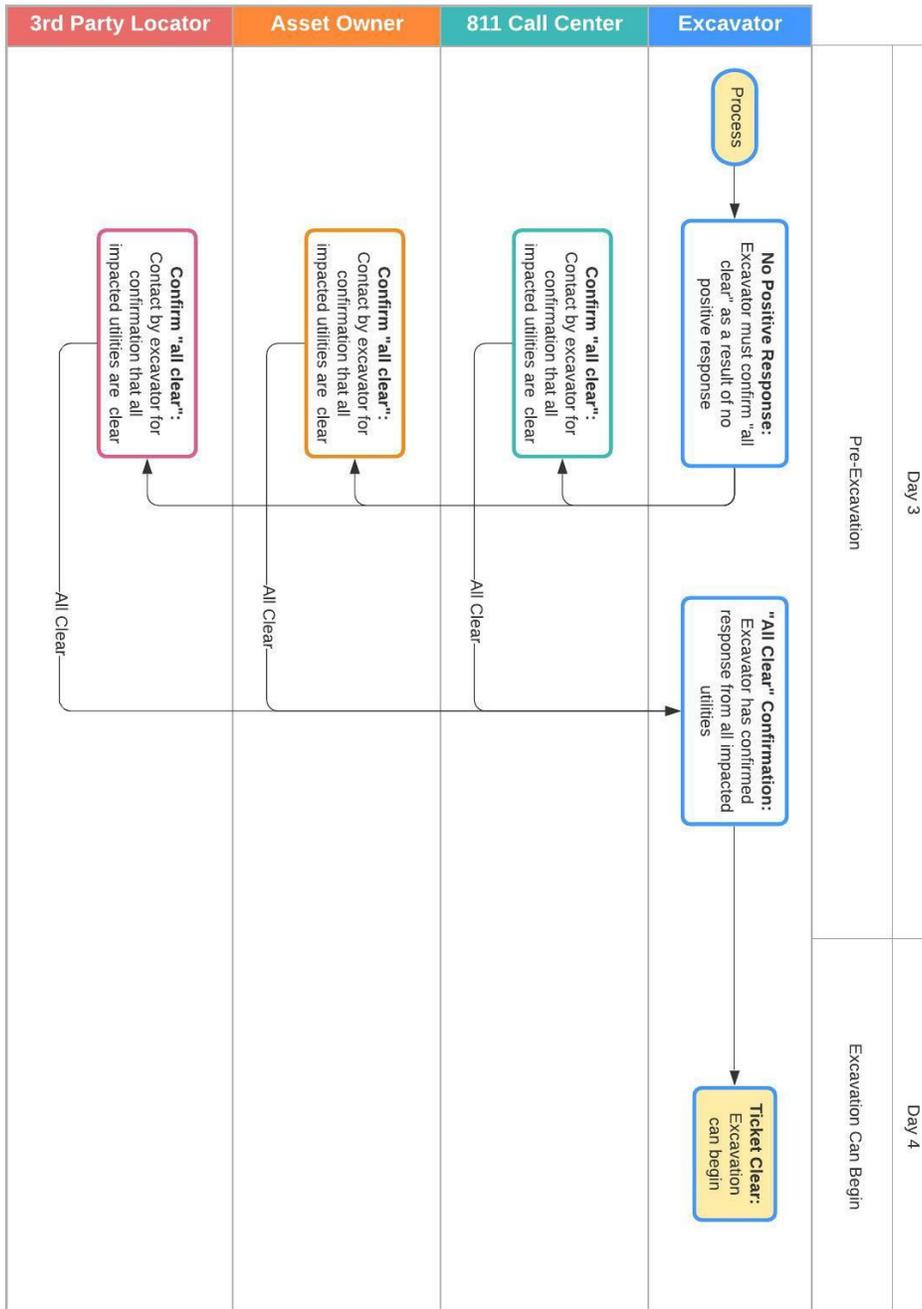
Exhibit 9
811 Process Map



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Exhibit 9a
811 Sub-Process Map



Missouri 811 Call Sub-process Map

Missouri 811 Board Structure

Conclusions

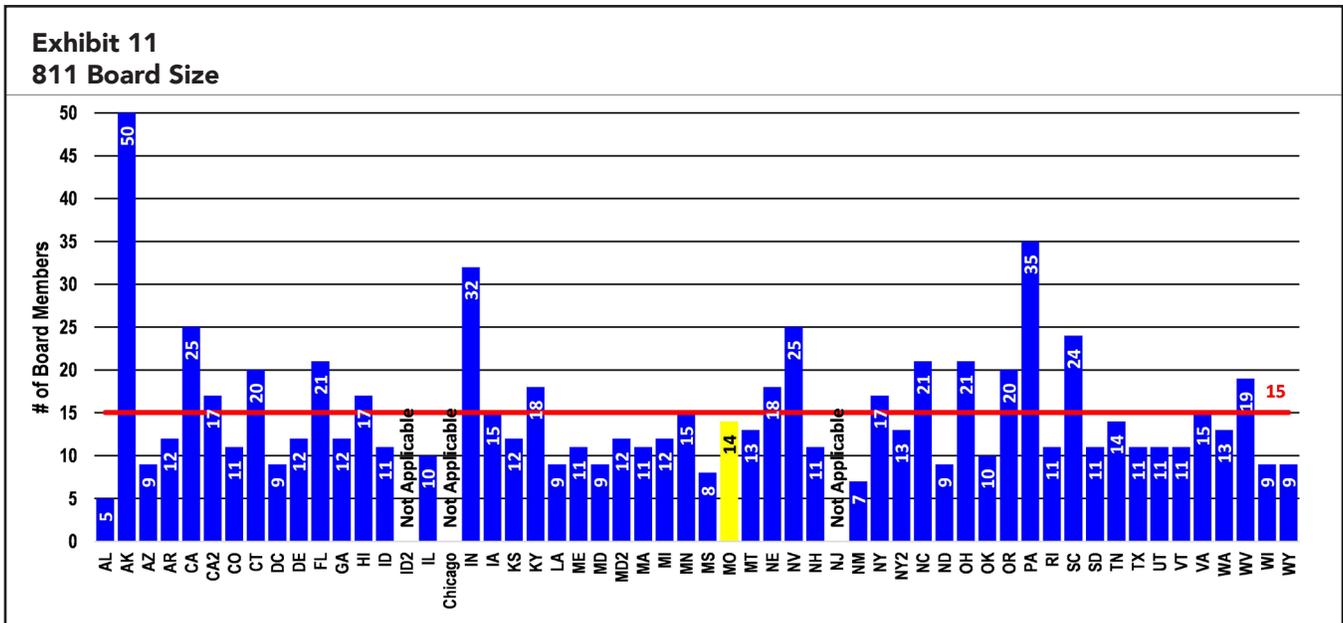
Overall, Missouri is ranked in the 4th Quartile. One additional factor contributing to this low performance is the nature and characteristics of the 811 Board. Specifically, the Missouri 811 Board does not have well balanced stakeholder representation (Exhibit 10 – 811 Board Composition).

Exhibit 10
811 Board Composition

Missouri						
811 Board Composition						
State Law Define?	Board Size	Board Composition	Balanced?	3rd Party Operator?	For Profit?	
Yes	14	Asset Owners or Utilities: 14;	Low	None	Not-For-Profit, 501(c)(6)	

Findings & Observations

The composition of the 811 Board is specifically addressed in the Missouri dig law, but there are no strict requirements stated in the law to ensure equal stakeholder representation. Although the board has three non-voting advisory members, made up of two contractors and one locator, the lack of a requirement for voting participation results in an unbalanced board currently made up of 14 asset owners or utility representatives.



Across the US, Missouri's Board size of 14 is both below the national average and too large and unbalanced for effective operation. (Exhibit 11 – 811 Board Size)

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