NOTES:

- Results from the polling questions asked during the web meeting are provided at the end of this document.
- Some links may only be accessible with a RITIS account.
- You can send any additional questions to John Allen (jallen35@umd.edu)

C: **Steven Mullins (Virginia DOT):** Virginia has started using the templates now as well.

A: John Allen (University of Maryland CATT Lab): That's awesome Steven! Would love to talk to you about your work, and maybe have you present at a future RITIS User Group meeting.

Q: **Vijay Sabawat (FELSBURG HOLT & ULLEVIG (FHU)):** How accurate is INRIX data on signalized intersection corridors?

A: John Allen (University of Maryland CATT Lab): The CATT Lab and INRIX have partnered on a Signal Analytics tool, that uses speed data sourced from connected vehicles, that typically comprise 2% to 8% of the traffic stream. Because actual vehicle positions are known every 3-5 seconds, the precise speeds and pathways through signalized intersections can be isolated and analyzed. With this tool, users can access movement-specific metrics to identify, rank and prioritize intersection signal projects, or conduct many other forms of analysis. Signal Analytics allows users to conduct systemwide intersection comparisons and performance monitoring, and it also provides the ability to drill down to understand individual intersection movements. A brochure is attached with additional information.

Q: **Debbie Albert (Texas A&M Transportation Institute):** Can these templates be used for a network too or just a corridor?

A: John Allen (University of Maryland CATT Lab): You can use the RITIS templates for a single hotspot to a roadway segment up to a network - it depends on what you're trying to convey. And don't forget – you can use any template (and the use case examples) for any situation – it all depends on what you think works best in communicating results to your audience.

Q: **Rob Pangborn (Maryland Transportation Authority):** Where is the template shown located? The template I just downloaded from the site looks different.

John Allen (University of Maryland CATT Lab): This is a newer template and is not deployed yet - I can provide you a copy, or help you develop a use case.

Q: **Zebedee Brye (North Carolina DOT):** What's the difference between HERE and INRIX data?

A: John Allen (University of Maryland CATT Lab): HERE and INRIX are two different data provider companies. The data itself is very similar (vehicle probe data) but may

have different factors (e.g. - Confidence factors) For more detail, go to:
https://pda.ritis.org/suite/help/#data-types.

Q: **Jessica Carpenter (Michigan DOT):** Can we get the 85th percentile numbers as well, particularly for speed?

A: Rick Ayers (University of Maryland CATT Lab): Yes. It's not part of the default setting, but you can derive this metric using Probe Data Analytics.

Q: **Elizabeth Bowen (Northwest Arkansas Regional Planning Commission):** Is there traffic volume available?

A: Rick Ayers (University of Maryland CATT Lab): Various tools within PDA leverage volumes. Volume data is necessary for these elements to report the user delay costs, vehicle hours of delay, and determining bottlenecks. Many of our state users provide their volume data to us regularly so that we have authoritative AADT to ingest and use as part of the performance measure calculations. If your agency does not have volume data, then there are third-party data providers you can use as well in RITIS. You can find a list of those vendors on the right side of this page. But generally speaking, most of our PDA users provide us with their volume data, and we pull that out. Volumes are an input to develop metrics but they are not an output for RITIS.

Q: **Zebedee Brye (North Carolina DOT):** What data did you use for this report?

A: Rick Ayers (University of Maryland CATT Lab): The use cases being shown are in Virginia, so since Virginia DOT subscribes to INRIX, I used INRIX data for this report. Elements/metrics are derived directly from INRIX data, INRIX and VA volume data, or using other data provided by VDOT. As a full enterprise user of RITIS, VDOT's information (incidents, work zones, DMS, CCTVs, roadway deployed speed sensors, etc.) is integrated and overlayed in the results of various data visualizations and analyses that are produced via Probe Data Analytics.

Q: **Zohora Sultana (Oregon DOT):** How did you select the 95th percentile speed as the free flow speed?

A: Rick Ayers (University of Maryland CATT Lab): You can use whatever value you want – For demonstration purposes, I simply used the 95th percentile.

Q: **Zhang Huang (Atkins):** Is the segment ID shown the same as the TMC ID?

A: John Allen (University of Maryland CATT Lab): Yes.

Q: **Carrie McInerney (Massachusetts DOT):** You said that congestion is 'logged' in the bottleneck for any speeds below 60% of free flow - is that correct?

A: John Allen (University of Maryland CATT Lab): You can go here to learn more about the specifics of Bottleneck Ranking: https://pda.ritis.org/suite/help/#bottleneck-ranking.
I know that the previous bottleneck determination was based on accounting for delay when speeds dropped below 60% of free flow (start of delay).

A: Rick Ayers (University of Maryland CATT Lab): There is a wonderful [infographic](#) that describes how bottlenecks are defined. This isn't something the CATT Lab came up with. Several Federal Highway Administration officials contributed to researching and developing this approach, and it was submitted at the TRB conference several years ago. It's a recognized methodology for defining bottlenecks and congestion and is well documented in PDA's help system

Q: **Shazia Malik (Virginia DOT):** Can you please speak to the accuracy of the data and possible issues to look for when generating reports?

A: John Allen (University of Maryland CATT Lab): You can find out more about data (accuracy, etc.) here: https://pda.ritis.org/suite/help/, but in a nutshell, data providers use confidence scores or factors to rate the level of confidence in the data – a high score equates to high confidence and would represent real-time data being used for a particular segment. And the more vehicle probes (from smartphones, GPS, etc.) on a road, the more accurate the data. You can find a list of data validation reports in the data validation section here: https://tetcoalition.org/projects/vpp-marketplace/. So, on a congested roadway, the real-time data accuracy would be extremely high (e.g., 98%).

I'm not clear on the second part of the question "possible issues to look for when generating reports", but certainly, you first need to understand your objective (inform, persuade, etc.) and what audience you'll be sharing with – more technically savvy, like peers, or less, like senior leadership. That will help you select a report layout and structure. Then choose the right RITIS tools for results and visualizations that help to tell your story – we suggest several tools in the how-to guides, but you're free to choose other tools too. Setting up your query properly is critical to getting good, useable results. Things like how much roadway network to include, the time periods, data sources, granularity, and tool selection will make your results more meaningful and useful. You can also "post-process" results for even more applicability to your situation – for example, download data in an Excel file for further analysis. Finally, our how-to guides and design resources off clear, step-by-step guidance in assembling your report. And we're here to answer specific questions along the way, or even help you build a customized report. If this still isn't getting to what you're looking for, please reach out to me so we can discuss it further: jallen35@umd.edu.

Q: **Guy Rousseau (Atlanta Regional Commission):** How can RITIS generate corridor level volume-delay functions describing the relationship between traffic volume and delay experienced by motorists from origin to destination?

A: John Allen (University of Maryland CATT Lab): The Bottleneck Ranking Tool doesn't specifically use origin-destination - go here: https://pda.ritis.org/suite/help/#bottleneck-ranking to learn about tool specifics. If this isn't satisfactory, send me an email and I'll get back to you after the training session.

Q: **Shazia Malik (Virginia DOT):** For the Trend Map can we select, say a Tuesday for the month to average.

A: John Allen (University of Maryland CATT Lab): Yes, you can select the "Month" tab under step 3. Select a period, and then select which day(s) you want to limit the analysis to.

Q: **Todd Schmidt (Chicago Metropolitan Agency for Planning):** Like the trend map, can the speed chart be embedded in a website?

A: John Allen (University of Maryland CATT Lab): As an interactive element within another website, Performance Charts cannot be embedded. A best practice to reference and provide this type of interaction is to copy the unique URL to any output Performance Chart and reference that URL as a hyperlink to a screengrab or export of the chart that may have been created using Probe Data Analytics. Keep in mind that the end-user who clicks on that image and hyperlink will need RITIS credentials to open the interactive performance chart.

Q: **Bert Lahrman (North Central PA Regional Planning & Development Commission):** Being in a rural area (north-central Pennsylvania which includes Potter, McKean, Elk, Cameron, Jefferson, and Clearfield Counties), with not many traffic data-gathering devices, will using the PDA be very accurate for my region?

A: John Allen (University of Maryland CATT Lab): Since the vehicle probe data is derived from a variety of sources, including in-vehicle navigation systems, onboard fleet vehicle logistics systems, and location-based services enabled mobile apps and comprise over 1.5 billion vehicle miles traveled every day within the US. Each region of the country naturally carries fewer of the above-referenced sources for probe data, however, the overall measure for the country is estimated to be nearly 15% of all trips traveled, a statistically significant number for most regions.

Q: **Ghulam Ashar (Maryland DOT-SHA):** How flexible is the layout in terms of several elements? Does the user have the flexibility of dropping or adding more elements?

A: John Allen (University of Maryland CATT Lab): Yes, RITIS users are encouraged to download these PowerPoint templates and configure/edit them to suit your agency's needs.

Q: **Linda Lim (Ludian):** Where can we find the documents for the methodology of the bottlenecks?

A: John Allen (University of Maryland CATT Lab): Try here:
https://pda.ritis.org/suite/help/#bottleneck-ranking

Q: **Zohora Sultana (Oregon DOT):** How does the User Delay Cost Analysis tool adjust the volume for calculating Vehicle-hours of delay for any specific accident?

A: John Allen (University of Maryland CATT Lab): Vehicle hours of delay are defined as:

$$(\text{VMT} \div \text{speed}) - (\text{VMT} \div \text{free-flow speed})$$

Where VMT is a passenger or commercial volume x TMC length

Since delay is a function of the speed that's measured on each TMC throughout the day, any reductions in speed due to crashes would be captured and reflected in the overall vehicle-hours of delay results.

Q: **Madeleine Hirsch (City of Austin, TX):** Is there a way to look at the PDA help site without having a RITIS account to log in?

A: John Allen (University of Maryland CATT Lab): No, you need to have an account to access that information.

Q: **Timi Vibal (Mead & Hunt):** Does PDA include traffic accident info?

A: Rick Ayers (University of Maryland CATT Lab): It does if your agency subscribes to a full enterprise license of RITIS. Probe Data Analytics is a suite of tools that's part of the RITIS platform. PDA allows you to reach back in time relative to your probe data providers' minute-by-minute probe data and run an analysis with it. Some agencies across the country are just subscribing to PDA. Some states are full enterprise subscribers, meaning they're using all aspects of the RITIS platform and they provide us the ability to connect with their real-time data like work zones and dynamic message signs. We fuse that data within RITIS and bring it to bear as part of the output information products from probe data analytics.

C: **Russell Holt (Rhode Island DOT):** Lots of great/cool things to report on, great job overall. One suggestion for the VDOT example: Might be better to change the Reliability blue box to reference quantified finding "in-line" with reliability (currently shows "INCREASE" but in Travel Time - at a glance, an increase in Reliability seems good, but is in actuality probably a DECREASE in reliability (at least it's in RED color which may minimize this issue).

A: John Allen (University of Maryland CATT Lab): I That Performance Report - and the color scheme chosen for the boxes – was based in part on VDOT's logo color palette. We felt that indicating the performance changes in red was sufficient, but if you were using that template and felt it would communicate better by choosing another color for the reliability box, by all means, have at it! All templates and use case examples available on the RITIS templates page are 100% editable, so can change anything you'd like.

Q: **Zebedee Brye (North Carolina DOT):** Are the graphics and design included in the templates?

A: John Allen (University of Maryland CATT Lab): Yes, you can access fully configurable/editable templates, as well as what we call Design Sheets (that have custom graphics that you can use and are fully editable, with instructions) and other design resources, like how to hyperlink icons, text, etc. You can drill down during a presentation and show fully interactive RITIS results.

Q: **Rob Pangborn (Maryland Transportation Authority):** What's the most impressive use case that you've seen for the report templates or any of the various tools? Or a personal favorite.

A: John Allen (University of Maryland CATT Lab): Ed Stylc (Baltimore Metropolitan Council) was putting together a 75-page report. We came up with that disc template format as well as a different one (not shown today) that greatly reduced his workload and the size of this report. It's going to be a lot more informative and useful. It's also linked to the tools, so if he's doing a presentation and wants to drill down into some more information, he clicks on an icon or a title and it opens up the written results.

Note: A blank sample of this report is appended to this Q&A document

C: Ed Stylc (Baltimore Metropolitan Council): It is four pages for the entire MPO Region.
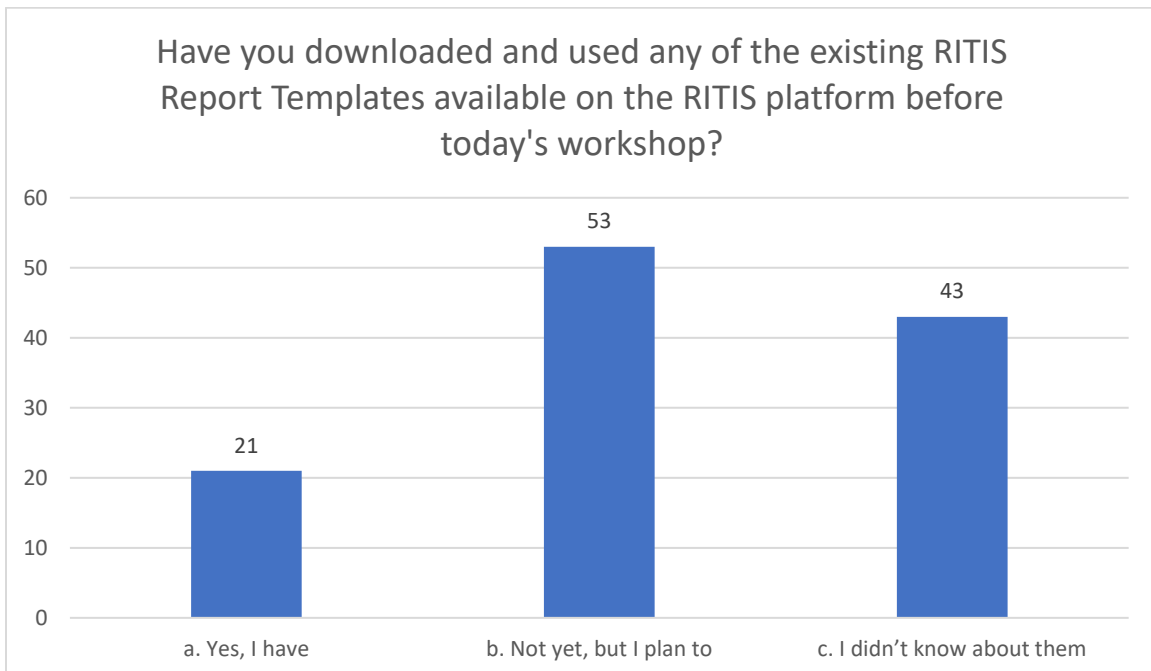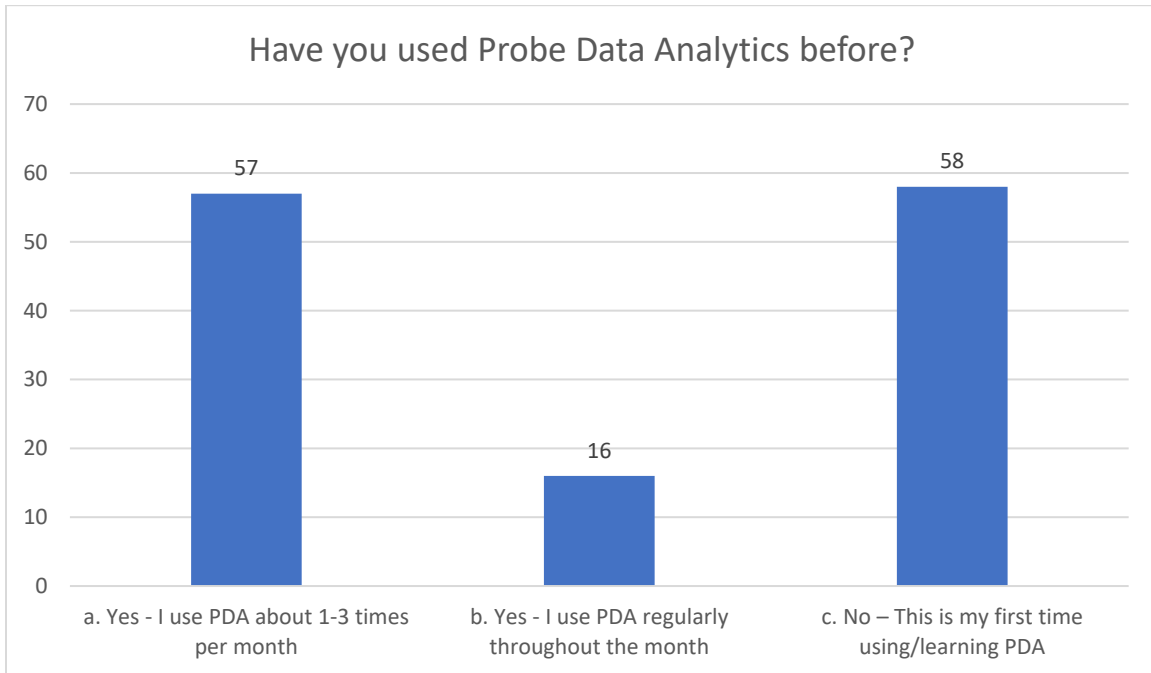
C: **Bert Lahrman (North Central PA Regional Planning & Development Commission):** I recommend that if the 1-hour training sessions are a go, record the training sessions for reference users.

Q: **Guy Rousseau (Atlanta Regional Commission):** What type of outlier analysis does RITIS perform on its empirical traffic data observations?

A: John Allen (University of Maryland CATT Lab): Outlier analysis varies depending on the data source/provider. For example, a set of 12 different tests are run on agency-provided point-sensor data that helps to identify potential issues with data (including outliers.) With 3rd party probe data vendor data, some providers themselves cap their data at some speed that's not too far above the speed limit which is a form of outlier reduction. The CATT Lab does our best to ensure our data visualizations and performance measures point out exactly what is being provided by the data vendors in a transparent way so that the analyst can determine if what is there is a valid or an invalid outlier.
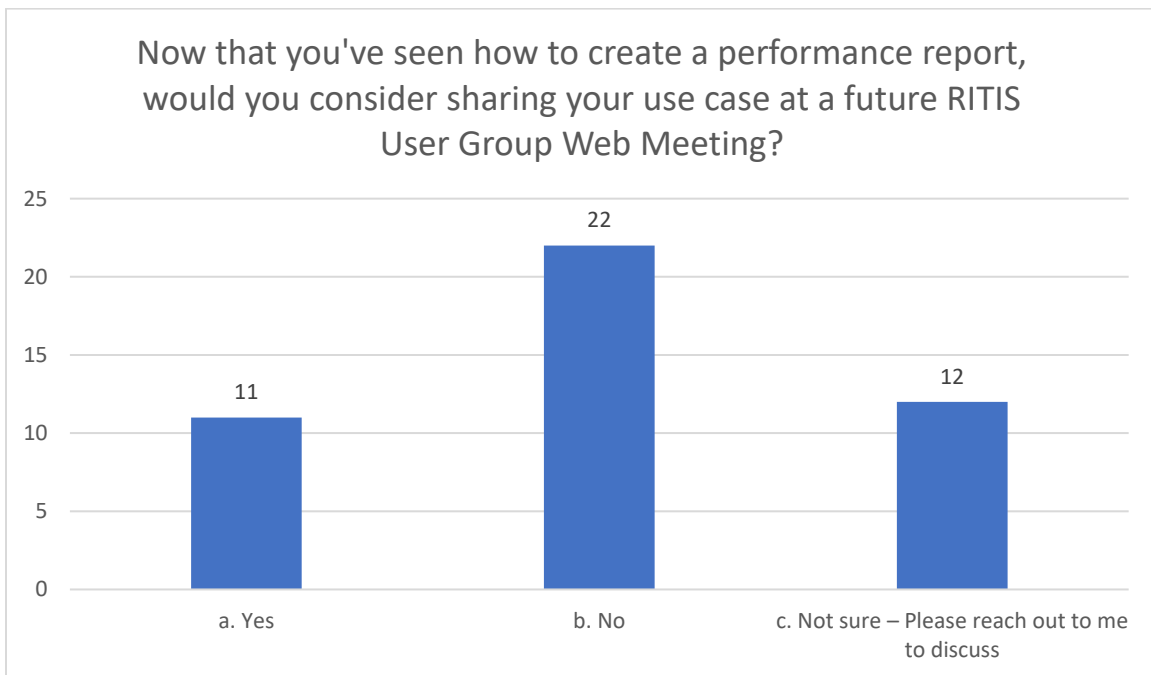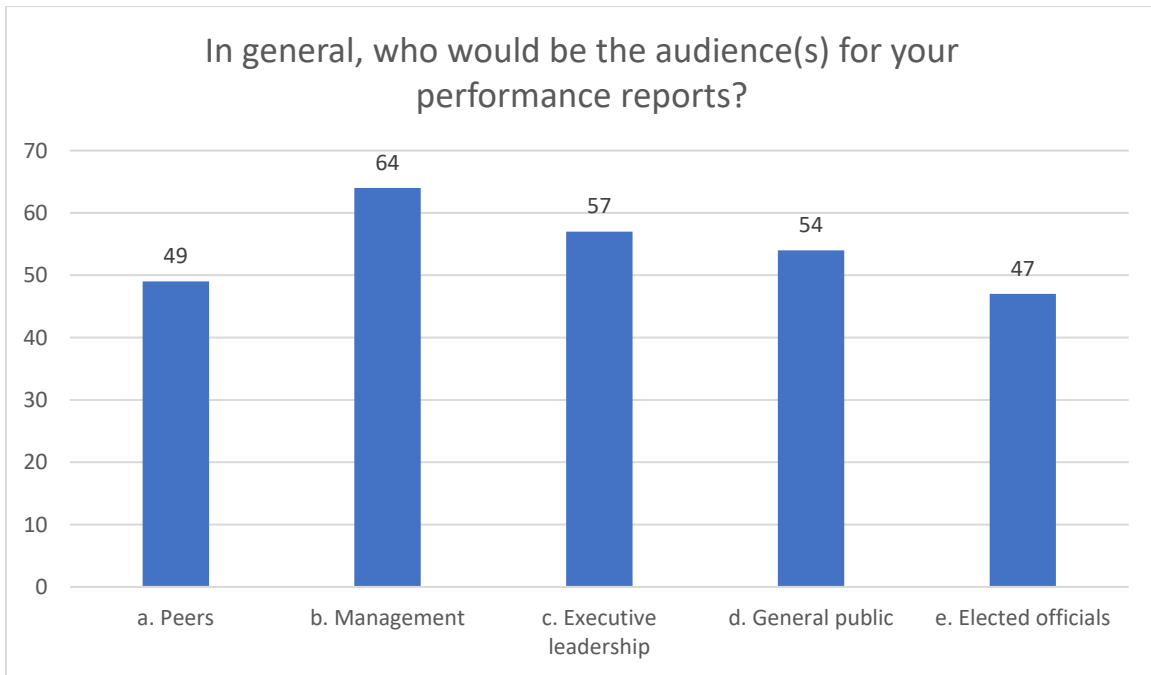
Have you used Probe Data Analytics before?

Have you downloaded and used any of the existing RITIS Report Templates available on the RITIS platform before today's workshop?

In general, who would be the audience(s) for your performance reports?

Now that you've seen how to create a performance report, would you consider sharing your use case at a future RITIS User Group Web Meeting?

Please give the CATT Lab a score of 1 to 5 for the value of providing these report templates and this workshop as resources for your agency

We would like to develop future 1-hour training sessions for RITIS Tools/Templates (4x per year). Would you be interested in attending?
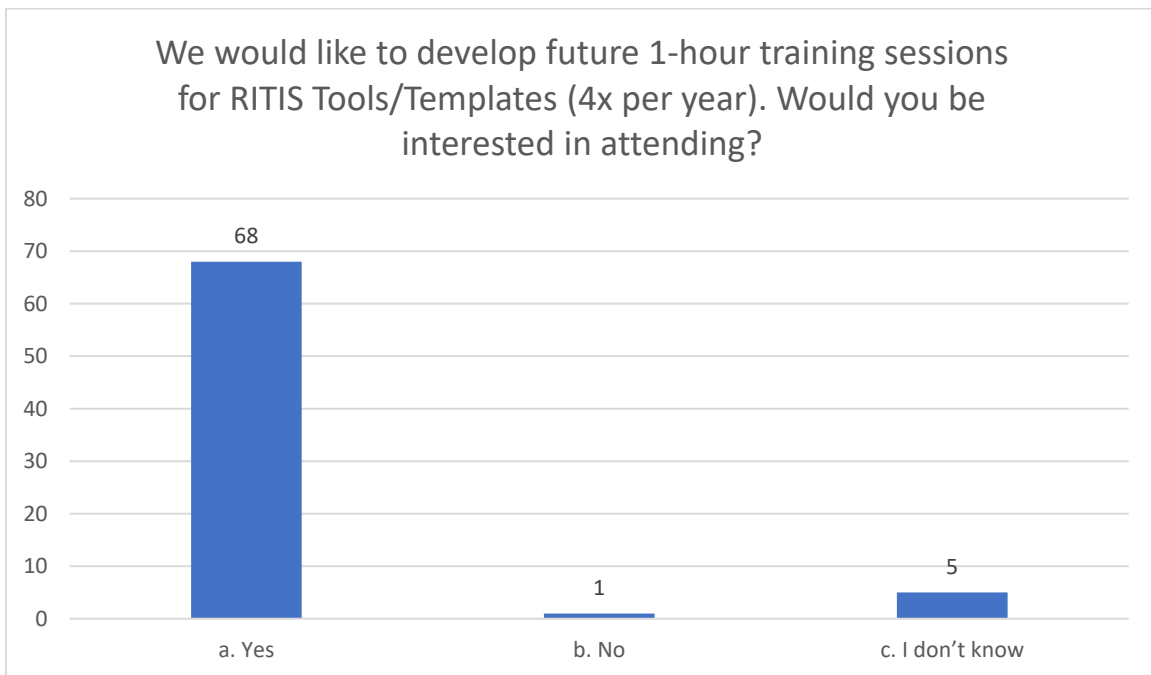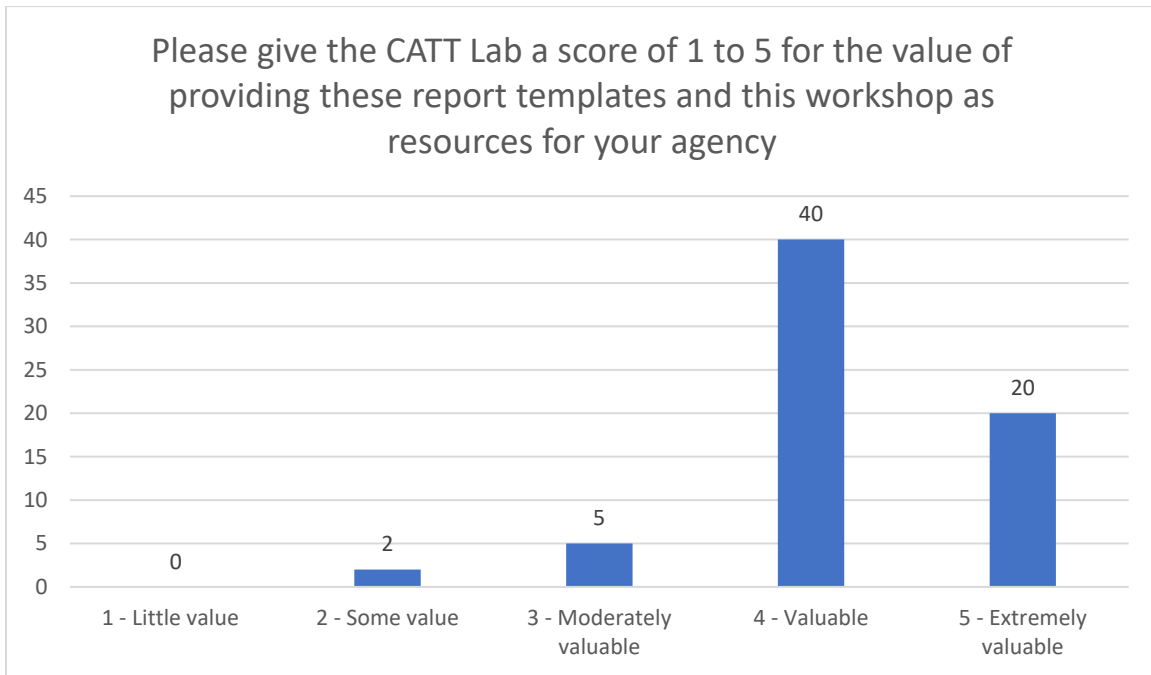
1 Ranked bottleneck name

Quarter/Year

Add summary text here that describes thing like:

1) The area type
2) Roadway geography
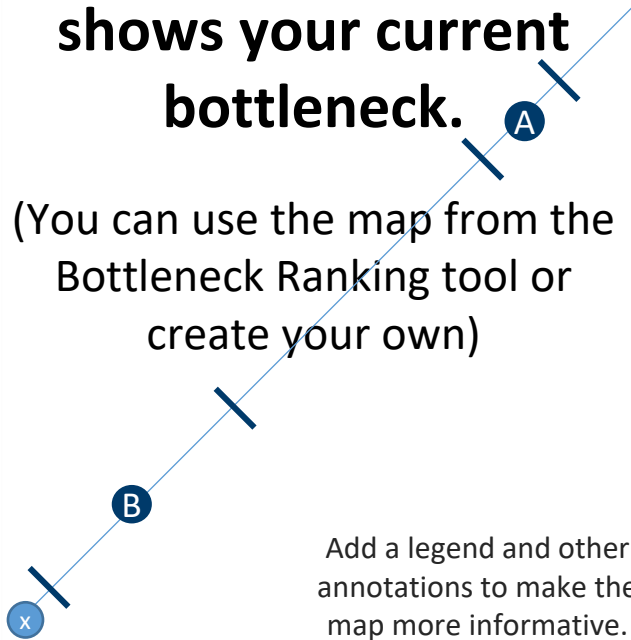3) Bottleneck limits
4) Special generators
5) Peaking characteristics
6) Congestion or incident hotspots
7) Probable causes/solutions in the works

Add a map here that shows your current bottleneck.

(You can use the map from the Bottleneck Ranking tool or create your own)

A

B

x

Add a legend and other annotations to make the map more informative.

$X.XXM
The Total Delay Cost
for Quarter/Year

👆 **Click on an icon for more detail**

Add hyperlinks to each icon to quickly drill down into specific metric detail
(see next page)

XX.Xmph
The Average **AM Peak Hour** Speed, @ (specify time) **XX% lower** than free flow speed

XX.Xmph
The Average **PM Peak Hour** Speed, @ (specify time) **XX% lower** than free flow speed

A **Add peak period time here**
(add road section limits)

B **Add peak period time here**
(Add road section limits)

User Cost

Average Speed

THERE WERE 170 EVENTS / INCIDENTS DURING Q1

Vehicle-hrs. of Delay

Congestion Locations

Travel Time

Bottlenecks

XX,XXXhr
The Vehicle-hrs. of Delay
for Quarter/Year

XX.Xmin
The Average **AM Peak Hour** Travel Time. Drivers should plan for up to **20 min** to be on time

XX.Xmin
The Average **PM Peak Hour** Travel Time. Drivers should plan for up to **27 min** to be on time

XX(am/pm)-**XX**(am/pm)
Most of the Bottlenecks along this roadway occurred between these times

Your agency logo here

Design Resources

🔗 Hyperlinking report objects or text to detailed PDA results

🔗 **Hyperlink objects or text in your document to any PDA results page, for more robust and informative performance reporting.**

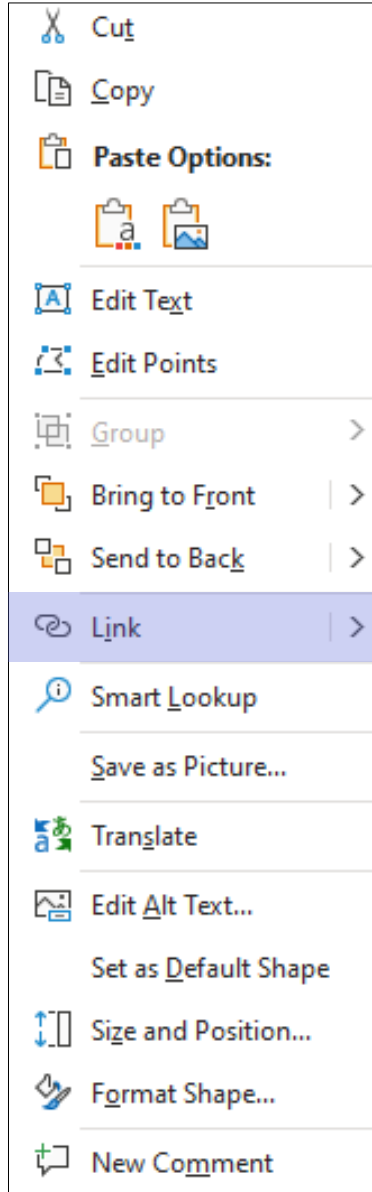**Improved communication & better insight through RITIS**

Hyperlinking report objects or text to detailed PDA results

(NOTE: recipients must have RITIS/PDA credentials through your organization & have PDA running to view these results)

1 In your PowerPoint® performance report, select an object or text box, then right click it.

This menu will appear.

Click **Link**.

2 In the **Insert Hyperlink** box, copy and paste the URL from the PDA tool results page you want to show into the **Address** line. In this example we're choosing a Congestion Scan result.

Click **OK**.

3 Your object or text box will now be hyperlinked and provide additional insight to your report with a single click.

To open results from a PDA tool (e.g.; Congestion Scan), hover over the linked text or object, then hold down the Ctrl key and click the left mouse button.

(NOTE: if you're running a PowerPoint Slide Show, or you share a pdf version of the reports, the hyperlinked shapes and text will be maintained, and in fact, you will only need to click on the objects – no Ctrl key needed)