SUMMARY OF ACTION ITEMS

- Forum participants submit any additional questions or comments on Dr. Zmud’s presentation to j-zmud@tti.tamu.edu.
- TRB staff reach out to one or more universities for assistance in preparing and maintaining white papers on each of the Forum’s Top Ten Critical Issues.
- Forum participants review the descriptions of new NCHRP tasks contained on pages 15-19 of the agenda materials, and submit nominations for individuals to serve on these task panels to Ray Derr (rderr@nas.edu) by November 20th.
- TRB staff send invitations to serve on working groups for each of the Forum’s Strategic Cross-Cutting Issues, and collaborate with the working group leaders in the planning and delivery of each of the “mini-workshops” scheduled for 2019.
- TRB staff send Forum participants a more complete listing of sessions focusing on automated vehicles and shared mobility in advance of the TRB Annual Meeting.
- Forum participants are asked to widely share the Forum white paper with stakeholders in your organization, and to submit any comments and suggestions for revisions and updates to Mark Norman (mnorman@nas.edu) or Katherine Kortum (kkortum@nas.edu).
- Forum participants are encouraged to bring new reports and resources that relate directly to the Forum’s mission to the attention of other Forum participants by posting on the Forum e-Group or sending to TRB staff.
- Forum participants are encouraged to use the Forum e-Group online community to post items, raise issues for discussion, and to otherwise communicate with each other between Forum meetings.
- Forum participants interested in collaborating in FHWA’s CARMA program should contact Taylor Lochrane at taylor.lochrane@dot.gov.
- TRB staff appoint new Forum co-Chair from the public sector to succeed Kirk Steudle.

I. WELCOME & AGENDA OVERVIEW (Steudle)

   The agenda consisted of two parts: 1) a presentation and discussion on changing consumer preferences and mobility behaviors in the context of a modal revolution, and 2) updates on the Forum status, activities, and next steps.

A. Welcome to Forum Participants (pp 4-7)

   The roster of Forum participants was attached.
   - Kirk Steudle chaired the call and welcomed the more than 60 participants.

B. Welcome to New Forum Participant
Since our last meeting in July, Waymo has joined as a sponsoring organization of the Forum.

- Kirk Steudle welcomed Waymo’s representative George Ivanov, Manager of Policy Development & Regulatory Affairs

II. FEATURE PRESENTATION: CHANGING CONSUMER PREFERENCES AND MOBILITY BEHAVIORS IN THE CONTEXT OF A MODAL REVOLUTION

This topic has consistently been ranked by Forum participants as one of the most critical research issues impacting the Forum’s mission. This agenda item included a presentation and discussion to deepen understanding of the availability, consumer preferences, and expectations for four revolutionary transportation developments and what they might mean for future mobility behaviors. These transportation developments are: vehicles with connectivity, on-demand ride services, shared mobility, and vehicle automation.

- Kirk Steudle introduced Dr. Johanna Zmud, Planning Division Head, Senior Research Scientist Texas A&M Transportation Institute

A. Presentation (Zmud) (page 8)

The research that is the basis for this presentation and discussion was originally prepared by Johanna Zmud of TTI for the August 29, 2018 Emerging Trends Workshop sponsored by the FHWA's Office of Policy and TRB. The paper was provided to Forum participants on September 24th via the Forum e-Group.

- Dr. Zmud’s slides are included as a separate attachment

B. Discussion

Participants posed a number of questions and clarifying points, including the following:

- Shared vehicles started in 1990s prior Zipcar
- Why does DOT prefer the term “vehicles with connectivity” vs. “connected vehicles”
  - The term “connected vehicles” has been associated with connecting using DSRC technology. “Vehicles with connectivity” is considered to be more technology neutral.
- Why is Seattle the only city showing increase in transit use
  - Don’t know the specific reasons for this
- What is the difference between “on-demand ride services” vs. “shared mobility?”
  - See SAE taxonomy for shared mobility presented at July 2018 Forum meeting

➢ ACTION: Forum participants submit any additional questions or comments on Dr. Zmud’s presentation to j-zmud@tti.tamu.edu.

III. FORUM STATUS, ACTIVITIES, & NEXT STEPS

A. Forum Participants Survey (Norman) (pp. 9-13)

The responses to the September 2018 survey of Forum participants were attached. These are being used to guide the priorities, agendas, and activities of the Forum for the remainder of 2018 and into 2019, and will be discussed in the following agenda items.
• Mark Norman summarized the survey results, as shown on the following slides

B. Forum Top Ten Critical Issues (Kortum) (page 14)
At its July 2018 meeting, Forum participants ranked their Top Ten critical issues. The attachment summarized the proposed next steps, which includes sharing the information that currently exists for each of these issues, and encouraging research needed to help fill in the remaining gaps.
• Katherine Kortum summarized the planned next steps, which included the following:
  o Prepare white papers for each of the top 10 critical issues
  o Include description of issue, links to information already available, research completed/underway/planned, and remaining research gaps
  o Reach out to one or more universities for assistance in preparing and maintaining these white papers
- Collaborate with NCHRP 20-102 project
- Make white papers available to Forum participants and share with other stakeholders
- Use white papers as a basis for further refining research needs to address each of these top 10 issues
- Keep white papers up-to-date
  ➢ ACTION: TRB staff reach out to one or more universities for assistance in preparing and maintaining white papers on each of the Forum’s Top Ten Critical Issues.

C. **NCHRP 20-102 Research Roadmap and Projects (Derr) (pp. 15-19)**

A report on the status of this series of projects, including the project that updates the previous NCHRP research roadmap. Many of the projects now being completed address research needs identified by the Forum. In addition, funding is being allocated for new projects that will address a number of the Forum’s “Top Ten” critical issues.

➢ ACTION: Forum participants review the descriptions of new NCHRP tasks contained on pages 15-19 of the agenda materials, and submit nominations for individuals to serve on these task panels to Ray Derr (rderr@nas.edu) by November 20th.

D. **Exploring Forum’s Strategic Cross-Cutting Issues (Norman)**

At its July meeting, Forum participants identified five strategic cross-cutting issues that the Forum should pursue in more detail. Forum working groups are being formed to develop mini-workshops on each of these issues as part of Forum convening activities in 2019.

- The schedule for the presentations of these “mini-workshops,” along with the “leads” and dates for each, are shown below:

<table>
<thead>
<tr>
<th>Issue</th>
<th>Lead(s)</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vision(s) for a “fully evolved future”</td>
<td>Shaheen, Papandreou</td>
<td>Feb.</td>
</tr>
<tr>
<td>Importance and role of connectivity</td>
<td>ITE, SAE</td>
<td>Feb.</td>
</tr>
<tr>
<td>Potential impacts on roles of different levels of government &amp; private sector</td>
<td>I-95, AAM</td>
<td>July</td>
</tr>
<tr>
<td>Financing and funding implications of AVs &amp; shared mobility</td>
<td>AASHTO, APTA</td>
<td>July</td>
</tr>
<tr>
<td>Impacts on traditional research processes &amp; programs</td>
<td>TRB, Mohaddes</td>
<td>Spring</td>
</tr>
</tbody>
</table>

- Each mini-workshops will address:
  - Why the issue is of critical importance
  - Current status
  - Future scenarios
Questions and issues that need to be addressed
Recommended Forum action items

• The planning for each mini-workshop will be done by a Forum working group
• Staff will be sending out invitations to Forum participants who expressed an interest in serving on these working groups in response to our September survey
• Any Forum participant who did not respond to this question in the September survey should contact Mark Norman (mnorman@nas.edu) with their preferred working group
• Working group leads will also facilitate the workshop at a Forum meeting, including presentations and discussions, and will prepare a short report summarizing the workshop
• A conference call for working group leads will be scheduled soon
  ➢ ACTION: TRB staff send invitations to serve on working groups for each of the Forum’s Strategic Cross-Cutting Issues, and collaborate with the working group leaders in the planning and delivery of each of the “mini-workshops” scheduled for 2019.

E. 2019 TRB Annual Meeting: Forum Session, Gathering, & Sessions of Interest (Kortum, Cunard) (page 20)

The 2019 TRB Annual Meeting will be held January 13-17 in Washington, DC. The Forum will sponsor a session on “Automated Vehicles and Shared Mobility-Addressing the BIG Questions” on Wednesday morning. In addition, a gathering of Forum participants has been scheduled for Sunday afternoon, beginning at 5:00 pm. The Annual Meeting program includes scores of workshops and sessions on connected/automated vehicles and shared mobility.

• Key TRB Annual Meeting sessions are listed in the slide below

The Forum “gathering” is scheduled for Sunday, beginning at 5:00 pm at the TRB Exhibit booth
  o A $50 registration fee is available for anyone planning to attend only on Sunday
• The program for the Forum sponsored session on Wednesday morning was included in the meeting materials
• More 100 sessions will be presented on the topic of emerging technologies with connected/automated vehicles being the primary theme
• More than 50 session will address shared mobility
• U.S. Secretary of Transportation Elaine Chao will be the featured speaker at a session scheduled for Monday, 1:30 – 3:15 pm

➤ ACTION: TRB staff send Forum participants a more complete listing of sessions focusing on automated vehicles and shared mobility in advance of the TRB Annual Meeting

F. Forum White Paper (Steudle) (page 21)
The white paper prepared on behalf of the Forum is now available as TRB e-Circular 236. Prepared by TRB staff and peer reviewed by Forum members, the e-circular summarizes the deliberations of the TRB Forum to facilitate evidence-based research needed to deploy these technologies in a manner and timeframe that informs policy to meet long-term goals. The paper has been added to the Forum’s Directory of Information Resources, and was also provided via the Forum e-Group online community.

• The paper will be used as a resource in upcoming activities of the Forum
• Forum participants have indicated that this paper should be updated on an annual basis

➤ ACTION: Forum participants are asked to widely share the Forum white paper with stakeholders in your organization, and to submit any comments and suggestions for revisions and updates to Mark Norman (mnorman@nas.edu) or Katherine Kortum (kkortum@nas.edu).

G. Forum Directory of Information Resources (Steudle) (pp. 22-25)
More than a dozen new reports and publications have been added to this directory since the Forum’s meeting in July. These were listed in the attachment. New items are also being announced via the Forum’s e-Group online community as they become available. The updated directory can be accessed anytime via the Forum’s website.

➤ ACTION: Forum participants are encouraged to bring new reports and resources that relate directly to the Forum’s mission to the attention of other Forum participants by posting on the Forum e-Group or sending to TRB staff.

H. Forum e-Group Online Community (Steudle)
New reports and other news of interest are being posted by staff on this online community.

➤ ACTION: Forum participants are encouraged to use the Forum e-Group online community to post items, raise issues for discussion, and to otherwise communicate with each other between Forum meetings

I. Forum Website (Steudle)
Forum participants are reminded that virtually all of the items that we have discussed here can be accessed on the Forum’s website (https://trb.org/AVSMForum)

J. Forum Meeting #3: February 13-14 in Washington, DC (Steudle)
The next face-to-face meeting for the Forum will be conducted on February 13-14, 2019 at the National Academies’ Keck Center in Washington, DC.

- As discussed earlier, the agenda will include two “mini-workshops” on strategic cross-cutting issues
- More information, travel guidance, and materials will be provided in advance of the meeting

IV. OTHER BUSINESS (Steudle)

A. FHWA’s Cooperative Automation Research Mobility Applications –CARMA (Lochrane) (page 26)
   - Taylor Lochrane, Technical Manager, FHWA Office of Operations R&D, summarized the CARMA program (see attached slides)
   - This program was initiated in August 2018
   - Automated vehicles are expected to be delivered to FHWA in March-June 2019
     ➢ ACTION: Forum participants interested in collaborating in FHWA’s CARMA program should contact Taylor Lochrane at taylor.lochrane@dot.gov.

B. Other Business
   - Rich Cunard reported that new subcommittees are being formed with the focus on connected/automated vehicles within a specific committee’s topic area. Examples include:
     - Pedestrian and Autonomous Vehicle Interactions Subcommittee
     - Port Automation Subcommittee
     - Joint Subcommittee on Energy and Demand Implications of Connected and Automated Vehicles
     - Traffic Flow Modeling for Connected and Automated Vehicles Subcommittee
     - Joint Subcommittee on Human Factors in Road Vehicle Automation

C. Final Comments from Our Co-Chairs
   - As Kirk Steudle has retired from Michigan DOT, this will be his last event as co-Chair of this Forum
     - The co-Chairs have agreed to serve a maximum of three year terms, with terms expiring on a rotating basis
     ➢ ACTION: TRB staff appoint new Forum co-Chair from the public sector to succeed Kirk Steudle
   - Greg Winfree: Expressed his appreciation of collective effort by Forum participants, and to Kirk Steudle
   - Peter Sweatman: Looking forward to mini-workshops on strategic cross-cutting issues during 2019. Expressed his appreciation to Kirk Steudle and to TRB staff.

D. Observations from TRB Executive Director (Pedersen)
   - Forum has been influential in identifying research needs now being funded by NCHRP
   - The Forum’s attention to the cross-cutting issues in 2019 will be valuable
   - Encouraged Forum to consider how to share Forum-generated information and products with the larger community of stakeholders
• Include presentations summarizing NCHRP products and other new research

• Appreciation to:
  o Kirk Steudle for his leadership of the Forum
  o Johanna Zmud for her informative presentation
  o Forum participants for their responses to survey, and for their contributions to the Forum to date

V. ADJOURN

• The call was adjourned at 1:50 pm (Eastern).