TRANSPORTATION TECHNOLOGY COMMITTEE
Wednesday, January 13th, 2021
8:30 AM
(Electronic Meeting and livestreamed via YouTube)

AGENDA

I. **Call to Order/Welcome**   Chairman Snyder

Action

II. **Resolution finding need to conduct meeting electronically**   Chairman Snyder
Recommended action: Adoption of resolution

III. **Approval of meeting minutes, December 4ᵗʰ, 2019**   Chairman Snyder
Recommended action: Approve

Discussion/Information

IV. **Transportation Technology Strategic Plan (TTSP)**   Mr. Jasper, Principal Planner

V. **Member Updates**

VI. **NVTA Updates**

Adjournment

V. **Adjourn**

Next Meeting (Electronic)
Suggested: Wednesday, February 10ᵗʰ, 8:30am

NORTHERN VIRGINIA TRANSPORTATION AUTHORITY

TRANSPORTATION TECHNOLOGY COMMITTEE

RESOLUTION FINDING NEED TO CONDUCT MEETING BY ELECTRONIC COMMUNICATION MEANS DURING GOVERNOR'S DECLARED STATE OF EMERGENCY DURING COVID – 19 PANDEMIC

JANUARY 13, 2021 MEETING ELECTRONICALLY

January 13, 2021

WHEREAS, on March 12, 2020, the Governor of Virginia declared a state of emergency in Virginia in response to the spread of novel coronavirus, or COVID-19, a communicable disease of public health threat as so declared by the State Health Commissioner on February 7, 2020 ("COVID-19"); and

WHEREAS, in subsequent Executive Orders, particularly Executive Order Nos. 53 and 55, as amended, the Governor of Virginia, among other measures designed to ensure safe physical distancing between individuals, prohibited public and private in person gatherings of 10 or more individuals and ordered all individuals in Virginia to remain at their place of residence, with limited exceptions, to mitigate the impacts of COVID-19 and prevent its spread; and

WHEREAS, the Northern Virginia Transportation Authority (Authority) – Technical Advisory Committee (Committee) finds that it has a responsibility to demonstrate to the public, through the Authority's conduct, the importance of maintaining proper physical distance from others and to avoid gathering in public where the risks of infection are highest, and to take measures that promote physical distancing in order to protect the public health and mitigate the impacts and spread of COVID-19, including, among others, conducting meetings electronically whenever possible; and

WHEREAS, on April 22, 2020, the Virginia General Assembly adopted, and the Governor signed, budget bill amendments to HB 29 that expressly authorize "any public body, including any state, local, [or] regional body" to "meet by electronic communication means without a quorum of the public body . . . physically assembled at one location when the Governor has declared a state of emergency . . ., provided that (i) the nature of the declared emergency makes it impracticable or unsafe for the public body . . . to assemble in a single location; (ii) the purpose of the meeting is to discuss or transact the business statutorily required or necessary to continue operations of the public body . . . and the discharge of its lawful purposes, duties, and responsibilities" among other provisions; and

WHEREAS, member jurisdictions of the Northern Virginia Transportation Authority have adopted continuity of government ordinances pursuant to Va. Code Ann. § 15.2-1413 which ordinances, among other provisions, contemplate regional bodies of which the locality is a member meeting electronically to transact business to assure the continuity of government; and

NOW, THEREFORE, BE IT RESOLVED, that the Northern Virginia Transportation Authority Technical Advisory Committee hereby finds that meeting by electronic means is authorized because the nature of the declared emergency makes it both impracticable and unsafe for the Committee to assemble in a single location on January 13, 2021, to discuss and transact the business of the Authority listed on the January 13, 2021 Committee Meeting Agenda; and

BE IT FURTHER RESOLVED, that the Committee hereby finds that meeting by electronic means is authorized because the items on the November 18, 2020 Committee Meeting Agenda are statutorily required or necessary to continue operations of the Authority and the discharge of the Authority's lawful purposes, duties, and responsibilities; and

BE IT FURTHER RESOLVED, that the items on the January 13, 2021 Committee Meeting Agenda are encompassed within the continuity of operations ordinances adopted by member localities of the Northern Virginia Transportation Authority to assure the continued operation of the government during the disaster posed by the public health emergency resulting from COVID-19.

Adopted the 13th day of January, 2021.

Northern Virginia Transportation Authority
The Authority for Transportation in Northern Virginia

TRANSPORTATION TECHNOLOGY COMMITTEE
Wednesday, December 4th, 2019, 8:30 am
Northern Virginia Transportation Authority
3040 Williams Drive, Suite 200
Fairfax, Virginia 22031

SUMMARY NOTES

I. **Call to Order/Welcome** Chairman Snyder

- Chair Snyder called the meeting to order at 8:44 am.
- Attendees:
  - **TTC Members:** Councilman David Snyder (City of Falls Church and Authority Member); Jim Kolb (Summit Strategies and Authority Member); Joe McAndrew (Greater Washington Partnership); Hari Sripathi (VDOT); Mike Garcia (FCDOT); Andrew Meese (TPB/MWCOG); Robert Schneider (OmniRide).
  - **NVTA Staff:** Monica Backmon (Executive Director); Keith Jasper (Principal, Transportation Planning and Programming); Mackenzie Jarvis (Transportation Planner); Ria Kulkarni (Transportation Planner).
  - **Other:** David Alpert (DC Sustainable Transportation and Greater Greater Washington); Sean Schweitzer (FCDOT); Patricia Happ (NVRC); Ram Kandarpa (Iteris)

Action

II. **Approval of October 23, 2019 meeting**
The meeting summary was approved unanimously, with abstention from members not present.

Discussion/Information

III. **External Presentation – "The Future of Autonomous Vehicles in DC," David Alpert, DC Sustainable Transportation and Greater Greater Washington**

- David Alpert, Executive Director of DC Sustainable Transportation (DCST) and Founder and President of Greater Greater Washington, presented the results of a study of automated vehicles, which was commissioned by the District of Columbia's Council and conducted by AECOM. The study focused on Washington D.C. but recognized that the impacts of AV technology would not be confined geographically, and thus used data from the Metropolitan Washington Council of Governments to model potential impacts on the whole region. In the modeling process, four scenarios

were considered. Two include little involvement from the public sector; Scenario A imagines automated vehicles used only on freeways, while Scenario B predicts full automation but only used by fleet vehicles. Scenario C incorporates more public involvement, through the provision HOV lanes that could have occupancy requirements of 10 persons. Congestion fees, based on precedence from Virginia HOT lanes, are used to regulate congestion in the final scenario.

- The outcomes of the study have not yet been published but Mr. Alpert was able to share a few, high-level findings with the members of the TTC, which include:
  - There will be several positive impacts from the adoption of AV technology, including increased freedom for seniors and children, and free time while commuting.
  - There will be more driving (that being said, there would be more without intervention), and thus policies should be made that aim to minimize congestion, pollution and death. Incentives may be necessary to encourage shared rides.
  - AVs may influence living and land use patterns and may necessitate adjustments to zoning.
  - AV technologies will disrupt several existing revenue streams, including licensure and enforcement. Some employment sectors (such as drivers) may also be disrupted but demand for high-skill jobs may increase. Governments may need to help mitigate job loss and/or facilitate re-training.
- The study also produced several recommendations:
  - Refrain from redesigning cities to cater to AVs and do not abandon transit.
  - Additional research is needed on the potential impacts of AVs.
  - DOTs should increase staffing and conduct pilot projects in preparation for the adoption of AV technology.
  - Localities should work to determine what data they will need and then develop plans to obtain it.
  - Allocate and/or price road space now.
  - Establish incentives to shape the market to match local values.
  - Efforts should help monetize a better future, rather than a worse one.
- Mr. Alpert then opened the floor to TTC members to ask questions.
  - Mr. Schneider asked if Mr. Alpert was familiar with "Clean Disruption", by Tony Sebia. The book hypothesizes that there are three factors that contribute to the explosive adoption of technologies and identifies the following trends that will impact AVs: 1) Battery technologies, 2) Automation, and 3) Migration to electrification via solar. Mr. Shneider said he is watching for these three possible precursors to AV adoption, as well as human behavioral impacts of their use (for example, freeing up land used for parking may create opportunities for housing equity.)
    - Mr. Alpert responded that the Institute for Transportation and development Policy (ITDP) has a paper on Bus Rapid Transit (BRT) that discusses the concept of "three revolutions", which are identified as electrification, automation and sharing.
    - Mr. Schneider proposed another set of three factors: price, convenience and availability. He opined that it is possible to pick two of the three, and that if the balance between them is shifted, it is possible to encourage behavioral changes. For example, OmniRide is using this understanding to sell transit as a service and a style.

- Mr. McAndrews agreed, saying that a systemwide transit pass would change the balance of convenience.
- Mr. Schneider predicted that AVs may force this type of regional coordination, which we are currently lacking.
  - Mr. McAndrew asked Mr. Alpert what the most interesting interaction to this study he had received.
    - Mr. Alpert said that there are so many different aspects (economic development, congestion, insurance, safety, etc.) to the impact of AVs that "everyone is not speaking the same language."
    - This was followed by a discussion of several recent innovations, including drone parcel delivery, autonomous food delivery robots, the possibility that some brick-and-mortar retailers may transition to a focus on mobile deliveries/on demand services and the potential need for highly skilled (IT professionals) transit attendants.

IV. TTC Workplan

- Keith Jasper began the Transportation Technologies Committee Workplan presentation with a recap of past work on Deliverables One; Needs and NVTA Roles, discussed during the TTC's September meeting, and Two; Policy Area Prioritization, discussed during the TTC's October meeting.
  - As a result of the polling activity in the October meeting, Policy Areas One (Incentivizing right-sizing modes [optimization]), Seven (Creation of usage-based pricing schemas for EVs/AVs) and Nine (Facilitation of development of infrastructure for EVs and AVs), were identified as priorities.
  - Four core values were also identified: Safety, Equity, Accessibility and Sustainability.
  - Mr. Jasper informed the group that NVTA staff will explore data needs and transitional considerations for each policy area.
- Mr. Jasper then provided an overview of work to be done in regards to Deliverables Three (NVTA/ NoVA Transportation Primer) and Four (Research/Outreach/Education).
  - Mr. Jasper informed the group that a round of public perception surveys, which will cover a range of topics, including technologies, will be conducted soon, as a part of NVTA's TransAction process. This survey will be an update from the prior iteration (the initial survey) which was conducted three years ago.
    - Mr. McAndrew asked if there were any questions in the survey about what it would take to convince someone to change their commute.
      - Mr. Jasper responded that the past survey asked about perceptions of pricing and transportation funding. He acknowledged that while this was not the same question, it did begin to touch on the topic. Additionally, pricing (for congestion) has been a topic of focus for the TTC.
      - Mr. McAndrew asked if there were any questions about barriers to commute changes.
        - Mr. Jasper suggested that the RM3P Program, in which NVTA is a partner, may be the best avenue to explore this topic. He went on to inform the group that one element of

     RM3P is dynamic incentives and that he is advocating for the use of focus groups to develop those.
- Mr. Sripathi cautioned that care should be taken in setting expectations and benchmarks around the idea of incentives.
    - Mr. Jasper agreed, and expanded on this idea, saying that incentives may need to be targeted, based on the objective. For example, different incentives may be successful in achieving behavioral change in response to an incident but other types of incentives would be needed to encourage long-term, sustainable change. (He also noted that incentives likely could not be maintained in perpetuity.)
    - Mr. Schnieder advised that it may be necessary to create/invoke a higher purpose to encourage travel change.
    - Mr. Schneider also cautioned about the possibility of induced demand, or "triple convergence" which may undo positives of incentive efforts.
- Chair Snyder advocated for significantly involving the business community in these efforts. He then cited the example of encouraging teleworking which would not work without the buy-in of employers.
    - Chair Snyder referenced Mr. Schneider's concern about the potential for induced demand and opined about how this could lead to obsolesces of capital projects and investments.
    - Mr. McAndrew expressed interest in presenting on what the Greater Washington Partnership is doing on the business side, to the TTC.
    - Mr. Sripathi expressed concern that some Federal agencies are eliminating telecommuting.
    - Mr. Schnieder raised concerns about cyber security for distance working.
    - Chair Snyder recommended finding ways to support entities who are using teleworking.
        - Mr. Schnieder recommended the concept of "hoteling", or offering temporary, off-site working locations that are secure. He also recommended exploring potential avoidance of trip add-ons.
    - Mr. Jasper noted that Policy Area One (Incentivizing right-sizing modes) gets at the heart of Chair Snyder's point.
- Mr. Jasper expressed surprise at the number of respondents to the recent Council of Governments (COG) State of the Commute survey that were prohibited from something other than Single Occupancy Vehicle (SOV) travel because of the complexity of their trips.
    - Mr. Meese reminded the group that the COG survey revealed a decrease in the percentage of SOV use and expressed interest in identifying the ingredients of this success.
- Mr. Jasper informed the group that the Tysons Partnership has been invited to participate in the RM3P effort.
- Mr. Jasper then moved to a discussion of the proposed structure of the Transportation Technologies Strategic Plan.
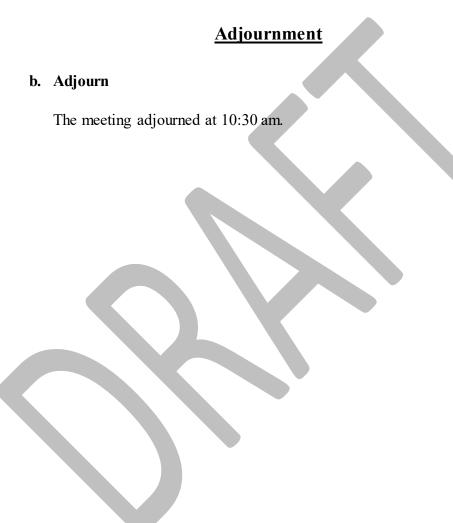
- o He envisions the executive summary of the plan being able to function as a standalone document. This would include a list of all proposed strategies, with a one-page summary of each. The summaries would feature a list of associated actions and a timeline.
- o Mr. Jasper highlighted the glossary, overarching core values, and potential NVTA roles, as important sections of the outline.
- o Mr. Jasper asked if anything was missing from the proposed structure of the Strategic Plan.
  - ▪ Mr. McAndrew recommended inclusion of regional coordination.
    - • Mr. Jasper agreed, saying that NVTA is happy to lead and/or collaborate as needed.
  - ▪ Chair Snyder advises inclusion of actionable strawman policies.
    - • Mr. Jasper agreed saying "a strategy is nothing if it doesn't have actions."
    - • Ms. Backmon added to this, saying that measurability is important and that the Strategic Plan should:
      - o Provide plans that are in sync with technology trends, that are implementable by NVTA, jurisdictions and transit agencies
      - o Include tools to evaluate progress
    - • Mr. Jasper said the final draft of the plan is anticipated early summer 2020, and will be ready for potential approval by the Authority, whose blessing would be needed to take action.
  - ▪ Mr. Sripathi recommended decoupling data needs and transitional considerations, which may have very different needs.
    - • Mr. Jasper agreed and also mentioned that many strategies included in the plan may be linked.
  - ▪ Mr. Sripathi recommended that one of the strategies in the Plan focus on data management.
  - ▪ Mr. McAndrew suggested the inclusion of performance metrics.
- • Mr. Jasper directed the conversation towards a discussion of the linkages between transportation technologies and needs and, subsequently, the opportunities and challenges associated with each. He mentioned that NVTA staff would follow up with TTC members who were absent from this meeting to solicit their feedback on the matter.
  - o Two charts were presented by Mr. Jasper to the group, to visualize these topics and create a starting point for discussion. Each listed a series of groupings of technologies and Mr. Jasper asked if anything was missing from this series.
    - ▪ Ms. Happ recommended including fare collection technologies.
    - ▪ Mr. McAndrew recommended separating electrification into its own grouping (rather than leaving it as a component of the automated and autonomous vehicles group.)
    - ▪ Mr. Sripathi advised adding the word "connected" to the automated and autonomous vehicles group.
    - ▪ Mr. Sripathi recommended rephrasing the technology group titled "surveillance and monitoring" as this has a negative connotation.
      - • Mr. Jasper asked what terminology VDOT uses, regarding these technologies.

- o Mr. Sripathi said that these devices are often discussed in terms of "data collection" or "probed data."
- o Mr. Meese mentioned the Transportation Planning Board uses the phrase "travel monitoring" and also suggested the use of "performance data."
  - ▪ Mr. Meese recommended considering how technologies could impact non-commuting travel differently.
  - ▪ Mr. McAndrew advised focusing on the movement of people, rather than vehicles, saying that system optimization cannot be done in a vacuum.
- o Ms. Jarvis asked the group if the visual presentation of the potentials for each grouping to be helpful and/or harmful was clear/effective, without conveying a false sense of dichotomy.
  - ▪ Mr. McAndrew affirmed this.
- o There were several suggestions from the committee members regarding the groupings of technologies used in the charts:
  - ▪ Ms. Happ recommended using the term "transit", rather than "mass transit", to encompass more technologies.
  - ▪ Mr. Meese suggested adding a grouping for fare technologies.
  - ▪ Mr. Schneider suggested considering technologies in the lenses of either system or customer focus. He separately recommended aiming for consistent language in describing technologies.
- o The members of the committee also had suggestions regarding the needs each grouping could address and/or the challenges and opportunities they may face:
  - ▪ Mr. Sripathi informed staff that "Changes to delivery and freight systems" has the potential to address first/last mile needs (via parcel delivery.) He also noted that "signal technologies" could be used to improve accessibility for the differently abled, referencing a current project VDOT is involved with at the intersection of Hilltop Rd. and Prosperity Ave.
  - ▪ Mr. Meese advised that drones may be helpful in emergency management.
- Chair Snyder suggested that NVTA staff update the two charts used in this presentation, which focused on technology linkages and opportunities/challenges, and share them with the TTC, for additional feedback.
- Mr. Jasper provided an overview of next steps, which includes soliciting additional feedback from the TTC regarding the materials and concepts presented during this meeting, and scheduling the next group meeting for March. Mr. Jasper informed the group that NVTA staff would be working to draft the Transportation Technologies Strategic Plan in the interim, and would provide portions of it for review, via email to TTC members, as they are completed.
  - o Chair Snyder sees two roles of this committee moving forward; providing data and analysis and helping to identify goals for change that is consistent with the goals of NVTA, along with methods to achieve these.
    - ▪ He went on to say that the TTC may suggest change that is more aggressive than would otherwise occur (but cautions against being unrealistic.)
    - ▪ Ms. Backmon agreed, saying that the TTC should be able to go further than the Authority Board could.
  - o Mr. Sripathi suggested that the Strategic Plan consider a timeframe of three to five years, as technologies change so quickly. He also suggests adding a five plus years range, to parallel NVTA's long term planning efforts.

- Chair Snyder suggested pushing aside the notion of timeframe, in favor of evaluating what could be done to achieve goals.

V. **Member Updates**

- Mr. Schneider informed the group that OmniRide is redesigning their Manassas Transit routes, which includes doubling service to the Pentagon and tying routes to capacity for the first time. OmniRide is also aiming to facilitate system use by simplifying route numbers.

Adjournment

b. **Adjourn**

The meeting adjourned at 10:30 am.

What's In This Overview?

- Introduction, including some sample Q&A
- Proposed structure of the draft Transportation Technology Strategic Plan (TTSP) and for the individual TTSP Strategies
- Summary of TTSP Strategies and NVTA Roles
- Technologies mapped to TTSP Strategies
- Guidance on desired feedback and how to respond

Introduction

This presentation provides a high level overview of NVTA's draft Transportation Technology Strategic Plan (TTSP) and some guidelines for Transportation Technology Committee (TTC) members to review and provide comments.

The draft TTSP identifies eight strategies that are intended to leverage transportation technologies in support of NVTA's vision and goals for the regional transportation system in Northern Virginia. These strategies focus on mobility, accessibility, and resilience, while embracing core values of safety, equity, and sustainability.

Among other things, each strategy identifies up to nine possible NVTA roles.

Introductory Q&A

Q: How does the TTSP fit within NVTA's current primary responsibilities of planning and programming/funding?

A: In the big picture, NVTA's approach to the TTSP is driven by TransAction, NVTA's long-range transportation plan for Northern Virginia. NVTA is required by the Code of Virginia to develop and maintain TransAction, and is in the early stages of the next update. NVTA's approach to evaluating project funding requests has always embraced multi-modal solutions, including new Metrorail stations, BRT systems, road widening/intersection improvements, pedestrian/bicycle trails, first/last mile solutions, and technology deployments. Since the TTSP is complementary to, and integrated with, TransAction, both reflect the NVTA's multi-modal approach to the regional transportation system. TransAction continues to be the first eligibility filter for funding approvals since the Code of Virginia requires funded projects to be included in TransAction.

Introductory Q&A

Q: Have things permanently changed as a result of the pandemic? If so, what does this mean for the region's transportation system and how do we define success under these new conditions?

A: As we undertake the next TransAction update, we will apply the findings from our own COVID-19 analysis conducted in early summer 2020, together with subsequent research findings by others in the region and nationally. While it is most certainly appropriate to question whether the pandemic has changed travel behaviors, it remains unclear as to what the 'new normal' will actually look like. Our approach is to be open-minded but cautious, to avoid 'over-correcting' until we have greater certainty. By summer 2021, the new normal should be clearer and still within the overall TransAction update schedule.

Introductory Q&A

Q: In this changed environment, what has also changed with regard to the role of technology going forward? For example, how do we enable/support the new transportation patterns when increasing numbers of people are working from home?

A: There are significant examples of different ways in which technology has enabled new transportation patterns. Our region is one of the best in the nation in its ability to increase the level of work from home activity, which speaks highly of the preparedness among employers and employees with respect to IT/communications infrastructure, hardware/software, and HR practices. The adaptability of businesses to move to online shopping/delivery and curbside pickups is driven by technology and innovative business process re-engineering, all in a relatively short timeframe. As we are learning, there are silver linings in the form of reduced congestion and VMT, but negative consequences on transit ridership. As we noted in our COVID-19 presentation to NVTA in July 2020, transit ridership reduction may be challenging to the financial stability of some transit agencies. Finding a path forward that locks in the silver linings while mitigating the negative outcomes will be important considerations for TransAction and the TTSP.

Introductory Q&A

Q: With the political/social emergence of equity and environmental concerns as top priorities, what can technology applied to transportation do to further them?

A: The TTSP will include a discussion of core values – equity, safety, and sustainability – for each strategy. This discussion will highlight how each of the eight strategies will address each of the core values.

Introductory Q&A

Q: Considering the four pandemic recovery scenarios in NVTA's July 2020 COVID-19 analysis, what is the greatest role of technology to enhance recovery in each of them?

A: This is a difficult question to answer. Recognizing that we started work on the TTSP before the pandemic hit, it was never originally intended to address such a situation. That said, technologies that support the resilience of the transportation system while communicating decision-grade travel information to Northern Virginians will likely rise to the top. Any strategy that supports a willingness to travel in shared modes (carpools, vanpools, transit, rail, together with shared mobility devices such as bikeshare and scooters) will have an important role. More broadly, all the technologies rely on high quality data, without which much of the technology will be sub-optimal or ineffective. To that end, the data component of most strategies will be really important as we move beyond the pandemic to the new normal.

Introductory Q&A

Q: Here are some examples of possible priorities for technology in the new normal — more demand responsive, attractive and reliable bus service — what can technology do to make that happen? Electrification of the entire vehicle fleet — commercial, private, trucks and cars — what can technology do to speed that and make it more cost/effective?

A: Multiple strategies will address a new normal bus service, including Strategy #1, #4, #5, and #7. Strategy #8 will address electrification infrastructure. However, note that the strategies alone will not necessarily achieve the desired outcomes. This will require a broad regional coalition of support among jurisdictions, transit agencies, other regional partners and stakeholders. The key point is that NVTA's TTSP is the first-of-a-kind initiative to take such a comprehensive position on how technology can be leveraged to support NVTA's vision for the NoVA transportation system.

Transportation Technology Strategic Plan (TTSP) Proposed Structure

- Purpose and Scope
- Overarching Core Values
  - *Safety, Equity and Sustainability*
- Vision and Goals
- NVTA Toles
- Related Initiatives by Other Regional Partners and Coordination
- Transportation Technology Trends
  - *Overview*
    - *Automation, Sharing and Electrification*
  - *Emerging Business Models*
  - *Technologies*
    - *Opportunities and Challenges*

- Strategies for NVTA
- Data Needs
- Caveats and Assumptions
  - *Impacts of Covid-19*
- Monitoring Progress and Update Cycle
- Action Plan
  - *Next Steps*
  - *Monitoring Progress and Update Cycle*
- Glossary

TTSP Strategies Summary Structure

TTSP Strategies and NVTA Roles

| Strategy | | NVTA Roles | | | | | | | | |
| Number | Name | Authority Roles | | | Shared Roles | | | Staff Roles | | |
		Funding	Policy	Advocate	Champion	Facilitate	Stakeholder	Planning	Outreach/ Education	Observer
1	Reduce congestion	✔		✔	✔	✔		✔	✔	
2	Maximize access to jobs, employees and housing	✔			✔	✔		✔	✔	
3	Maximize cybersecurity and maximize privacy for members of the public	✔					✔			✔
4	Minimize potential for Zero Occupancy Vehicles		✔	✔	✔	✔		✔	✔	
5	Develop pricing mechanisms that manage travel demand and provide sustainable travel options		✔	✔			✔	✔	✔	
6	Maximize the potential of physical and communication infrastructure to serve existing and emerging modes	✔			✔	✔		✔	✔	
7	Enhance regional coordination and encourage interoperability in all systems	✔			✔	✔		✔	✔	
8	Create a network of charging infrastructure, for use by private and fleet vehicles	✔	✔	✔	✔	✔		✔	✔	

Technologies Mapped to TTSP Strategies

Key

Key	
Will definitely be helpful	●
Potential to be helpful	◕
Equal potential to be helpful or detrimental	◐
Potential to be detrimental	◔
Likely to be detrimental	○

Strategies		Technologies										
Number	Name	Automated/ Autonomous vehicles	Shared Mobility Devices (SMDs)	Signal technologies	Apps	System optimization	Drones	Changes to delivery and freight systems	Surveillance/ monitoring (including telematics)	Data generation/ collection/ sharing	Improvements to mass transit (including BRT)	Smart technologies/ cities and IoT
1	Reduce congestion	◐	◕	●	◐	◕	◐	◕	◕	●	●	◕
2	Maximize access to jobs, employees and housing		◕	◔	◕	●	◔	◔	◐	●	●	●
3	Maximize cybersecurity and maximize privacy for members of the public	◔	◔	◐	◔	◐			◔	◐		◐
4	Minimize potential for Zero Occupancy Vehicles	◐	◕	●	◐	◕	◐	◕	◕	●	●	◕
5	Develop pricing mechanisms that manage travel demand and provide sustainable travel options	◐	◕		◐	●	◐	◕	◕	●	●	●
6	Maximize the potential of physical and communication infrastructure to serve existing and emerging modes	●	●	●		◕	◕	◐			●	●
7	Enhance regional coordination and encourage interoperability in all systems	●	◐	◕	◐	◕	●	◐	◐	●	●	◕
8	Create a network of charging infrastructure, for use by private and fleet vehicles	●	◐			◐						

Thank You for your Review Thus Far!

Three documents were previously shared with you for review and comment:

• Description of the three Core Values

• Description of the nine potential NVTA roles

• Description of the eight TTSP strategies

We have since received feedback from several members of the TTC and a few RJACC representatives.

• The input has been constructive and supportive.

• All suggestions and questions have been reviewed and documented.

• The majority of feedback received has been incorporated into revised draft materials.

Next Steps

- We have recently shared the first draft of the full TTSP document. This incorporates the draft content previously shared with TTC and RJACC members, and related comments, with the addition of some important contextual content.

- However, there are no substantive changes to prior content. (Please note that development of the Action Plan will not begin until after this meeting.)

- We request that you review this updated document and provide any feedback, via email, by **COB on Wednesday, January 27th**.

THANK YOU!