



# V2X Communications

## New Directions, Opportunities, & Challenges

Steve Kuciemba  
WSP USA  
March 31, 2021

## Recap of FCC Activity

- Notice of Proposed Rulemaking to reallocate 45 MHz of the dedicated spectrum
- Adopted by the FCC in Nov 2020 - but hasn't been published in the Federal Register yet
- Includes desire to abandon DSRC in favor of Cellular V2X, but without details
- Universally disliked by the transportation industry

## Approved - but not Published

- First Report & Order (R&O) - sets the stage for the revised band plan
- Further Notice of Proposed Rulemaking (FNPRM) - opens public comment on technical and procedural details not covered in the First R&O
- Order of Proposed Modification (OPM) - procedure required to modify existing licenses

## Possible Outcomes

1. Reallocation Moves Forward As Planned
2. FCC Stops Current Proceeding
3. Reallocation Moves Forward - With Options



## When Published: Reallocation Timeline

### R&O

- Within 30 days - can file a protest or petition for reconsideration
- At 60 days - the R&O officially goes into effect.
  - At that point, the 1-year clock begins for existing DSRC licenses to vacate the lower 45 MHz.

### FNPRM

- FNPRM Comments - immediately upon publication
  - The current NPRM included 30 days for comment and 30 days for reply comment.
- Conclusion of FNPRM process - a second R&O will be released and voted on
  - Once that gets approved, published, and enacted (60 days after publication), another 2-year clock is proposed to begin whereby the upper 30 MHz must become only LTE C-V2X.

## Common Issues Among IOOs

- We rushed to change direction, only to have it change before we've gotten there!
- What should I do with my existing or planned V2X project?
- What about DSRC vs C-V2X?
- Why do private companies keep telling me they don't need V2X?



## Reality: Nothing Happens Fast

- FCC procedures will take time to unfold, and FNRPM sets much of the stage for the longer term
- Government procurement takes time - it could be 2+ years before you've made all your changes
- Device manufacturers will need time to revise their hardware and firmware
- CV adoption w/OEMs will evolve
- Technology itself will evolve



## What Do We Do?

- Existing V2X Deployments
  - Begin Migratory Path to Channel 180 and Eventually C-V2X
- Planned V2X Deployments
  - Keep Moving Forward, Emphasize No-Regret Investments
- LTE C-V2X Devices Are Evolving
  - Build time and cost into your projects
  - The industry will benefit from DSRC experience, but it will take time for best practices to emerge

Source: NCHRP 23-10

<https://onlinepubs.trb.org/Onlinepubs/nchrp/docs/NCHRP23-10FCC5-9GHzRulemakingImpactstoStateDOTsDec2020.pdf>



## Advice: Learn, Engage, Build Foundation

There are no-regret investments that can be made today, that will provide benefits and build your knowledge foundation.

- Backhaul communications
- Signal controllers, cabinets, UPS
- Non safety critical applications
- CV back-office
- Training/workforce

“Doubt, of whatever kind, can be ended by action alone.”

- Thomas Carlyle, Scottish Historian



## Local Agencies and V2X Deployment

- Constrained resources present challenges that are best overcome by collaboration
- Partner with other agencies to share technical resources, procurement and deployment expertise, and operations or maintenance activities.
- Work with other agencies to develop common approaches, share lessons learned, and common data sharing or governance strategies.
- Continue to seek pilot demonstration opportunities, and recognize that partnering increases the exposure – and attractiveness of your facilities.

## Reality: Technology Often has a Short Shelf-Life

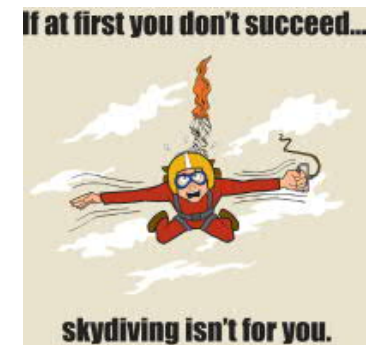
- What you install today will need updates (firmware, hardware) in a short time frame regardless of FCC, the market, or your policies
- Device manufacturers are still figuring out the impacts of a 30 MHz scenario
- Many applications may not be possible in a 30 MHz environment - TBD
- Interference implications to reallocation still being evaluated

## Advice: Ready-Fire-Aim

Bite-Sized Chunks: a graduated approach helps avoid the problem of over-prescribing policy, design, and operations.

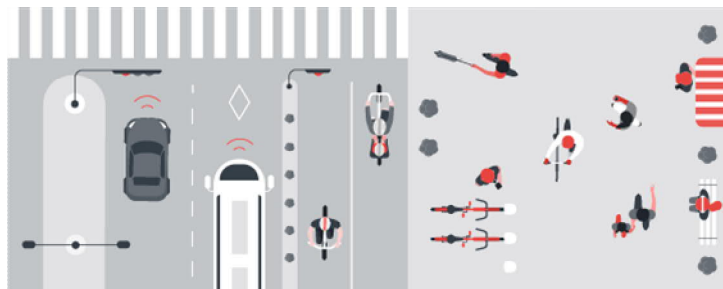
"When faced with great uncertainty, it is almost impossible to get it right the first time."

- Dr. Nidhi Kalra, Senior Information Scientist, Rand Corporation



# The Market for CV and AV Is Evolving

- AV will incorporate V2X if/when it is ubiquitously available
- Automakers: V2X research is active - but not always integrated with AV development
- V2X adds a valuable layer of safety - but to date that hasn't been enough to overcome the regulatory and technology uncertainty
- Reductions in uncertainty could have profound impacts on the market



# Summary Thoughts

- Remain engaged in dialogue
- Actively pursue pilot demonstrations and planning activities
- Continue to foster partnerships
- Respond to the FNPRM when it comes out



# Ready – Fire – Aim



steve.kuciemba@wsp.com



410-246-0525



@skuciemba