MEETING NOTES

Iowa Advisory Council on Automated Transportation (ATC)

Wednesday, March 11, 2020
1:00-3:00PM
Iowa League of Cities
500 SW 7th Street, Suite 101, Des Moines

Action Items:

- All council members and subcommittee members - send final comments on Iowa's Automated Transportation Vision to Adam Shell (Adam.Shell@iowadot.us) and Peter Rafferty (prafferty@gfnet.com) by March 31, 2020
- Jacob Heiden – send upcoming Greg Shill presentation information to the ATC and subcommittee members (Presentation info here: http://tomorrowplanspeakerseries.org/greg-shill/. *Presentation subject to changes due to COVID-19 concerns.)

1) Welcome and Introductions - Scott Marler, Iowa DOT Director (ATC Chair) and Jacob Heiden, University of Iowa
   a) Attendees:
      - Scott Marler (ATC Chair) – Director, Iowa DOT
      - Colonel Nathan Fulk (Public Safety & Enforcement Chair) – Iowa State Patrol
      - Dylan Mullenix, (Policy & Legislation Chair) – Des Moines Area MPO
      - Commissioner Stephan Bayens, Catherine Lucas – Iowa Department of Public Safety
      - Susan DeCourcy – National Highway Traffic Safety Administration
      - David Fish – Local Motors
      - Mike Steenhoek – Freight Advisory Council
      - Johnnie Gibson – Iowa Division of the FHWA
      - Kristen Forret, EMC Insurance Companies
      - Mark Peterson – AAA Auto Club Group – Minnesota/Iowa
      - Sandra Larson – Stanley Consultants
      - Jacob Heiden, Omar Ahmad, Dan McGehee – UI National Advanced Driving Simulator
      - Neal Hawkins – ISU InTrans
      - Donna Matulac, Adam Shell, Andrea Henry, Sara Siedsma, Daniel Yeh, Andy Lewis, Mitchell Dillavou, Steve Gent, Renee Jerman - Iowa DOT
      - Peter Rafferty, Todd Szymkowski – Gannett Fleming
   b) Members of ATC congratulated Scott Marler on being appointed Director of Iowa DOT. Scott has been in director position for about 3 weeks (at time of meeting). He

has heard good things at the Iowa State Capitol on the work being done by the ATC.

2) Subcommittee & Working Group Updates
   a) Policy & Legislation – Dylan Mullenix
      - The subcommittee met on February 5, 2020
      - Subcommittee had open discussion on legislative session
      - Daniel Yeh from Iowa DOT gave introduction on the American Association of Motor Vehicle Administrators (AAMVA) Automated Vehicles Subcommittee. New AAMVA guidelines will be updated to include automated vehicle (AV) information.
      - Update from Peter Rafferty on the workplan and next steps in moving towards implementation of the subcommittee actions identified in the Vision document
   b) Economic Development – Jacob Heiden (for Rick Peterson)
      - The subcommittee met on February 6, 2020
      - Liesl Seabert from Iowa Economic Development Authority presented on the Governor's Empower Rural Iowa (ERI) Initiative. ERI develops recommendations for rural Iowa. 2019 recommendations had connections to ATC objectives in relation to broadband connectivity and rural innovation. Groups will continue dialogue to work for common goals when needs arise – possibly looking for an ATC member to get involved with ERI or ERI member to get involved with the ATC.
      - Adam Shell from Iowa DOT summarized the Cooperative Automated Transportation (CAT) challenge. The group then had an open discussion on how the challenge could be structured, supported, and funded.
      - Update from Peter Rafferty on the workplan and next steps in moving towards implementation of the subcommittee actions identified in the Vision document
   c) Public Safety & Enforcement – Colonel Nathan Fulk
      - The subcommittee met on February 18, 2020
      - Subcommittee reviewed desired outcomes and primary initiatives including how law enforcement can interact with AVs through National Law Enforcement Telecommunications Systems (NLETS), crash reporting, and coordinating with Traffic Incident Management (TIM) committee
      - Dennis Kleen from the Iowa DOT provided an update on crash reporting in Iowa including process, statistics, and things to consider for AV crash reporting.
      - University of Iowa Law Professor Greg Shill shared a legal perspective on Vulnerable Road Users (VRUs). VRUs can be anyone in the transportation system not in a vehicle – bicyclist, pedestrian, etc. He shared concerns on the impacts of AVs on VRUs. He urged group to restrict tech (as it relates to AVs) for people, not restrict people for tech. Greg will be giving a presentation in Des Moines in May.
      - Update from Peter Rafferty on the workplan and next steps in moving towards implementation of the subcommittee actions identified in the Vision document
      - Scott Marler commented the importance of law enforcement's ability for roadside recognition. AV roadside recognition is being discussed on the national level as it relates to registration
   d) Infrastructure Readiness – Jacob Heiden (for Erin Mullenix)
      - The subcommittee met on March 5. 2020

- Liesl Seabert from Iowa Economic Development Authority presented again on the Governor's Empower Rural Iowa (ER) Initiative. ERI develops recommendations for rural Iowa. 2019 recommendations had connections to ATC objectives in relation to broadband connectivity and rural innovation. Groups will continue dialogue to work for common goals when needs arise – looking for an ATC member to get involved with ERI or ERI member to get involved with the ATC.
- Neal Hawkins from Iowa State University gave presentation on pavement markings. He shared how the DOT and ATC can make strategic investments, in things like pavement markings, to address various roadway safety challenges by supporting today's drivers and existing advanced driver assistance systems (ADAS) while also preparing for the automated driving systems (ADS) in the future.
- Update from Peter Rafferty on the workplan and next steps in moving towards implementation of the subcommittee actions identified in the Vision document

e) Communications – Andrea Henry
- The working group met on February 20, 2020
- Andrea discussed updates to the website, updates to the charter, and the working council email address.
- Working group members also attended selected subcommittee meetings to listen for communications needs

3) Rulemaking updates – Sara Siedsma, Iowa DOT

a) Background
- Senate File 302 (2019 session) – an act relating to motor vehicles operated by an automated driving system, and making penalties applicable
- The legislation defines automated driving systems (ADS) and establishes key elements of operation, insurance, accidents, an on-demand driverless-capable vehicle network, and authority.
- Under authority, Senate File 302 permits the department to adopt rules to administer the legislation.

b) Rulemaking recommendations
- Rulemaking 1: Add new rule chapter for automated vehicles and reference Levels 3-5 in relation to driverless-capable vehicles. Implications: streamline identification
- Rulemaking 2. Identify and allow operation restrictions of driverless-capable vehicles in vehicle registration and titling. Implications: monitor safety impacts and establish operational restrictions challenges
- Rulemaking 3. Identify on-demand driverless-capable vehicle networks in Transportation Network Companies (TNC) permit and establish operation restrictions. Implication: monitor safety impacts.
- Rulemaking 4. Identify and allow operation restrictions of driverless-capable vehicles in commercial motor vehicle registration. Identify inter/intrastate registration and titling. Establish operation restrictions to monitor safety impacts.
- Rulemaking 5. Establish parameters to manage testing of ADS-equipped vehicles on Iowa public roads. Testing would require request for permission on public roads and require operation restrictions. Implications: monitor safety impacts and response to National Transportation Safety Board ruling.

c) Discussion
   - Discussion on software considerations and changes to the levels of automation from L2 to something greater. Most vehicles being tested are Federal Motor Vehicle Safety Standards (FMVSS) certified, but it's aftermarket technology that changes the vehicle. Need to consider aftermarket technology, as well as over-the-air updates. Also need to consider the difference between production vehicle and testing vehicle.
   - Discussion on creating exemptions rather than defenses as there are differences between the two in criminal law. If law enforcement doesn't have probable cause, then they can't pull over a vehicle if it's exempt. Subtle terms can create differences, and group should look to other states in how they have handled wording.
   - This is round one of rulemaking. There will be more discussions and framework building on this. The DOT will work with various partners, the ATC being the primary stakeholder group, as part of the rulemaking process.

4) Olli by Local Motors – David Fish, Local Motor
   a) Background
      - Local Motors goal is to solve mobility issues. "Current vehicles don't work because of rapidly changing preferences." Their solution: Olli – an electric "self-driving" shuttle.
      - Olli is electric and 80% 3D printed. It has a cognitive system with real-time information being transmitted assuming a 4G cellular connection and Real Time Kinematic (RTK) base station are available. The vehicle can hold 6-8 passengers (less if a wheelchair user is present).To operate an Olli shuttle, it does require some infrastructure including charging stations, Dedicated Short Range Communications units (DSRC) at traffic signals (if applicable for the deployment), and the RTK base station at the highest point in the area.
      - Olli is positioned to provide local campus mobility across a variety of segments to provide safety, mobility, and improvements to quality of life and productivity.
   b) Discussion
      - The group presented questions to David on how to purchase/lease, needs for special permits, and NHTSA certifications/exemptions. Olli works with the buyer for their specific needs while maintaining legal requirements on local, state, and federal levels.
      - Comment on how to be an online steward to realistically present the capabilities of AVs. There may be limitations on what companies can promise based on operational design domains. Mobility focused companies have a lot to offer communities so they should be clear on their benefits, as well as limitations
      - Question on how Olli handles a passenger needing medical attention – whether inside the Olli or if the Olli is blocking roadway for an emergency response vehicle. Olli has real-time data from inside the vehicle they can share, as well as work with law enforcement to ensure they are not interfering with their duties.
      - Question on how to best partner with Local Motors through the DOT. Recent partnership in Maryland required 37 meetings to set everything up. Meetings included similar stakeholders that are included in the ATC so Iowa is in a good position.

5) Crash reconstruction and related work for National Transportation Safety Board – Dan McGehee, University of Iowa
   a) Background
      - National Advanced Driving Simulator (NADS) is a research lab at the University of Iowa focused on driver safety. NADS worked with the National Transportation Safety Board (NTSB) to build a reconstruction on the simulator of the Tesla crash that occurred in Mountain View, CA on March 23, 2018
      - NTSB investigated the crash to understand what was happening inside and outside the vehicle during the trip. It can be difficult to know what data is needed from a vehicle and what data vehicle manufacturers have to understand their automation system. NADS can reconstruct drive using geographic scenery and replicating AutoPilot automation system.
      - AutoPilot was engaged on the Tesla during the fatal crash. Autopilot was engaged for 41 minutes during the trip. The driver received various warnings throughout the drive to re-engage. Warnings did not always re-engage driver. No brakes were applied before or during impact.
      - NTSB placed significant blame on Tesla for shortcomings in AutoPilot. Driver complacency was a significant factor in crash. There are concerns about marketing and selling AVs without adequate testing and clear disclosure on limitations.
      - NTSB also held Caltrans responsible for failing to repair various traffic safety hardware as well as the California Highway Patrol for failing to report a damaged attenuator. The driver would have likely survived if attenuator wasn't compromised.

6) ATC vision plan draft and workplans – Peter Rafferty
   a) Peter provided update and background on the Vision
      - Vision document received a few comments since last meeting that have now been incorporated including membership information and further detail related to VRUs.
      - Subcommittees will need to now focus on the workplans to implement the various actions identified in the Vision. The subcommittees will need to identify who will be tasked with certain responsibilities to achieve the identified actions.

7) Wrap-up
   a) Next Meetings – considering moving from four meetings per year to three meetings per year
      - Transition to less meetings to allow more time for implementation of efforts related to the Vision workplans. ATC can schedule additional meetings annually if needed depending on what is occurring.
   b) Networking time built into meeting – discussion
      - Discussion on having subcommittee meetings in person or having an ATC meeting in a different location. Some members of the ATC were open to this as needed to continue making progress on workplans.
   c) Adjourn

IOWA ADVISORY COUNCIL ON AUTOMATED TRANSPORTATION

Council Meeting

March 11, 2020

WELCOME AND INTRODUCTIONS

Scott Marler, Iowa DOT Director (ATC Chair)

Jacob Heiden, University of Iowa

SUBCOMMITTEE & WORKING GROUP UPDATES

- Policy & Legislation – Dylan Mullenix
- Public Safety & Enforcement – Colonel Nathan Fulk
- Economic Development – Jacob Heiden (for Rick Peterson)
- Infrastructure Readiness – Jacob Heiden (for Erin Mullenix)
- Communications – Andrea Henry

RULEMAKING UPDATES

Sara Siedsma, Iowa DOT

IOWA ADVISORY COUNCIL ON AUTOMATED TRANSPORTATION

IOWA DOT GETTING YOU THERE

Iowa ADS Legislation and Rulemaking Recommendations

Iowa Advisory Council on Automated Transportation

March 11, 2020

Agenda

- Background
- Rulemaking recommendations
- Discussion

Senate File 302

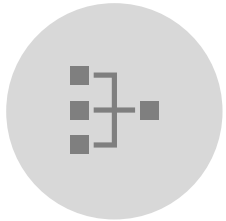
AN ACT

RELATING TO MOTOR VEHICLES OPERATED BY AN AUTOMATED DRIVING SYSTEM, AND MAKING PENALTIES APPLICABLE.

Background

Senate File 302

DEFINITIONS



OPERATION

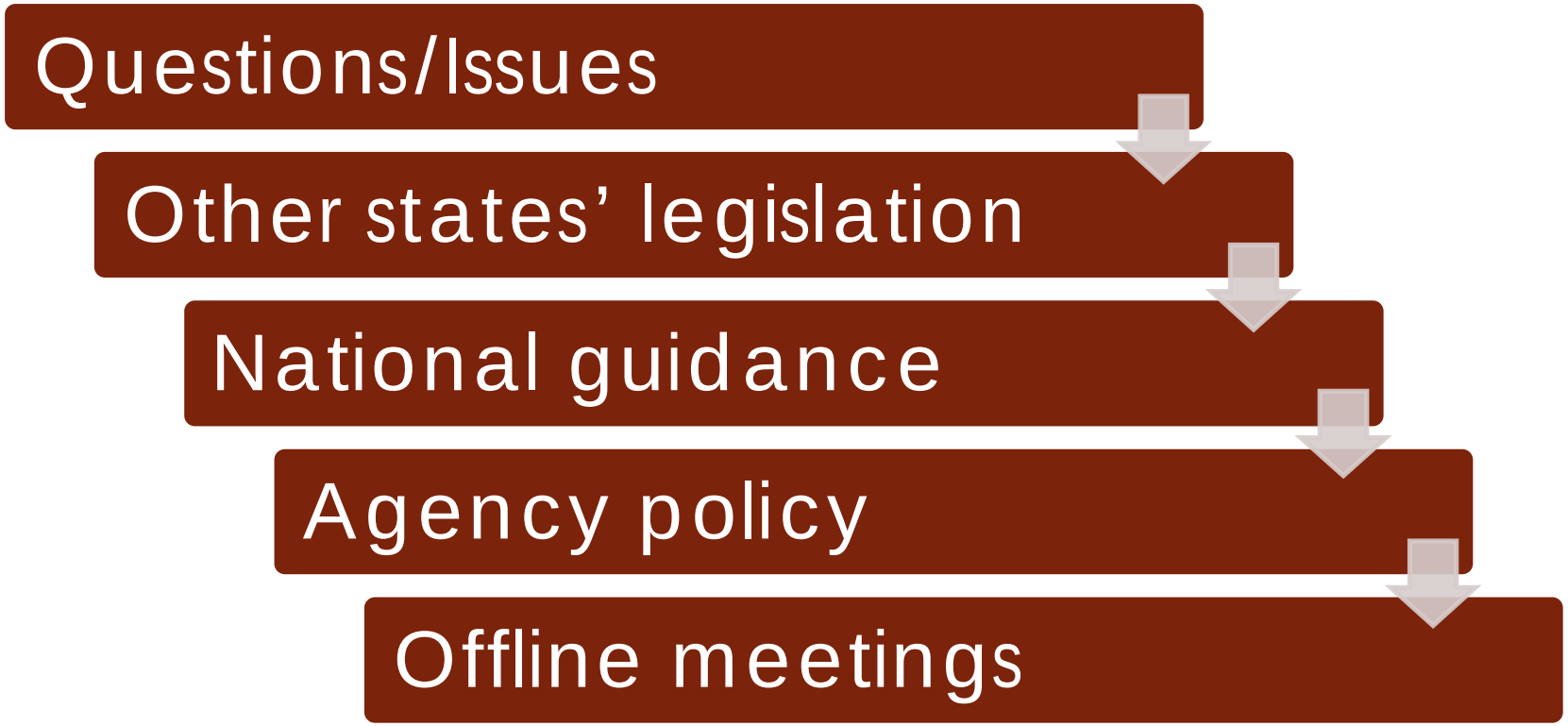
INSURANCE

ACCIDENTS

ON-DEMAND

AUTHORITY

Working Group Process



Rulemaking in Other States

As of November 2019:

- 17 with legislation for ADS operation
- 4 with rulemaking actions

Rulemaking Recommendations

Rulemaking 1. Add new rule chapter for automated vehicles and reference Levels 3-5 in relation to driverless-capable vehicles

Background

- Clear, consistent terms and definitions
- SAE J3016

Recommendation

- Reference Levels 3-5
- Establish new rule chapter

Implications

- Streamlines identification

Rulemaking 2. Identify and allow operational restrictions of driverless-capable vehicles in vehicle registration and titling

Background

- NHTSA and Iowa DOT exemptions
- USDOT ADS 2.0 and AAMVA HAV Guidelines

Recommendation

- Identify in registration and titling
- Establish operational restrictions

Implications

- Monitor safety impacts
- ARTS / Nlets impacts
- Operational restrictions challenged

Rulemaking 3. Identify on-demand driverless-capable vehicle networks

Background
- 321N regulates TNCs
- Uber and Lyft
- Slow-moving shuttles

Recommendation
- Identify in TNC permit
- Establish operational restrictions

Implications
- Monitor safety impacts

Rulemaking 4. Identify and allow operational restrictions of driverless-capable vehicles in commercial motor vehicle registration

Background

- Similar to Rulemaking 2
- Lack of FMCSA guidance
- ANPRM on ADS impacts

Recommendation

- Identify in inter/intrastate registration and titling
- Establish operational restrictions

Implications

- Monitor safety impacts
- ARTS / Nlets / ClearFleet impacts
- Operational restrictions challenged

Rulemaking 5. Establish parameters to manage testing of ADS-equipped vehicles on Iowa public roads

Background

- Operation vs. testing
- USDOT ADS 2.0 and AAMVA HAV Guidelines
- NTSB ruling on AZ crash

Recommendation

- Request permission to test on public roads
- Establish operational restrictions

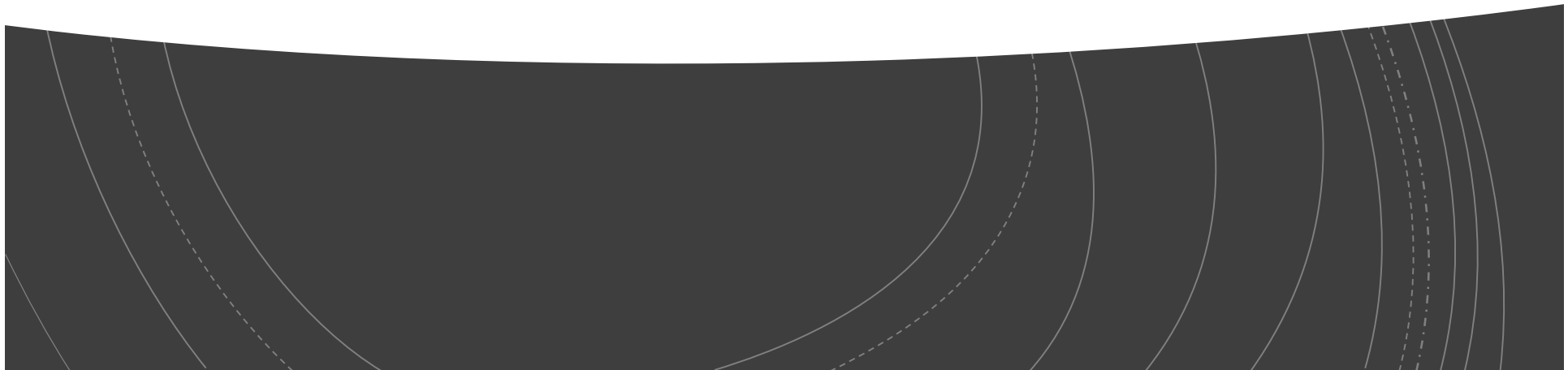
Implications

- Monitor safety impacts
- Direct response to NTSB ruling

Next Steps

- Administrative Rules being developed
- Draft rules projected to be available Spring/Summer 2020

Discussion



THANK YOU

Sara Siedsma
Compliance Officer
Motor Vehicle Division
sara.siedsma@iowadot.us

OLLI BY LOCAL MOTORS

David Fish, Local Motors

local motors
by

So what's the problem?

Current vehicles don't work because of rapidly changing preferences.

We want **safety.**

We want our **time to be ours.**

We are **conscious of shared resources.**

We want our **mobility to amplify our lifestyle.**

We want mobility to **support jobs in the new economy.**

We feel we deserve **access to mobility around the globe.**

Our Solution

olli by local motors

ELECTRIC

SELF-DRIVING

DYNAMIC

ON-DEMAND

SUSTAINABLE

CONNECTED

SUPERVISED

COGNITIVE

PERSONALIZED

UPGRADEABLE

Reinventing the ride.

EXPERIENCE
Olli knows me and customized my journey to match my unique needs.

UTILITY
I can count on Olli to get me there on time and on budget.

RIDE & COMFORT
Olli makes my commute more enjoyable and productive.

SAFETY
I know Olli will get me to my destination safe and sound.

Why is Olli Better?

- **DYNAMIC CAPABILITY :** Dynamic Obstacle Avoidance allows Olli to safely plan a route around obstacles in her path. This is a unique feature in the driverless shuttle market.
- **AUTONOMOUS CAPABILITY :** Olli traces her autonomous capability back to a military grade system. Unlike competitors Olli is able to operate in GPS denied environments, and the vehicle is capable of precise localization and accuracy. This means her autonomy has improved safety and uptime over competitor products.
- **AUTOMOTIVE GRADE SYSTEMS :** Olli is designed to automotive quality standards and features, certified components and systems which meet or exceed safety standards. There are no golf cart parts or game controllers on Olli... only top shelf automotive components.
- **SUSTAINABILITY :** Olli is designed with a cradle-to-cradle mentality. That means her components can be recycled or reused at the end of her useful life.

Why is Olli Better?

- **COGNITIVE VEHICLE :** Olli is designed to provide an engaging user experience to riders. An optional cognitive voice assistant allows users to communicate directly with Olli through voice conversation.
- **PREMIUM RIDER EXPERIENCE :** Olli offers a premium rider experience with improved quality of design, materials, overall increased ride smoothness and user comfort over competitors.
- **UPGRADEABLE PLATFORM :** Local Motors understand that the pace of technology is ever increasing. That is why we designed Olli to accept upgrades to her systems to keep her on the cutting edge.
- **DIGITAL ECOSYSTEM :** Modally connects Olli to the transportation ecosystem for efficient fleet management and operations. Modally will additionally facilitate an enhanced rider experience tailored to each specific Olli use case.
- **OPEN DATA SHARING :** Olli is always watching, learning and collecting data. Local Motors has developed a data sharing platform in order to enable transparent data sharing with stakeholders.

Transportation

The big picture (and how it's changing).

Safety

1.2 MILLION
Number of worldwide deaths due to vehicle crashed in 2013. *(01)

94% OF ACCIDENTS
are a result of human error. *(02)

OVER 40,OOO DEATHS
on U.S. roads in 2017 due to traffic accident. 5.5 people die each hour; 110 die each day. *(03)

Mobility

5% UTILIZATION
U.S. passenger cars remain parked 95% of the time. *(04)

60% OF TRIPS
within the U.S. market occur within a 5-mile radius of origin. *(05)

80% OF SENIORS
reside in car dependent communities. *(06)

Quality of Life & Productivity

40 MILLION PEOPLE
Number of U.S. citizens with disabilities. *(07)

EQUITY & ACCESS
Access to safe and reliable transportation is a cornerstone of financial and social independence. *(08)

42 HOURS YEARLY
Time wasted in traffic by average American each year. *(09)

Sources: NHTSA, Brookings Institute, U.S. Census, Texas A&M University, U.S. Federal Highway Administration, Waymo.

Campus Mobility Segmentation

Olli is positioned to provide local campus mobility across a variety of segments:

Education

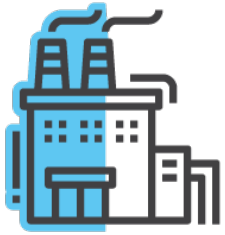
Medical

Residential

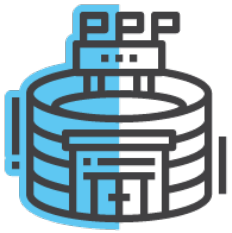
Government

Transportation

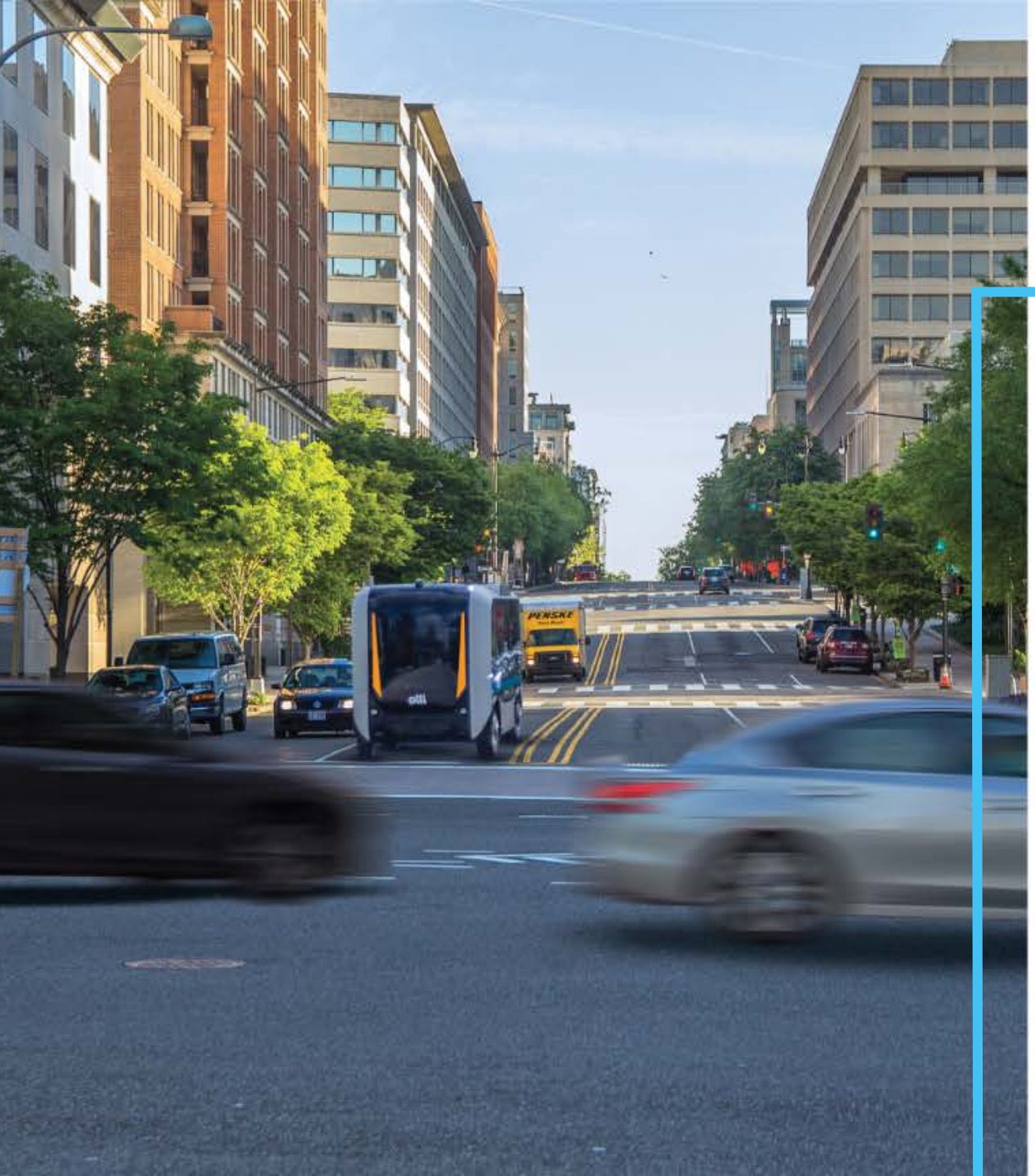
Hospitality



Corporate



Entertainment



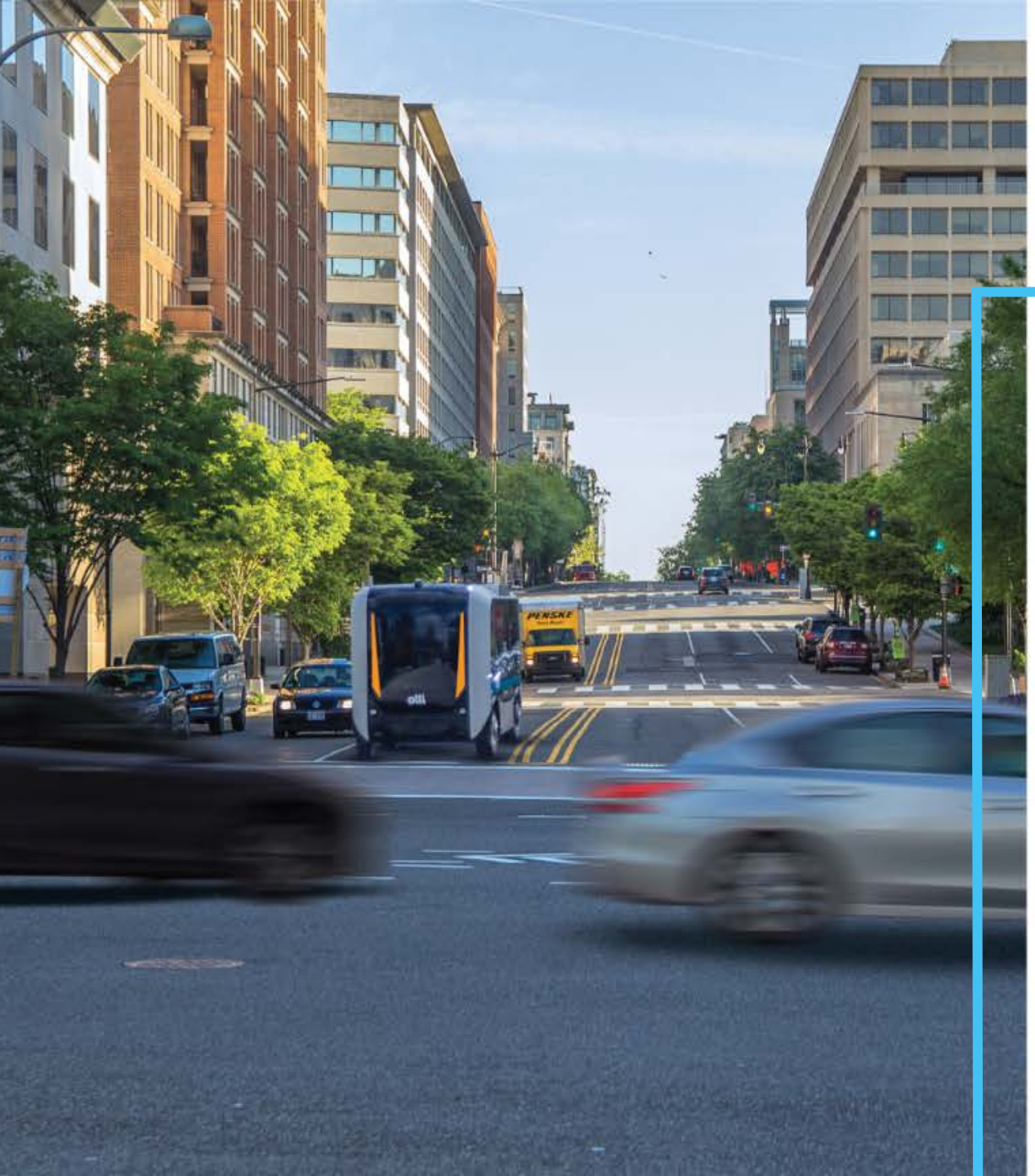
The Value of Olli

1. REIMAGINED CITIES : Traditional cars are parked 95% of the time. 30% of urban traffic is cars looking for parking. With AVs in use, parking spaces could be reduced by 50%, allowing cities to replace with parks, mixed-use facilities.

2. SUSTAINABILITY : Electric power, ride-sharing capabilities and reduced braking/accelerating mean less fossil fuel use.

3. INFRASTRUCTURE : Physical & digital infrastructure will persist. Transit stations, roads, highways, waterways & parking will become more interconnected. Olli and Modally effectively integrate with established infrastructure and creating near term operational value.

4. COMPATIBILITY : Seamless integration into current fleet systems ensure easy access, exemplary in-transit experience, a smooth payment process and overall customer satisfaction.



The Value of Olli

5. UPGRADEABLE : Open platform, enables customization and easy, often remote, integration of the newest, advanced technologies coming to market.

6. TAILORED : Fleet operators can deploy a range of vehicles matched to users' preferences, managing upkeep & storage and leveraging smart routing capabilities to match supply and demand effectively.

7. BUY AMERICA : Requires U.S. Government to prefer U.S. made products.

8. ALL INCLUSIVE : Concierge, one-stop-shop service allows ease of doing business from purchase, to financing, insurance, operations, service and data collection.

9. LOW-VOLUME MFG : Along with 3D printing capabilities, allow for advanced, low-cost efficient customization and rapid technology adoption.

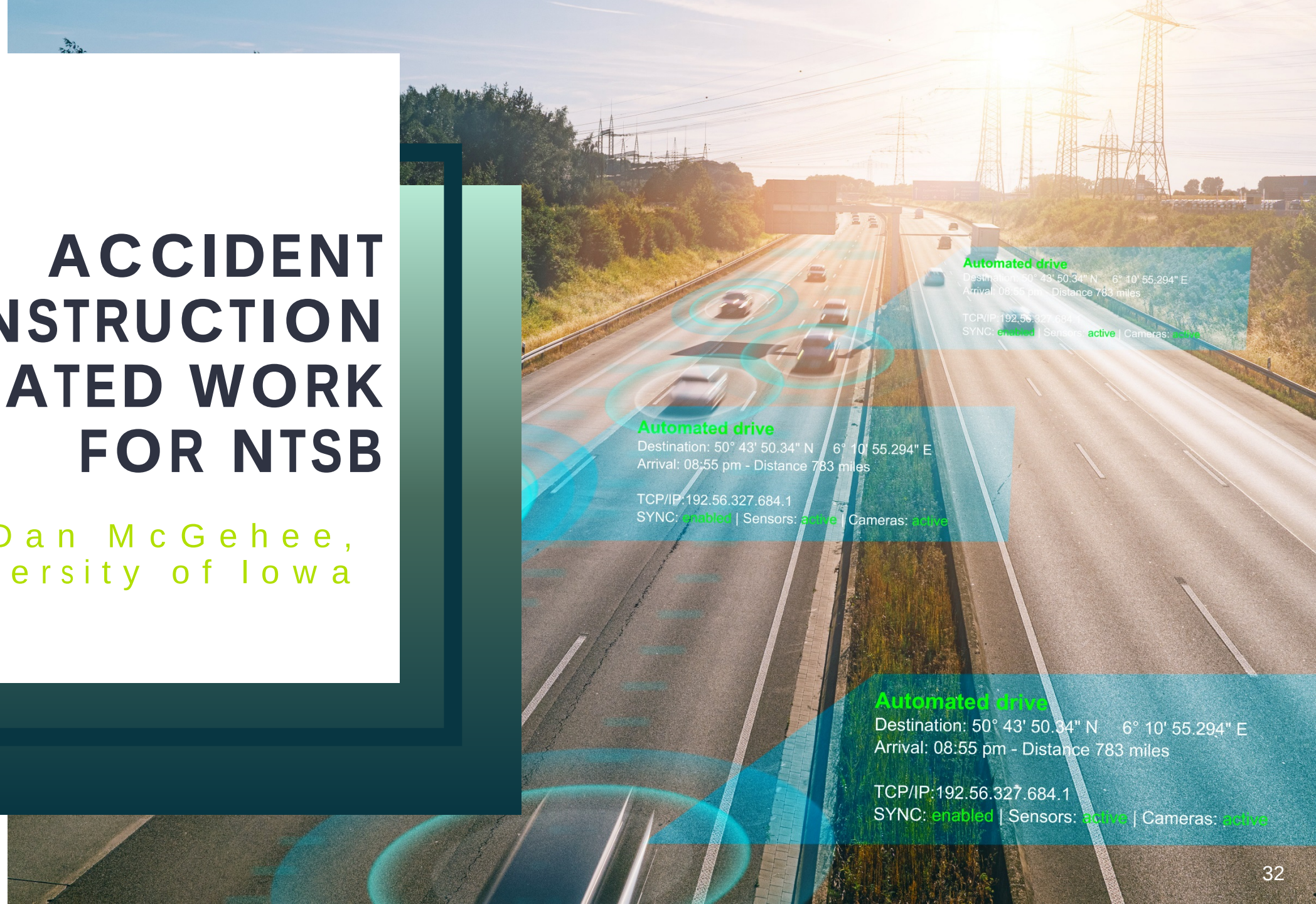
Thank you

Q & A

local motors by

ACCIDENT RECONSTRUCTION AND RELATED WORK FOR NTSB

Dan McGehee,
University of Iowa

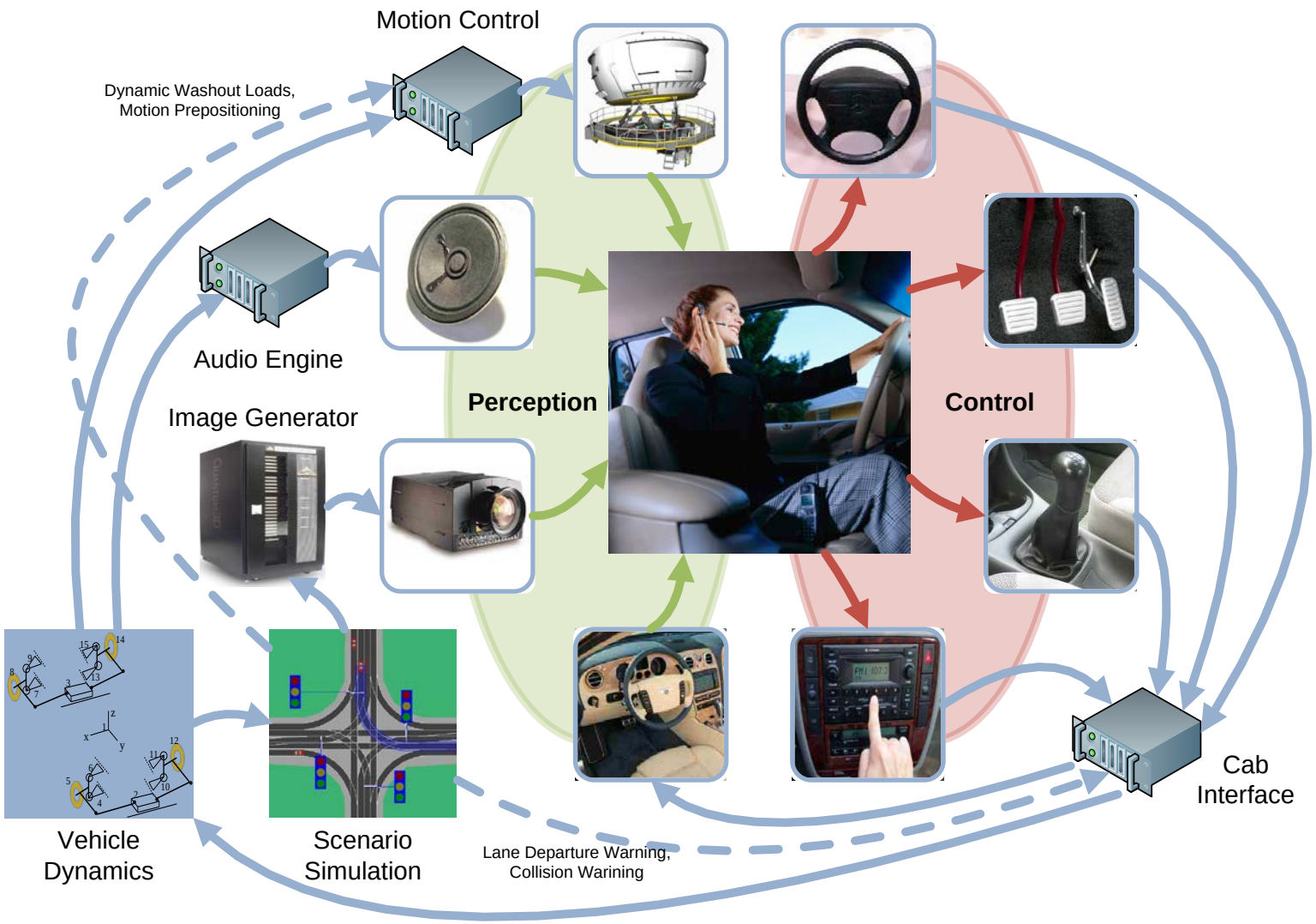


NTSB AUTOMATED VEHICLE CRASH RECONSTRUCTION

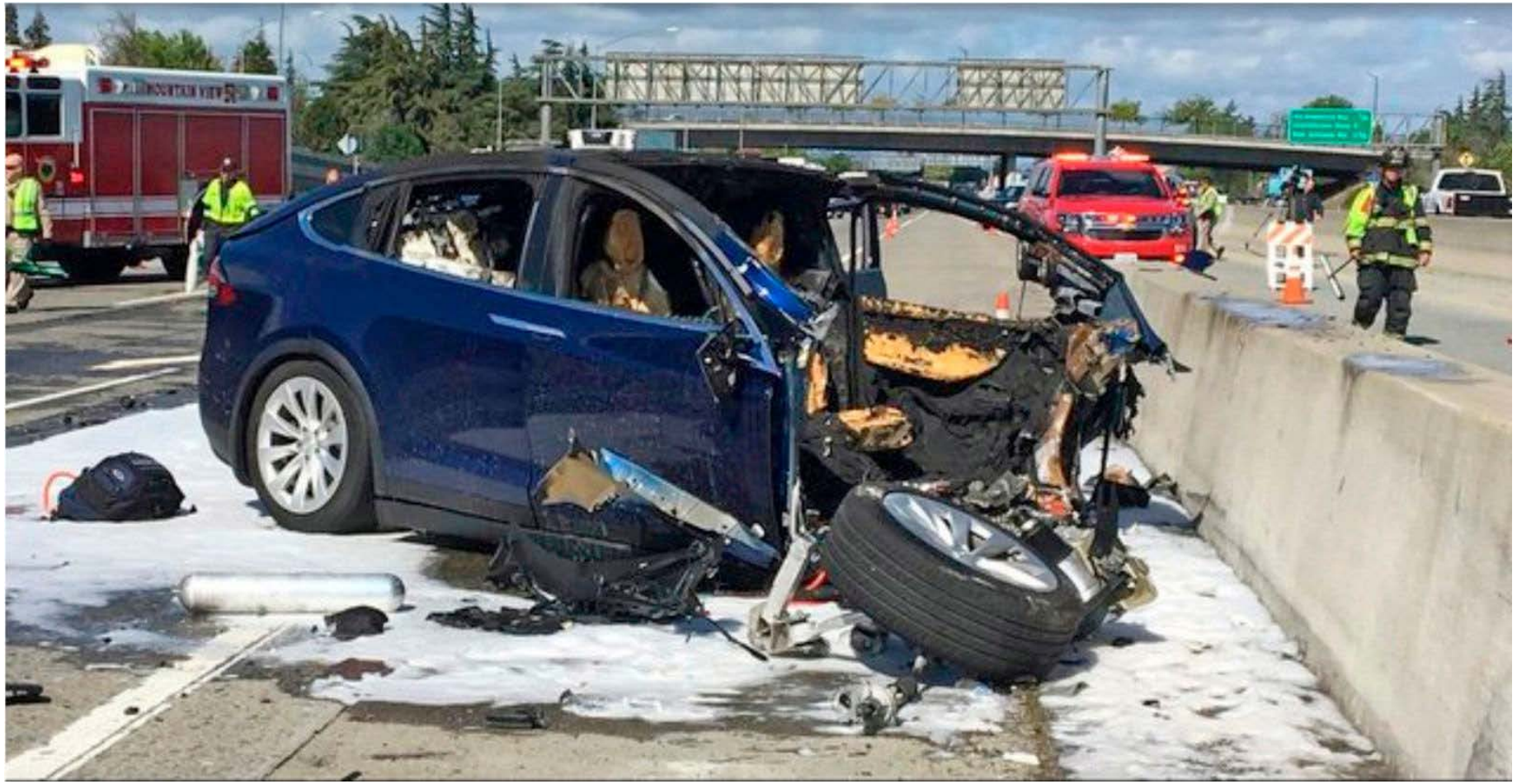
Dan McGehee and Omar Ahmad


NTSA
NTSA

NADS INTERACTIVE SIMULATION

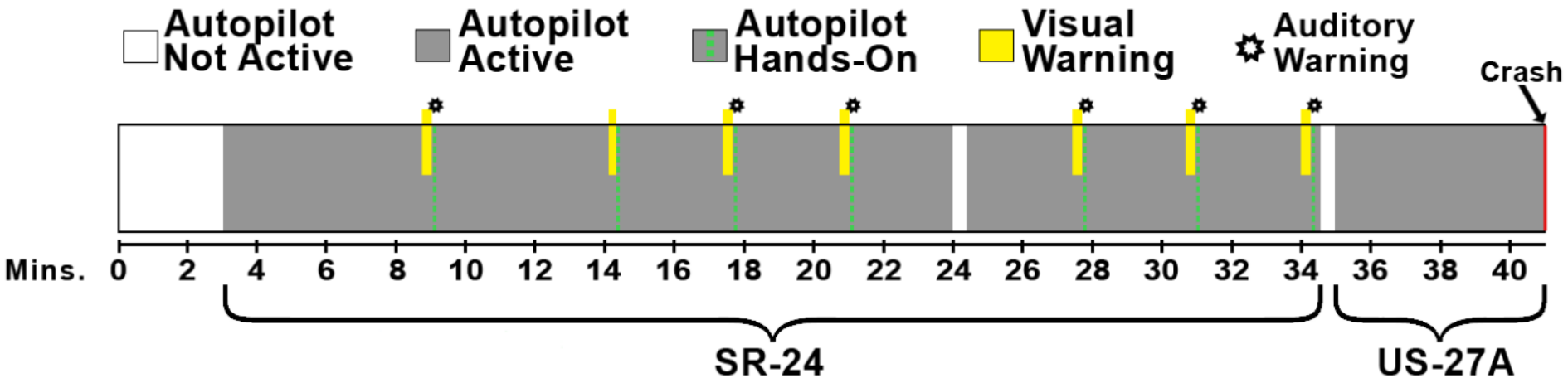


MARCH 23, 2018 MOUNTAIN VIEW, CALIFORNIA




OHIO
B186487

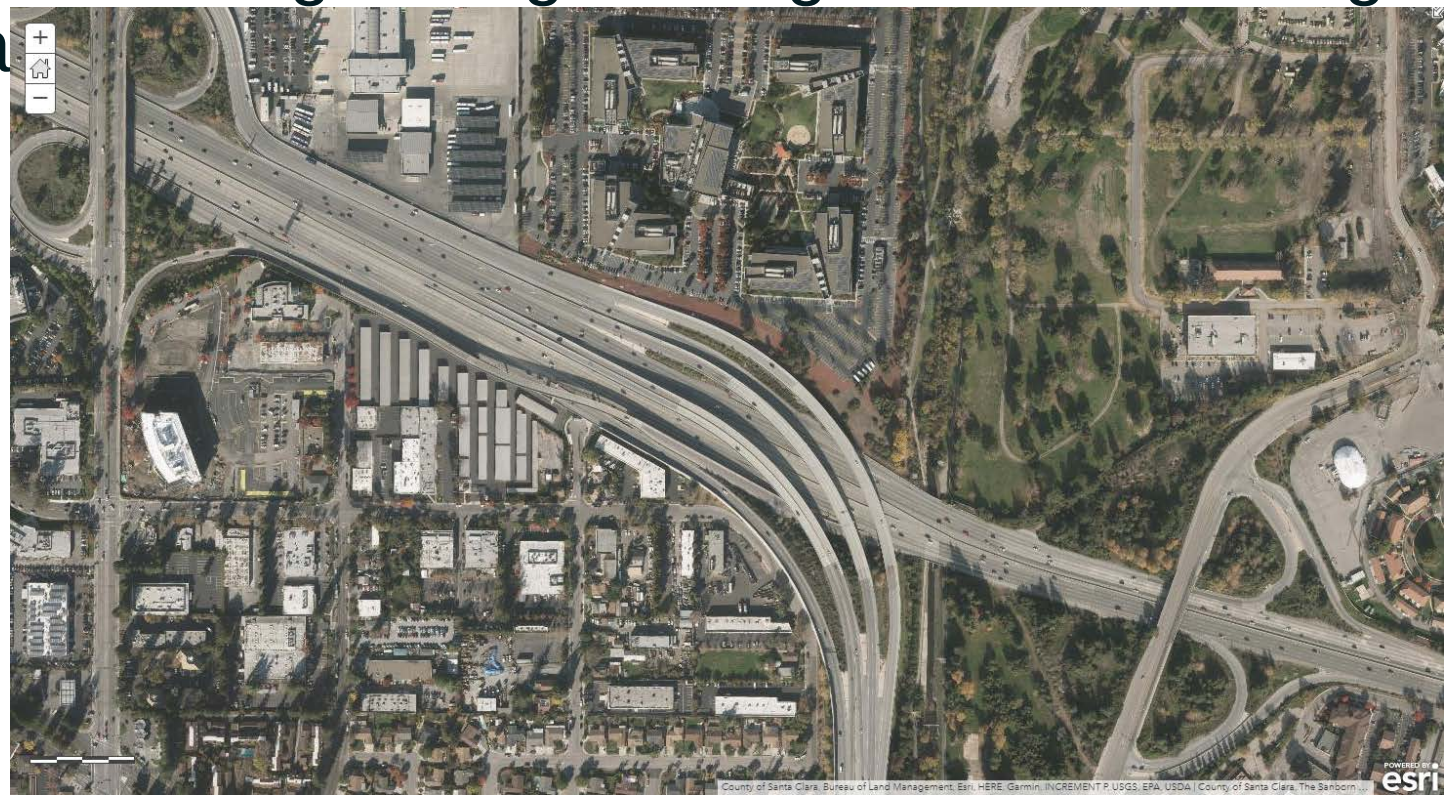
41 MINUTES



- No brakes were applied before or during impact

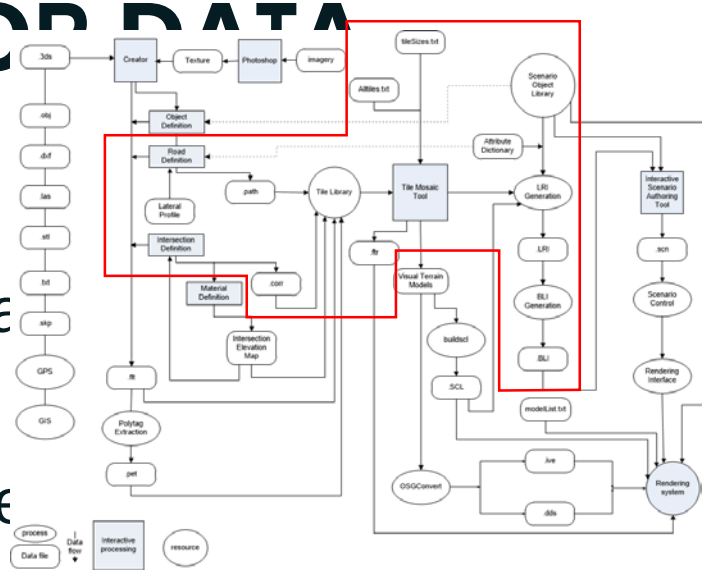
IMAGERY: TERRAIN TEXTURE MAP

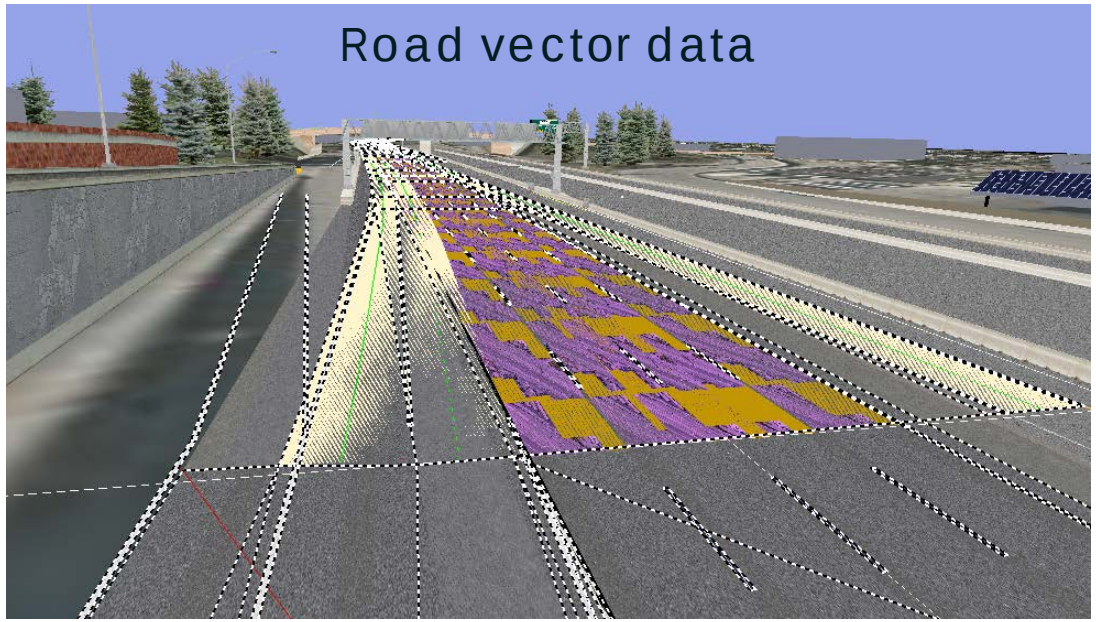
- Orthophoto imagery downloaded from ESRI geographic server:
- https://www.sccgov.org/sites/gis/GISData/Pages/Available-GIS-Da



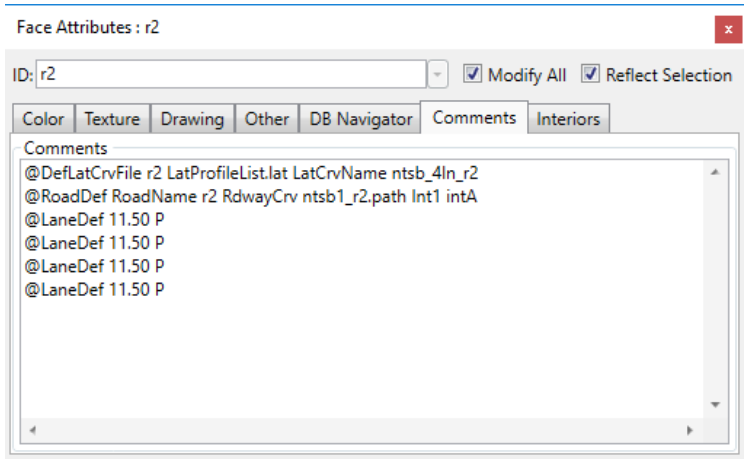
ROAD CENTERLINE VECTOR DATA

- Provide virtual/logical context for crash playba
- Correlated 1:1 with 3D terrain model visuals
- Created using NADS standard tools & processe



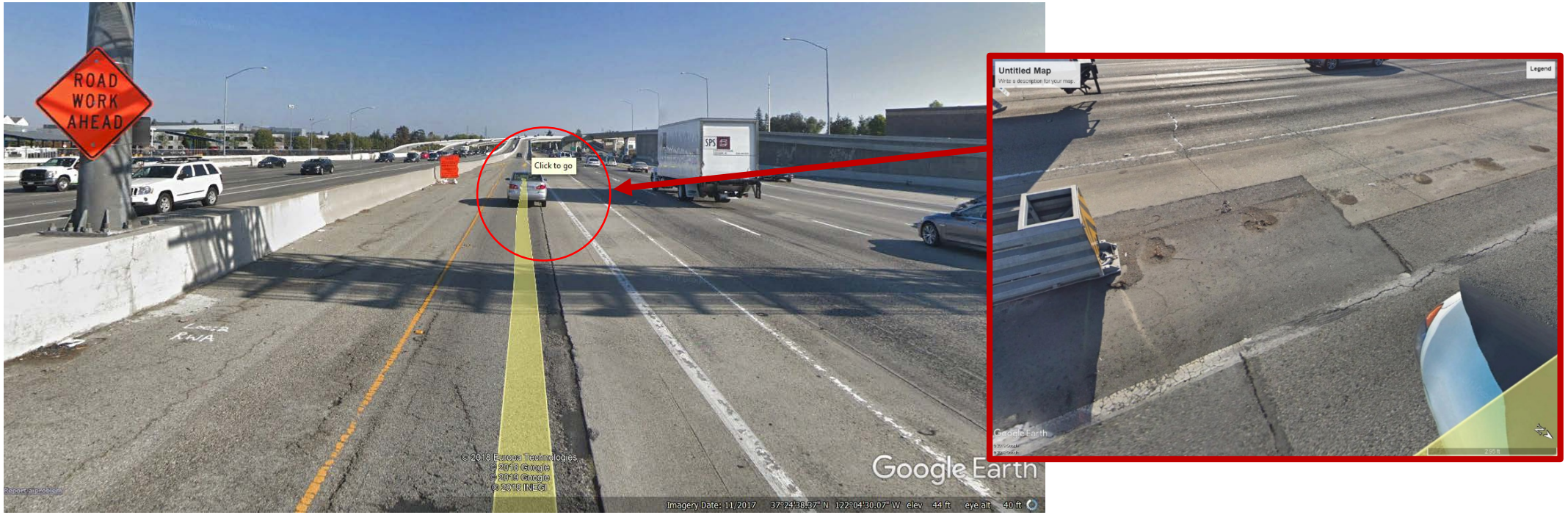


Road definition



CRASH LOCATION & SITE REFERENCE: GOOGLE EARTH, OPEN STREET MAP

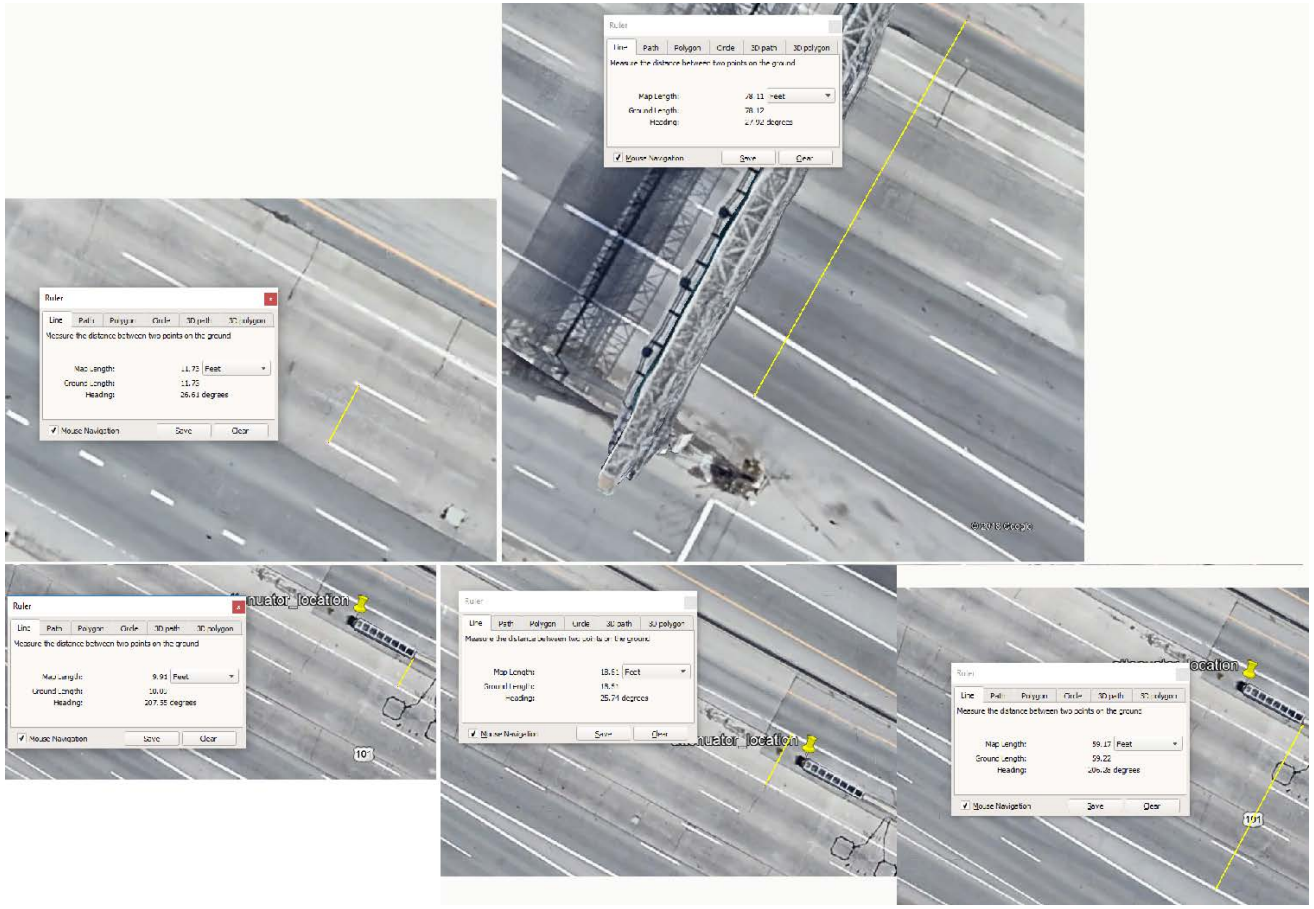
- Google Earth Pro street view was used to survey the area of interest to identify general scene character and features of interest.



ROAD MARKINGS AND FEATURE LANDMARKS

- Google Earth Pro birds-eye and street view was used to survey the area of interest and measure landmarks

- These dimensions were measured on the 3D model to ensure the reconstruction is faithful to data available



AREA FEATURES REVIEW: GOOGLE EARTH PRO

- Google Earth Pro birds-eye and street view was used to survey the area of interest and identify landmarks of interest

LAST 5 SECONDS OF DATA

Time	Speed	Delta D	Angle	Deg/S	Radians	X	Y
0.00	70.8363	10.36	153.824	2	2.684735	-7.3000	3.5200
0.10	70.5000	10.31	153.649	1.5	2.681681	-16.5367	8.0953
0.20	70.0600	10.26	153.454	2.4	2.678278	-25.7145	12.6804
0.30	69.8400	10.24	153.239	1.9	2.674525	-34.8586	17.2916
0.40	69.8100	10.22	153.094	1	2.671994	-43.9747	21.9176
0.50	69.5900	10.15	152.999	0.9	2.670336	-53.0164	26.5248
0.60	68.7900	10.06	152.899	1.1	2.668591	-61.9692	31.1064
0.70	68.3500	9.99	152.789	1.1	2.666671	-70.8564	35.6760
0.80	67.9200	9.96	152.689	0.9	2.664926	-79.7095	40.2476
0.90	67.9500	9.95	152.619	0.5	2.663704	-88.5447	44.8236
1.00	67.7300	9.91	152.589	0.1	2.66318	-97.3391	49.3843
1.10	67.3600	9.85	152.589	-0.1	2.66318	-106.0814	53.9180
1.20	66.9300	9.78	152.604	-0.2	2.663442	-114.7682	58.4200
1.30	66.4900	9.78	152.634	-0.4	2.663966	-123.4574	62.9176
1.40	66.9300	9.78	152.684	-0.6	2.664839	-132.1505	67.4075
1.50	66.4900	9.74	152.739	-0.5	2.665798	-140.8121	71.8706
1.60	66.3800	9.70	152.789	-0.5	2.666671	-149.4417	76.3077
1.70	65.9400	9.64	152.844	-0.6	2.667631	-158.0181	80.7071
1.80	65.5000	9.57	152.909	-0.7	2.668766	-166.5421	85.0673
1.90	65.0600	9.51	152.974	-0.6	2.6699	-175.0135	89.3885
2.00	64.6200	9.39	153.024	-0.4	2.670773	-183.3815	93.6478
2.10	63.4200	9.27	153.059	-0.3	2.671383	-191.6449	97.8475
2.20	62.9800	9.22	153.104	-0.6	2.672169	-199.8684	102.0188
2.30	62.7600	9.22	153.169	-0.7	2.673303	-208.0966	106.1808
2.40	62.9800	9.22	153.234	-0.6	2.674438	-216.3296	110.3334
2.50	62.7600	9.19	153.299	-0.7	2.675572	-224.5404	114.4632
2.60	62.5700	9.16	153.359	-0.5	2.676619	-232.7287	118.5709
2.70	62.3500	9.14	153.409	-0.5	2.677492	-240.9041	122.6633
2.80	62.3200	9.14	153.464	-0.6	2.678452	-249.0841	126.7481
2.90	62.3600	9.13	153.529	-0.7	2.679587	-257.2569	130.8178
3.00	62.1400	9.11	153.604	-0.8	2.680896	-265.4206	134.8695
3.10	62.1400	9.11	153.679	-0.7	2.682205	-273.5896	138.9106
3.20	62.1400	9.11	153.739	-0.5	2.683252	-281.7629	142.9432

NTSB CONCLUSIONS

- Placed significant blame on Tesla for shortcomings in AutoPilot
  - Driver complacency as a significant factor in the crash -- he was likely playing a video game at the time
  - Concerns about marketing and selling autonomous features without adequate testing and clear disclosure of the limitations.
- NTSB blamed Caltrans for failing to repair attenuator
  - Found that the driver would have likely survived the collision if attenuator was not compromised.

ATC VISION PLAN AND WORK PLANS

Peter Rafferty,
Gannett Fleming

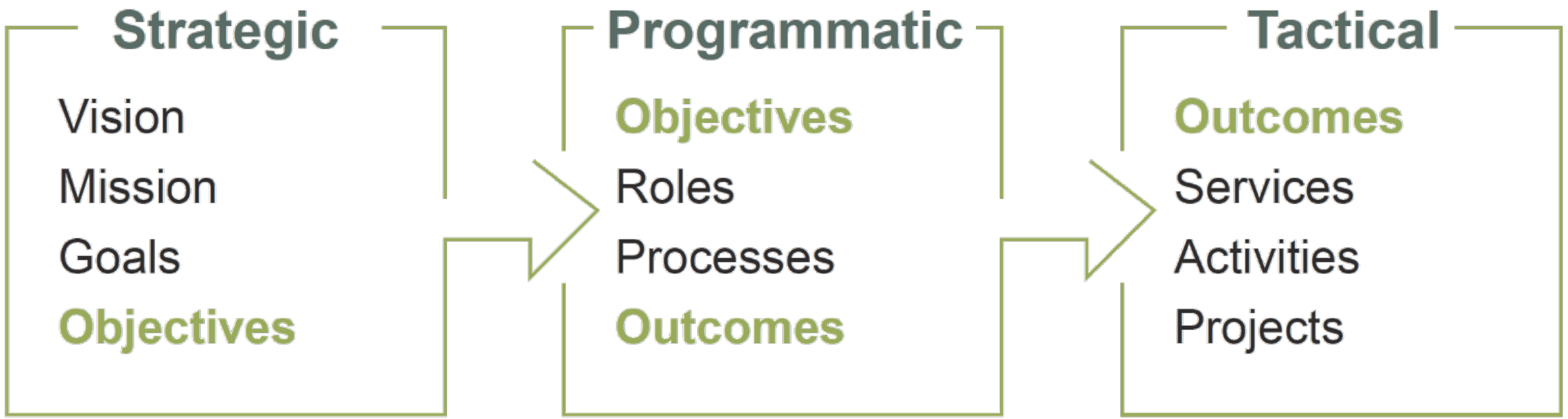
IOWA'S AT VISION

March 2020 Update

Six Sections:

1. **Summary**
2. **Overview & Approach**
3. **Strategic Foundation**
4. **Programmatic Approach**
5. **Tactical Initiatives**
6. **Summary & Next Steps**

THREE-PRONG PLANNING FRAMEWORK



SIX OBJECTIVE AREAS

1 Infrastructure Readiness

- Digital
- Energy
- Electrification
- Planning
- Land Use
- Freight
- Security
- Institutional
- Workforce

Associated Subcommittee

2 Policy & Legislation

- Administration
- Liability
- Insurance
- Finance
- Privacy
- Land Use Planning

Associated Subcommittee

3 Economic Development

- Workforce Development
- Employment
- Entrepreneurship
- Freight
- Commerce
- Efficiency
- Reliability
- Industry
- Manufacturing

Associated Subcommittee

4 Public Safety & Enforcement

- Regulations
- First Responder Safety
- Operator Responsibilities
- Safe Deployment
- Vulnerable Road Users

Associated Subcommittee

5 Communication, Outreach, & Education (crosscutting)

6 Research, Development, Testing, & Evaluation (crosscutting)

Objective Areas	Outcomes	Tactics
Infrastructure Readiness	A. Accelerate Infrastructure Readiness B. Implement National Guidance C. Improve Traffic Control Assets D. Leverage Communications Infrastructure E. Develop Agency Workforce	1. Assess & Advance AT Readiness 2. Improve Pavement Marking 3. Build Out Fiber Backbone 4. Implement Pilot Program* 5. Define Data Systems Architecture
Policy & Legislation	A. Evolve Administrative Rules B. Address Liability & Insurance C. Advise on Legislation D. Policymaker Outreach E. Community Readiness	1. Bolster State Leadership 2. Monitor Legislation 3. Modify Administrative Rules 4. Ensure CAT in Planning 5. Improve Equity & Accessibility 6. Implement Pilot Program*
Economic Development	A. Outreach to Business B. Foster Business Growth C. Improve Freight Movement D. Workforce Development	1. Assess Platooning Corridors 2. Initiate Platooning Study 3. Engage with Iowa Businesses 4. Engage with Iowa Community Colleges 5. Implement Pilot Program*
Public Safety & Enforcement	A. Adapt to Changing Laws B. Explore Vehicle Automation Indications C. Promote Crash Data & Investigation D. Ensure Safe Incident Management	1. Develop Following Distance Guidelines 2. Explore Vehicle Automation Indications 3. Capture AV Crash Data 4. Inform TIM & Safety Community 5. Address VRU Safety
Communications, Outreach, & Education	Crosscutting	1. Active Coordination 2. Public Outreach 3. Response Planning
Research, Development, Testing, & Evaluation	Crosscutting	1. RDT&E Coordination 2. RDT&E Engagement

DEFINED OUTCOMES AND TACTICS

Summary table from Vision page 26

ATC WORK PLANS

For Each Objective Area

Five Sections:

1. Tactical Priorities
2. Roles and Responsibilities
3. Resourcing
4. Scenario Planning
5. Timelines

WRAP-UP

- Next meetings
  - ATC considering moving from 4 meetings per year to 3 meetings per year
  - Networking time built into the meeting
- Adjourn

THANK YOU