

Minutes

**COMISSION ON RESEARCH**

March 14, 2018

130 Burruss Conference Room

3:30pm-5:00pm

Attendees: Jennifer Irish (Chair), Virginia Pannabecker (Vice-Chair), Connie Marshall (for Theresa Mayer), Stefan Duma, Alan Michaels, Sid Madhavan, Robert Vogelaar, Myra Blanco, Saied Mostaghimi, Kevin McGuire, Ken Miller, Thomas Bell, Deborah Milly, Rachael Rupnow, Benjamin Corl, and Chris Tysor (Recorder).

Absent: Van Crowder, Sally Morton, Andrew Neilson, Kurt Zimmerman, Dipankar Chakravarti, Uri Kahanovitch and Steve Nagle

Guests: Dennis Grove, Tom Dingus, Ellen Plummer

I. Approval of the Agenda- Approved by vote with modification that Saied Mostaghimi would be leading us through the 2<sup>nd</sup> reading of the revisions to the faculty handbook instead of Peggy Layne.

II. Announcements

- a. None

III. Unfinished Business

- a. Upcoming Elections- Call for nominations for Vice Chair for the 2018-2019 year. The Vice Chair term is 2 years with the first year serving as Vice Chair and second year serving as Chair. Please consider nominating or self-nominating and send those nominee names to Jen Irish and Virginia Pannabecker.
- b. Report of Ongoing Activities
  - a. Revisions to the Faculty Handbook, Second Reading of all three – S. Mostaghimi
    - i. CoR Resolution 2017-18 B to Clarify Faculty Handbook Language on Overload Compensation for Research Faculty Members Teaching Credit Classes. There was much discussion around the use of the term “overload” pay. Bruce V. wasn’t clear on how one could receive more salary if their time commitment was already at 100%. He brought up the point this could look funny and could lead to someone decreasing their % LOE to below 100 on a grant, then adding, for instance, a course to teach which would bring their time above 100% and salary increase as well. Ken Miller described the process for the attendees. Jen Irish read from a memo published by Jack Finney in February 2012 which precipitated this topic and attempted to show there needed to be a process in place to allow research faculty to be compensated for teaching classes over and above their usual job responsibilities. Such a process was then piloted successfully and this resolution’s goal is to modify the faculty handbook to describe this as an official process. Jen asked if removing the term “overload” from the title of the resolution would help to eliminate confusion while not changing the spirit of the resolution. Saied countered with leaving the term in the title

since this resolution had already been seen and “approved” by multiple commissions and faculty groups who did not raise an issue. Decision was made to leave “overload” in the title. Ken Miller further explained the intent of what he understood the resolution was trying to accomplish. This resolution is concerning university effort versus consulting/personal effort. Following discussion, Jen Irish brought the resolution to a vote. It passed with all in favor, none opposed.

- ii. CoR Resolution to Clarify Faculty Handbook Language on Research Faculty Promotion Process – 2017-18 A - The spirit of this resolution was to clarify guidelines for research faculty promotions: professorial ranks and research faculty promotions: non-professorial ranks. Professorial ranks promotion follows normal tenure track channels while the non-professorial ranks promotion follows a different process, so it was necessary to break the two out. Jen Irish brought the resolution to a vote. It passed with all in favor, none opposed.
- iii. CoR Resolution to Clarify Language in Faculty Handbook on Search Requirements and Removal Processes for Research Faculty Members – 2017-18 C. Since the first reading, the resolution was modified to exclude search requirements. Following a motion to approve the resolution, it was discussed that “search requirements” should be removed from the resolution title as it is no longer addressed in the resolution. Jen Irish proposed an editorial change to remove "(additions in italics, deletions in strikethrough)", to be consistent with the other two resolutions. Jen Irish brought the resolution as amended to a vote. It passed with all in favor, none opposed as CoR Resolution to Clarify Language in Faculty Handbook on Removal Processes for Research Faculty Members – 2017-18 C.
- b. Faculty Senate – B. Vogelaar – EFARs still remain a high priority topic in the senate as well as the backlog in research through IRB delays. Promotion and Tenure criteria are under review, and review will continue into next academic year. Academic Analytics (<https://www.academicanalytics.com/>) is another priority topic - how is this being used to evaluate people across the university? Though decisions based on this are described as aggregate, these filter down and affect individuals. Discussions will continue this year and into the following semester. Bruce also mentioned the inclusion and diversity component being discussed to be added to graduate education. Bruce informed the group he would look into Collegiate Faculty and their promotion process as it may be different than the others discussed since it is a new category. Will bring more information to the group later.
- c. Committee on Research Competitiveness – no update in the interest of time
- d. Update to Policy 13005 – no update
- e. University Library Committee- V. Pannabecker requested CoR members share any ideas you and your departments may have for use of library space. The library is collecting requests for recommendations for future library space renovations. Responses received to date include co-working areas for large, interdisciplinary groups, data visualization capabilities, etc. They are compiling the requests for a report in May/June. If you have any ideas, please pass them to Virginia Pannabecker.

- f. Open Access Policy Draft announcement– V. Pannabecker –There are 3 NLI sessions upcoming in March and April, and the facilitators are interested in visiting department / college / research group meetings to get specific feedback from a faculty around the university. Contact the working group members at [openaccess@vt.edu](mailto:openaccess@vt.edu) and we'll schedule at time that works for your group.. Also, it was discussed that more types of faculty (e.g., different Department and College representation) be included in the commission discussions to ensure all voices are represented. The working group website is regularly updated and has the Draft OA Policy, FAQ, and Presentation Slides at: <https://sites.google.com/a/vt.edu/cor-oa-policy-working-group/>
- g. Update on Commission Chairs meeting with President Sands – J. Irish- Commission for Outreach and International Affairs reaching out to international alumni in an effort to move Virginia Tech into the top 100 international university ranks. Kim O'Rourke has put together a policy committee that will provide feedback on resolution drafts.

#### IV. New Business

- a. Plan for April CoR Agenda- Three major issues are affecting faculty at Virginia Tech and are affecting the ability to conduct research. These are long delays related to IRB approvals, Software Licensing, and Hiring Research Faculty on Grants. The plan for April is to hold a panel discussion with the following people invited to help inform the commission on these areas- Dr. Gary Sherman for IRB approvals, Dr. Jerri Kemp for Software Licensing and Ms. Lynn Byrd for Hiring. Dr. Theresa Mayer is also invited to attend. Connie Marshall stated Western IRB, an external firm, has been hired and they are getting IRB approvals moving quickly through the process.
- b. VTTI's Strategies for Attracting Large Grants and Diversifying its Funding Portfolio- Tom Dingus, Director VTTI
  - a. Tom Dingus provided a brief overview and facts about how VTTI operates. VTTI contains 15 research centers and initiatives. They are considered the #1 Transportation Institute in the US by most metrics. They support 275 research faculty and staff (not including post-docs) and make up a significant part of the overall Virginia Tech research portfolio (~15%). VTTI rents all their space and therefore does not own any buildings. They earn approx. \$9.8M in indirect funds and fund an average of 280 students. 85% of their personnel are soft funded. VTTI has a proposal hit rate of 82% with a dedicated pre and post awards proposal team to include technical writers. VTTI leverages every resource, hires entrepreneurs and innovators, is exceptionally nimble and maintains a large partnership network that they have cultivated over decades. They have been on proposals anywhere from \$50,000 to millions of dollars with 30 partners and 25 subcontractors. VTTI makes it a point to travel and market themselves at conferences, trade shows and to the media. They host multiple sponsor visits weekly
  - b. Jen Irish asked the question of how many multi-million dollar grants is VTTI bringing in: how are PIs supported and at what stages? VTTI maintains a proposal development team to include 8-9 folks on the pre-award side which is made of graphic designers, technical writers and contract specialists. A PI can submit to the team some writing/a formulated idea on paper and the proposal development team will turn it into a fully developed proposal with graphics and budget for submission. 92% of their external funding comes from contracts, not grants. Myra Blanco won

an \$8M+ contract last fall. VTTI has received contracts from \$50,000-\$15M. The proposal development team provides the same type of assistance no matter the dollar amount of the proposed contract. VTTI goes after any contract no matter the dollar amount because there could be future benefit in any partnership.

- c. Dennis Grove asked if going after grants/contracts was a top-down or bottom-up initiative. The response was both. There are approximately 50 full-time engineers and scientists on staff. Their workload ebbs and flows, but if you need them to put together an experimental vehicle for a particular contract, they can do so in a short time frame.
- d. Nancy Dudek asked about marketing. VTTI tries to send teams to all major trade shows, conferences, etc applicable in the transportation space to include the Consumer Electronic Show 2018 in Las Vegas. It is worth it to spend money marketing themselves and having a staffed booth in order to generate potential new partners and interest in VTTI work and research.
- e. Jen Irish asked when you have a tight-turnaround contract, how does VTTI manage T&R faculty who have many external commitments. VTTI provides them help and assistance. If the PI truly wants to be a part of the contract and are excited about the opportunity, they are responsive and provide information when asked.
- f. Connie Marshall asked if working with companies and/or industry is restraining. VTTI tells the customer or partner what they NEED to hear, not necessarily what they want to hear and feedback they have received is this is the preferred way to communicate. Sometimes there is a required delay in publication for up to a few years after the project or after the product is on the market; other times there is no publishing delay required.
- g. Jen Irish asked if there are challenges working with faculty in the P&T process? VTTI hires mostly research faculty so to date, they haven't really had any issues with this. Time will tell.

V. Adjournment – Meeting adjourned at 1659

\*The meeting minutes of February 14<sup>th</sup>, 2018 were voted on electronically. The absence of a response indicated a positive vote.

Please take note of the following upcoming meetings which will all take place in Burruss 130 from 3:30pm-5:00pm unless otherwise noted:

April 11, 2018

May 9, 2018

# VTTI: How do we get large sponsored program awards?

## Presentation to the Commission on Research

Tom Dingus

3/14/18

# VTTI/VTT, LLC Organizational Structure

## **15 Research Centers/Initiatives/Groups**

- Advanced Automotive Research
- Automated Vehicle Systems
- Data Reduction and Analysis Support
- Infrastructure-based Safety Systems
- Injury Biomechanics
- Partnerships, Public Policy, and Outreach
- Sustainable Mobility
- Sustainable Transportation Infrastructure
- Technology Development
- Truck and Bus Safety
- Vulnerable Road User Safety
- Motorcycle Research Group
- I-81 Corridor Coalition
- Global Center for Automotive Performance Simulation
- Center for Technology Implementation

## **Nationally Known Centers**

- National UTC: Safety through Disruption
- National Surface Transportation Safety Center
- Automated Mobility Partnership

Zac Doerzaph, Director (BEAM/VTTI)

Shane McLaughlin, Director (VTTI)

Miguel Perez, Director (ISE/VTTI)

Ron Gibbons, Director (VTTI)

Warren Hardy, Director (ME)

Myra Blanco, Director (VTTI)

Hesham Rakha, Director (CEE/VTTI)

Gerardo Flintsch, Director (CEE)

Andy Petersen, Director (VTTI)

Rich Hanowski, Director (VTTI)

Jon Antin, Director (VTTI)

Shane McLaughlin, Group Leader (VTTI)

Andy Alden, Director (VTTI)

Frank Della Pia, Executive Director (VTT, LLC)

Mike Mollenhauer, Director (VTTI)

Zac Doerzaph, Director (BEAM/VTTI)

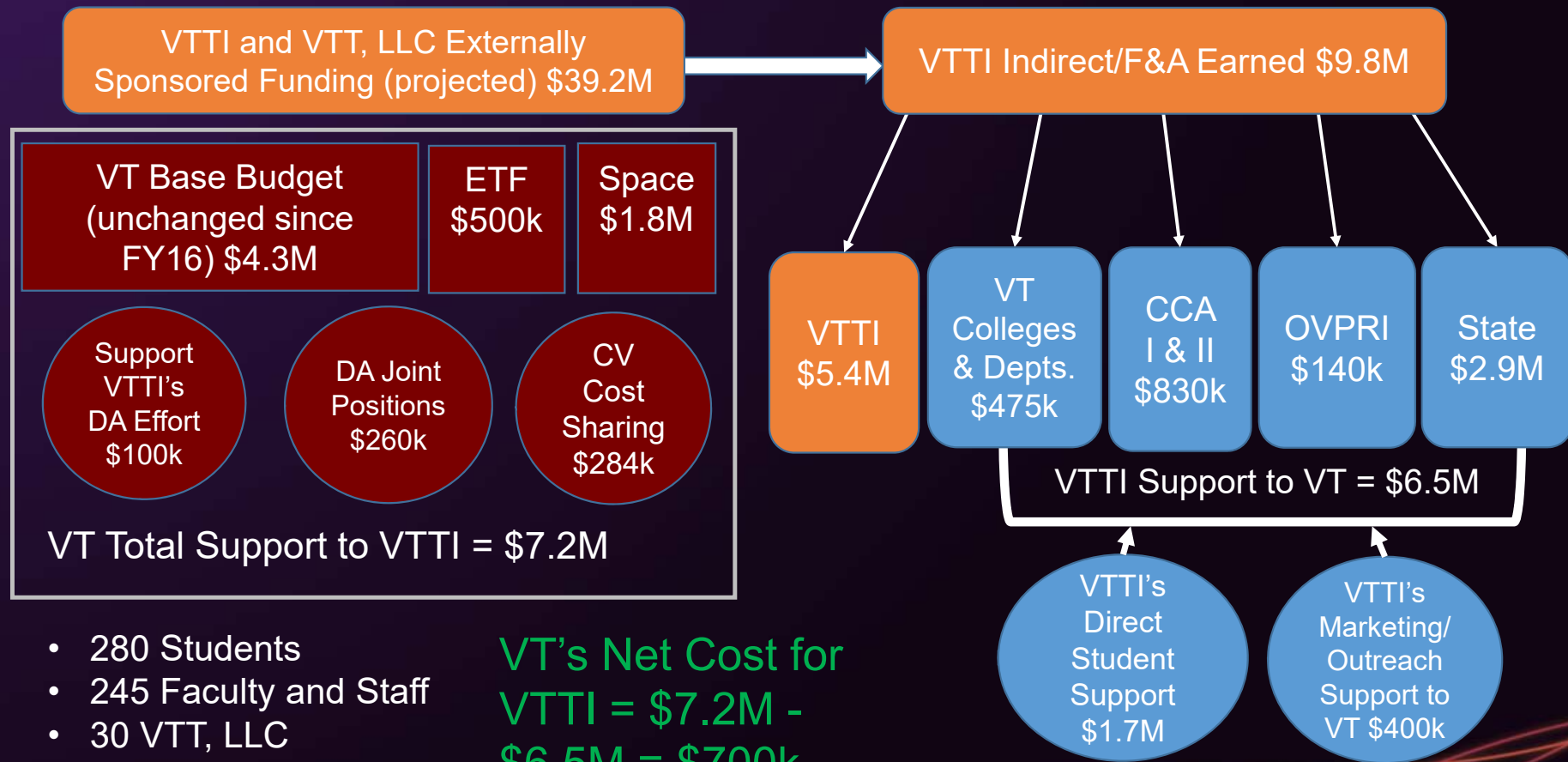
Jon Hankey, Director (VTTI)

Tom Dingus, Director (BEAM/VTTI)

## Who We Are . . .

- We are the #1 Transportation Institute in the U.S., by most metrics
- We are the largest group of driving safety researchers in the world
- Many of our 275 research faculty and staff have 10+ years of service (not “post docs”)
- We are a significant part of the VT research portfolio (~15%)
- We have never had any advancement funds invested in VTTI
- All of our space is rented; => the highest space utilization on campus
- The monetary investment by VT is modest (particularly at our current scale), thus we have the largest ROI at VT by a large margin

# FY18 VTTI Funding Overview

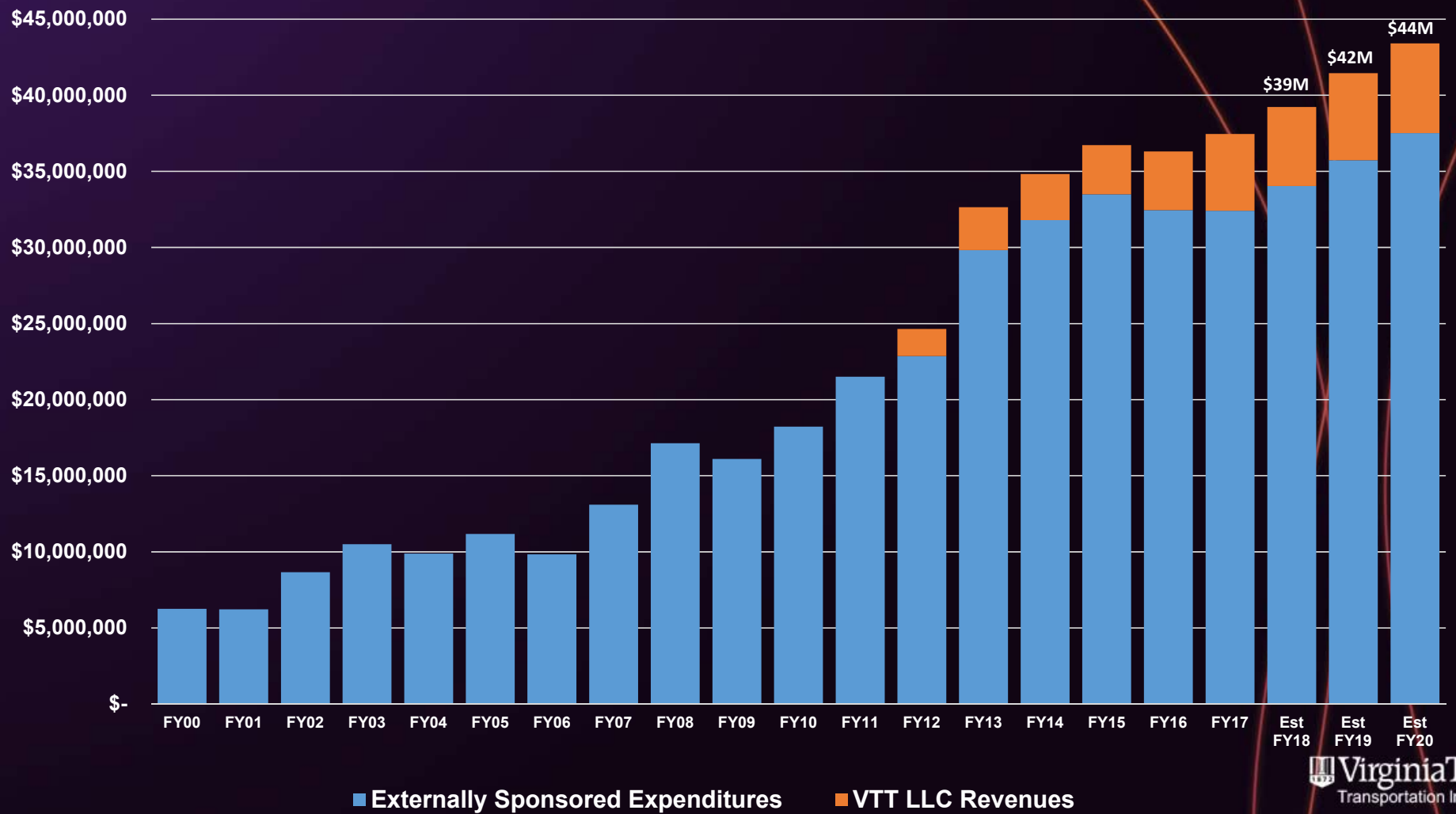


- 280 Students
- 245 Faculty and Staff
- 30 VTT, LLC Employees (includes open positions)

**VT's Net Cost for VTTI = \$7.2M - \$6.5M = \$700k**



## VTTI Externally Sponsored Expenditures and VTT LLC Revenue Over Time



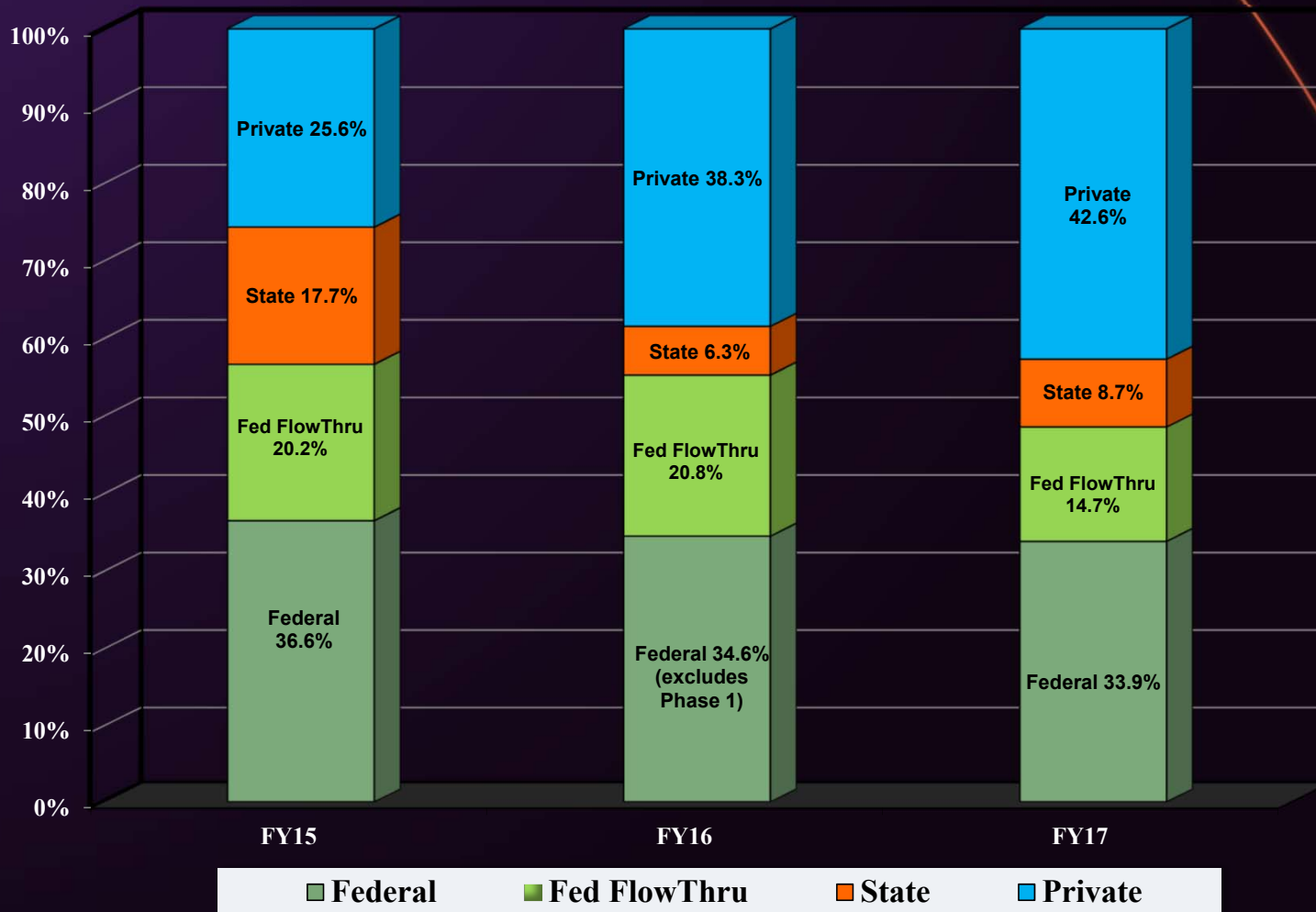
# Who We Are . . .

- We have 100+ sponsors and 300+ active projects
- We are 85% “soft” funded (the most at VT by a large margin)
- We write 200+ proposals/year; our current proposal hit rate is more than 80%
  - Mixed bag; everything from NSF/NIH to a guaranteed budget page
  - We let very few opportunities pass . . .
- We have worked with 175+ T&R faculty from 7 colleges, 18 departments, and 4 sister institutes in the last five years (initiatives, white papers, proposals, awards)
- We fund 280 students (mostly undergrads) on average each year, for at least part of a year

## In Addition . . . (these are some key points)

- We are entrepreneurs and innovators
  - Significantly expanded the “normal” bounds of transportation
- We leverage every resource
  - If we get a car, truck, building, track, or source of funding . . . How do we turn it into a bigger initiative with more partners?
- We are exceptionally nimble
  - We put together winning teams in a matter of days or weeks
  - We have increased our efforts to achieve a greater proportion of private-sector funding to continue to grow
- We are part of a large network of partners
  - We can quickly put substantial resources behind an initiative

## VTTI Awards by Source % for 3 years





## Other Key Points . . .

- We have cultivated sponsor relationships over decades
- We are always “out there” (conferences, trade shows, media)

- We host multiple sponsor visits weekly
- We are always traveling to see potential sponsors (Germany, Japan, S Korea, California, Detroit . . . AND DC)

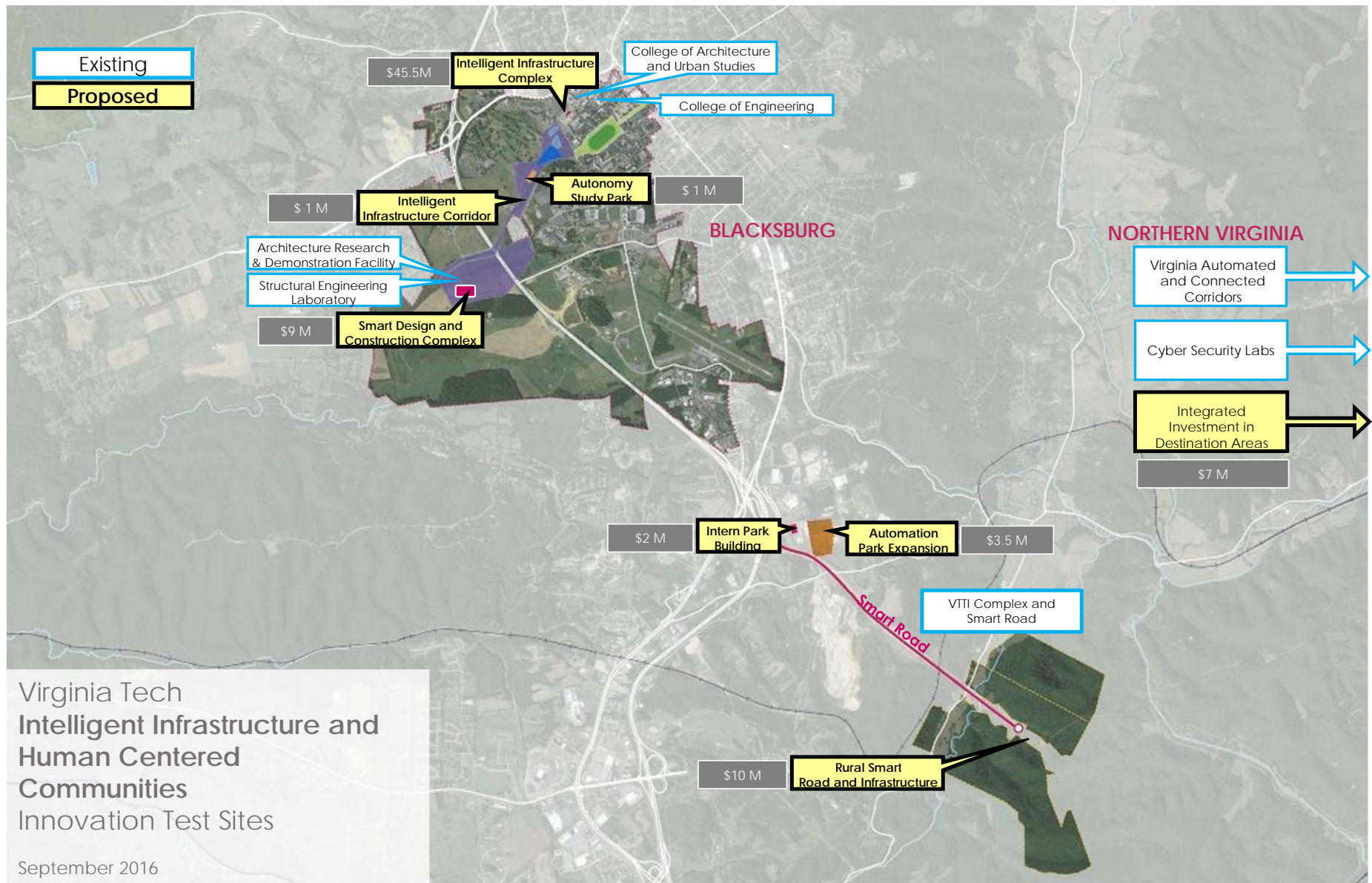




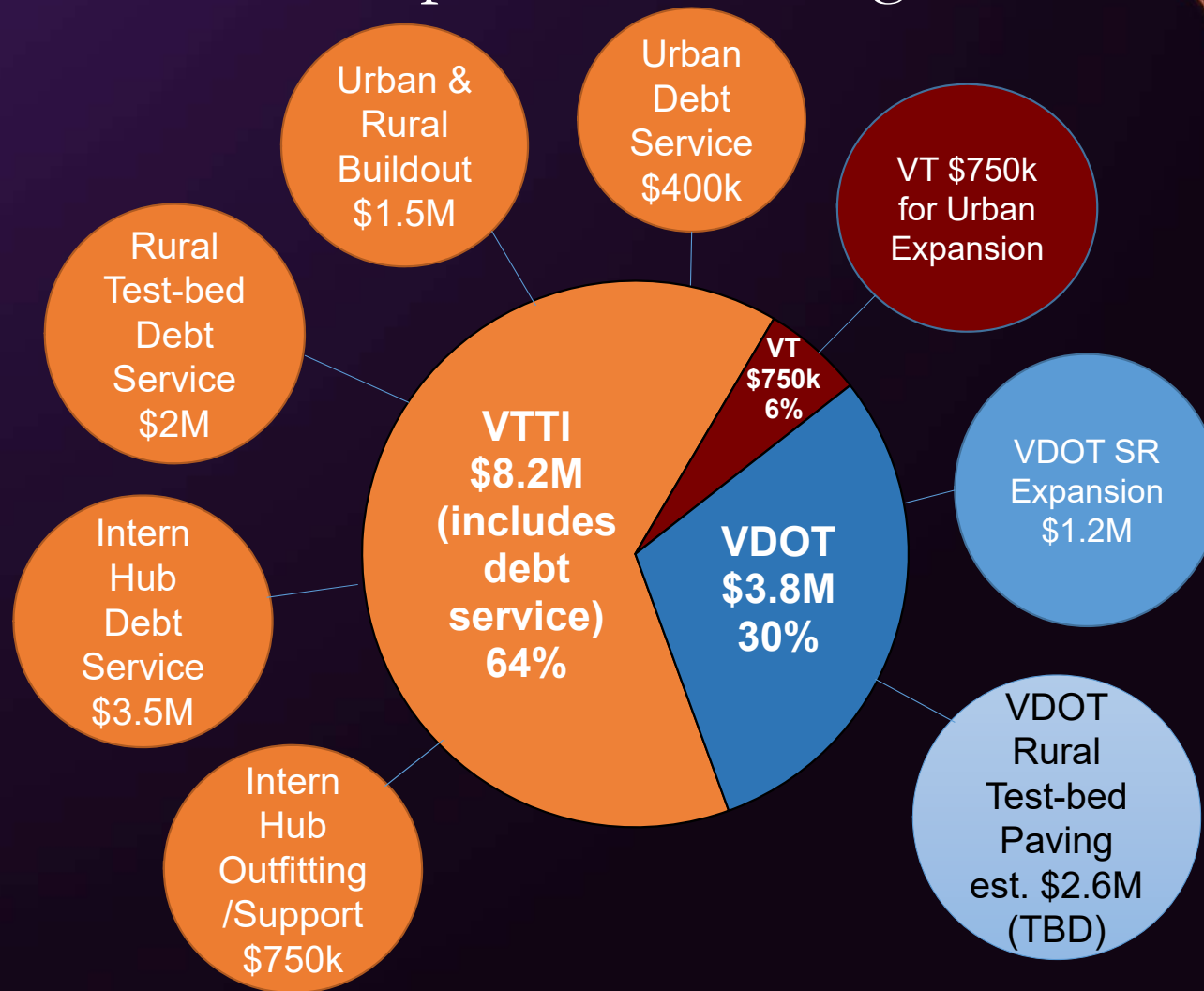
# Another Key: Unique, Valuable, World-class Infrastructure

Cost \$110M; Cost to VT, \$8.25M  
(VT is heavily leveraged . . . We all have to be creative)

- Smart Road opened in co-sponsorship with VDOT (2000)
- International Center for Naturalistic Driving Data Analysis at Virginia Tech (2006)
- National Surface Transportation Safety Center for Excellence (2006)
- Crash Sled Laboratory Partnership (2009)
- Global Center for Automotive Performance Simulation (Created in 2010; Opened in 2013)
- <https://vimeo.com/websedge/review/161775116/a5f39e89ed>
- Connected Vehicle/Infrastructure University Transportation Center (2012); Northern Virginia Connected-vehicle Test Bed (Opened 2013); Virginia Connected Corridors program (2014)
- Center for Automated Vehicle Systems (2013); Virginia Automated Corridors program (2015)
- Accelerated Pavement/Heavy-vehicle Simulator (2015)
- Smart Road Surface Street/Rural Road Expansion (underway)
- Automation/Intern Hub (2018)

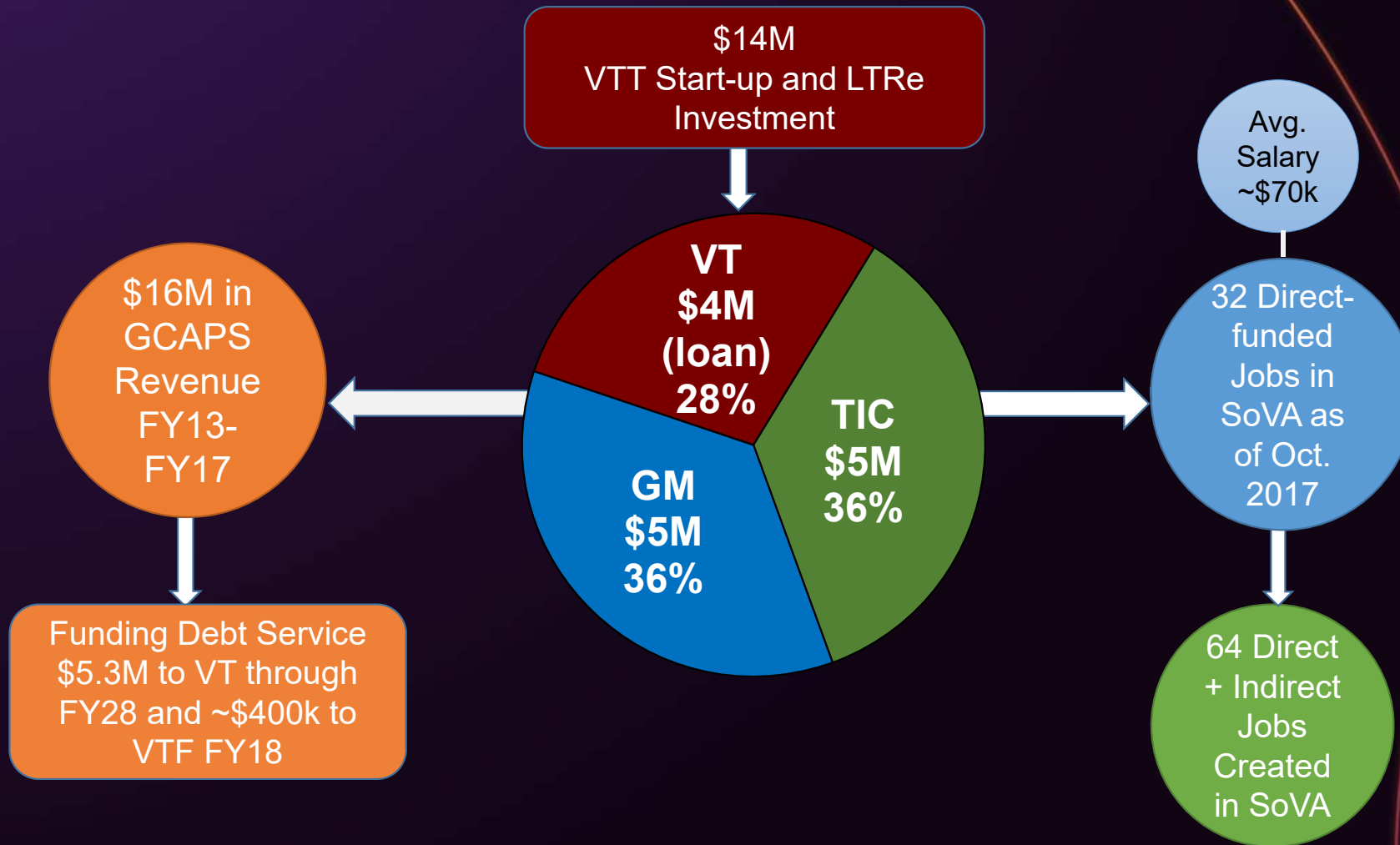


# VTTI Smart Road Expansion Funding ~\$12.7M





# VTT, LLC Funding Overview

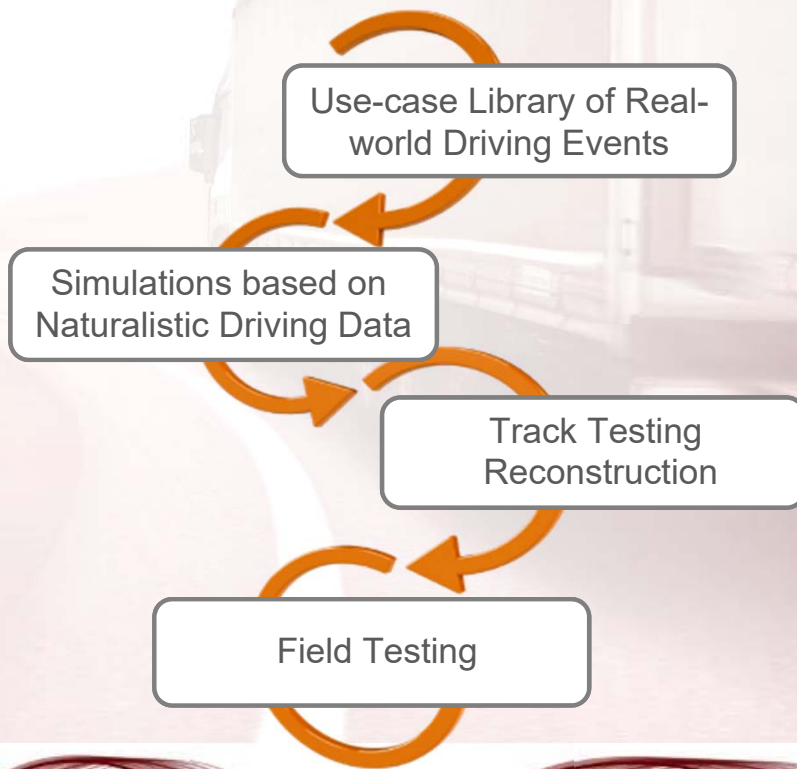


# Project Highlights

*VTTI Research in Rapid-cycle Mode*



# *AMP RESEARCH IN RAPID-CYCLE MODE CASE STUDIES*



# AMP LIBRARY

## Two Paths to Events or Epochs



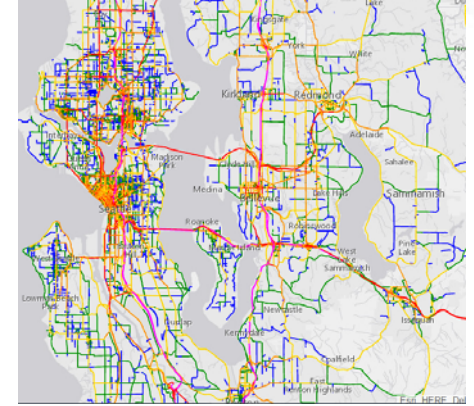
**Vehicle**

Crashes,  
Near-crashes,  
Following  
Maneuvers,  
Etc.

**Epochs  
Events**

Highways,  
Low sun angle,  
Traffic circles,  
Urban grids,  
Crosswalks,  
Etc.

**Environment/Operational  
Domain/etc.**

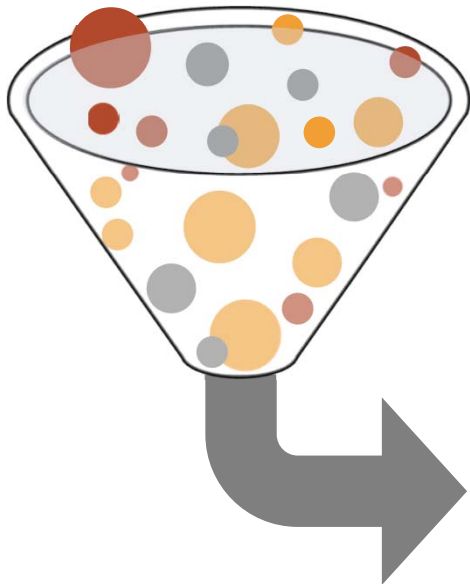


AMP

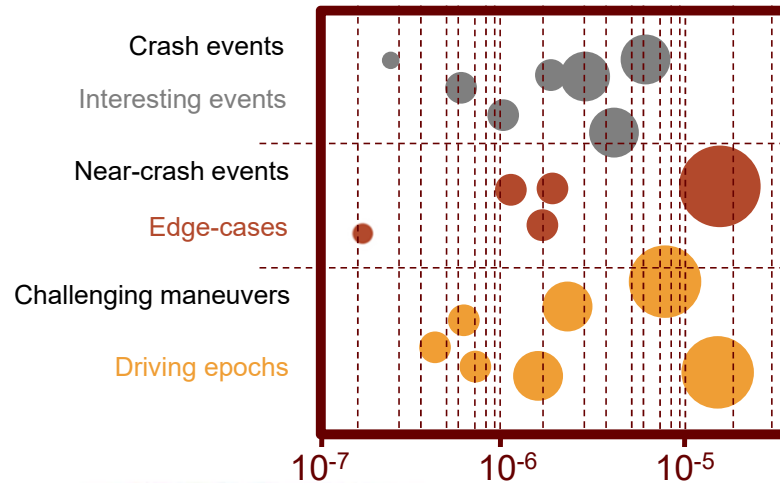
# AMP LIBRARY

## Ordering Cases for Analysis and Simulation

### Epochs and Events



### Epochs and Events Measured and Well-defined



Selection of Cases for  
AMP Library and  
Simulation

Real-world Case  
Frequency and  
Criticality Scores



# Automated Driving System-Dedicated Vehicle Federal Motor Carrier Safety Standards (ADS-DV FMVSS)



Research Sponsor:



Develop technical translations to existing FMVSS and related testing procedure approaches for emerging innovative and non-traditional vehicle designs

- Crash avoidance
- Crashworthiness
- Low-speed standards

Phase 1: Short-term Technical Translations

- Start date: October 2017

Phase 2: Research/Long-term Needs

- End date: March 2121

Award

- \$8.7M

**VirginiaTech.**  
Transportation Institute  
**Core Team**

**Myra Blanco, Ph.D.**

PI & Program Manager

**Michelle Chaka, M.S.**  
Co-PI & Crash Avoidance Lead

**Clay Gabler, Ph.D.**  
Co-PI & Crashworthiness Lead

**VTTI's FMVSS Expert Group**

William Hollowell, Ph.D.  
Joseph Kianthra, Ph.D.  
Priya Prasad, Ph.D.  
George Soodoo, M.B.A.  
Kenneth Weinstein, J.D.

**Research Team Members**

**Industry Group**



**Research Institutions**

Booz | Allen | Hamilton



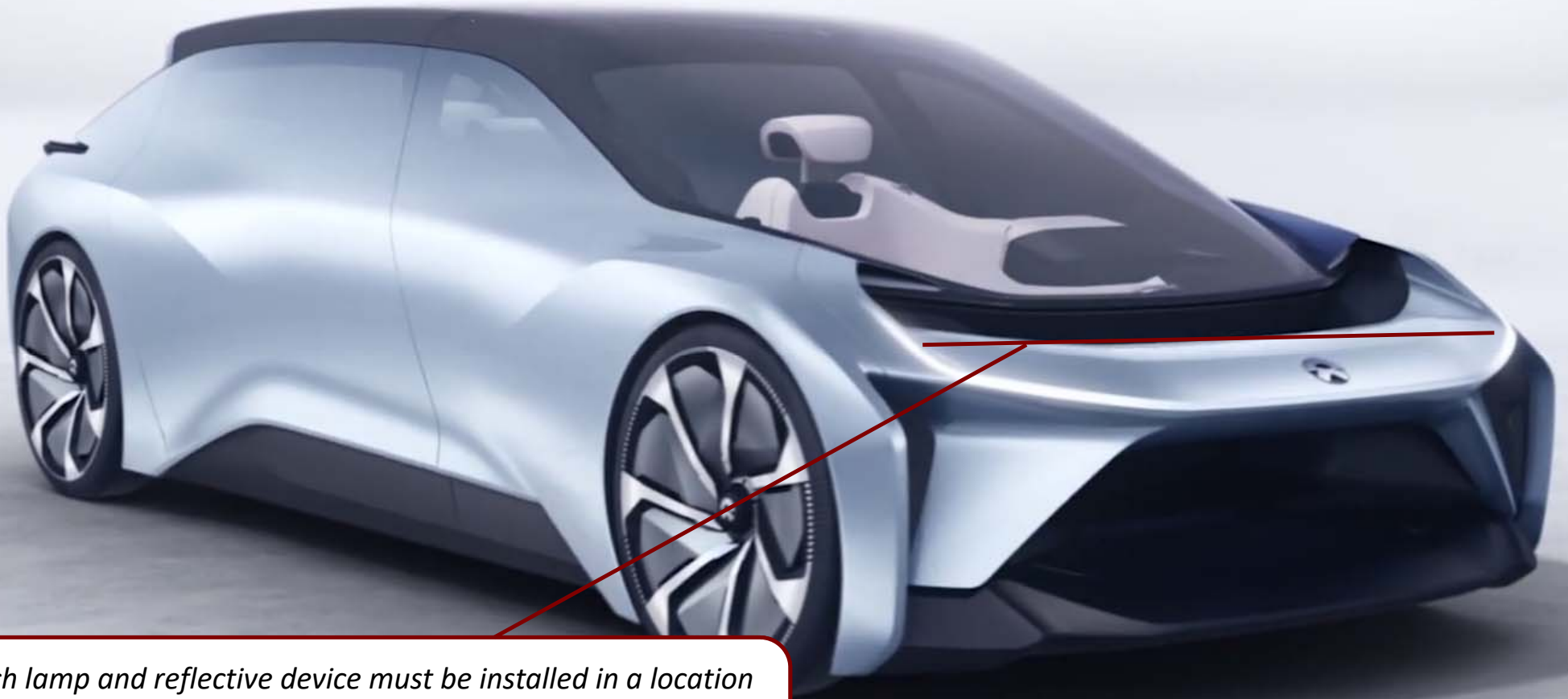
**Test Facilities**





# Lamps, Reflective Devices, and Associated Equipment

FMVSS Standard No. 108

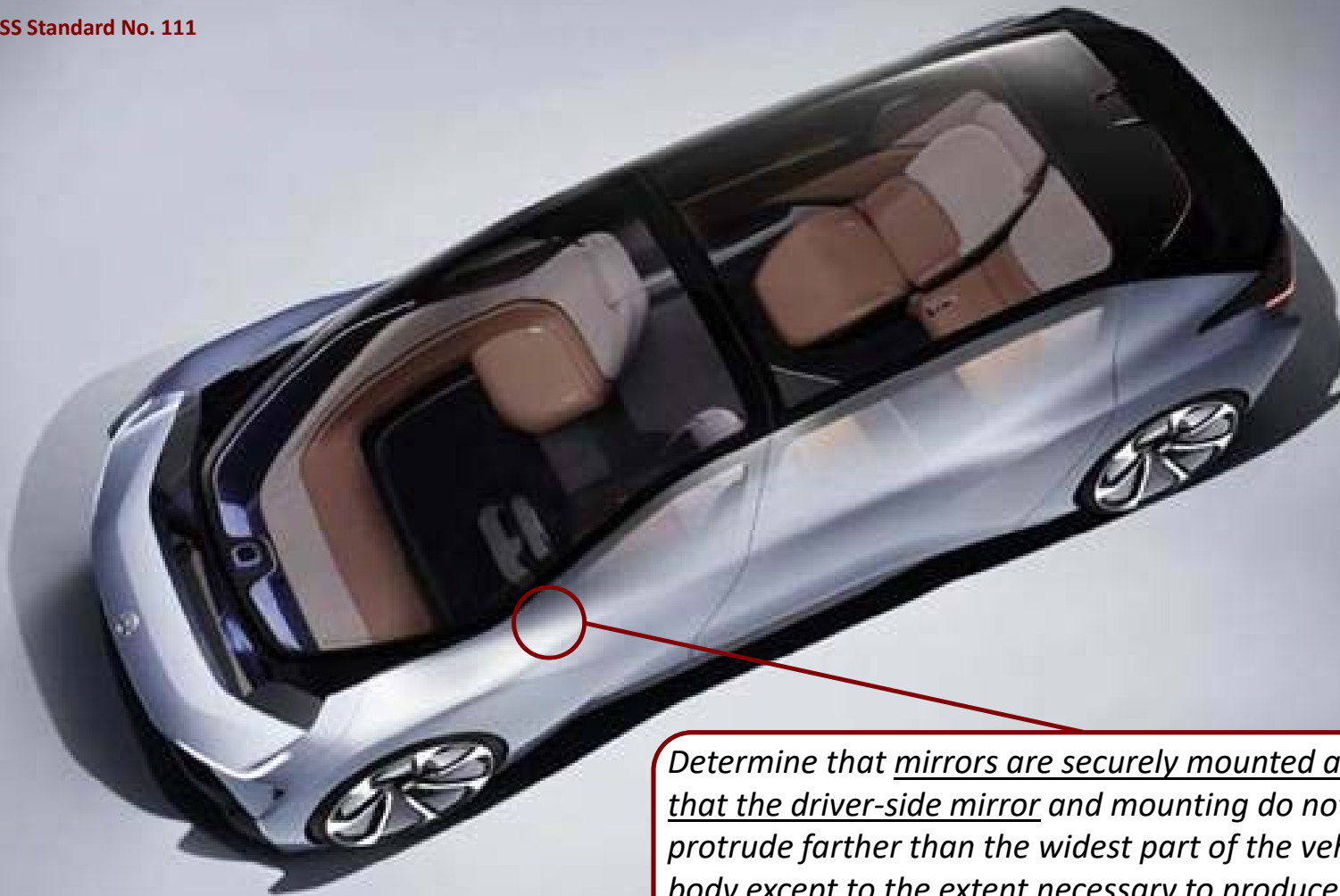


*Each lamp and reflective device must be installed in a location where it complies with all applicable photometric requirements and visibility requirements, with all obstructions installed on the vehicle.*

Image captures courtesy of [NIO](#)

# Rearview Mirrors

FMVSS Standard No. 111



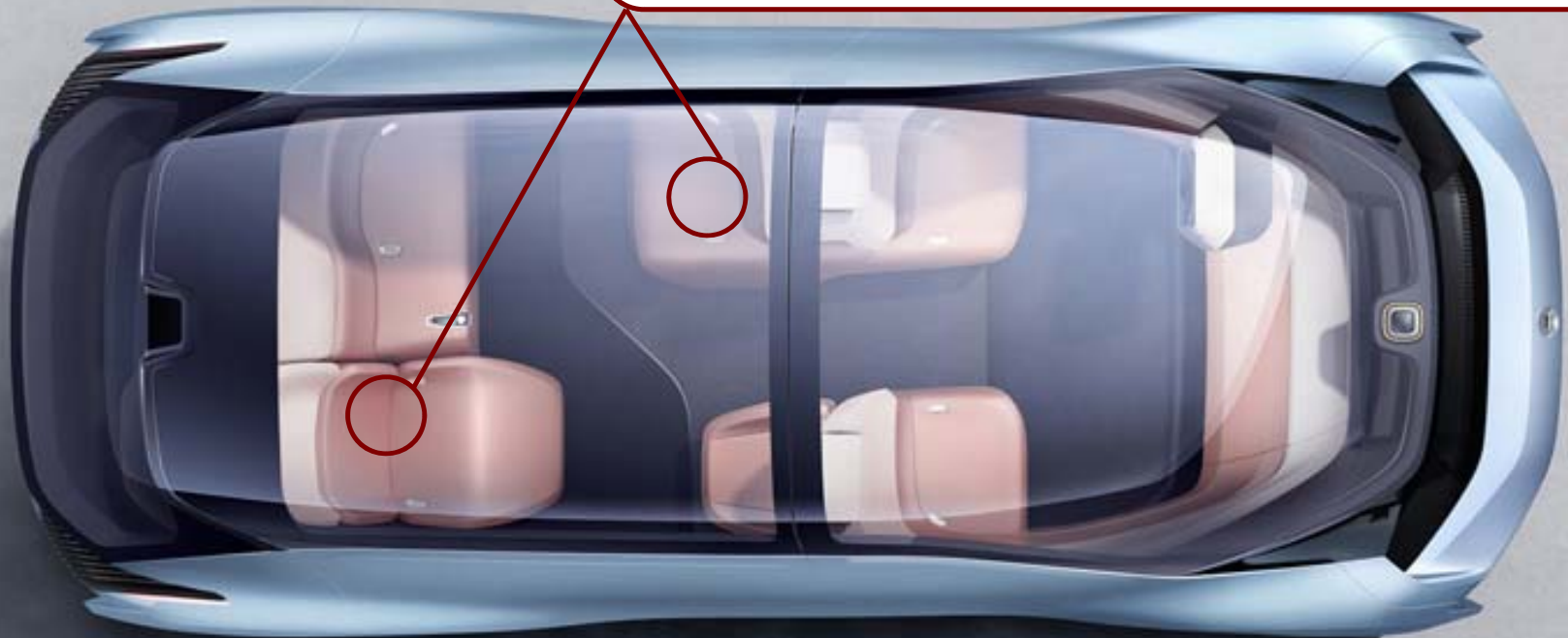
*Determine that mirrors are securely mounted and that the driver-side mirror and mounting do not protrude farther than the widest part of the vehicle body except to the extent necessary to produce a field of view meeting or exceeding the requirements.*

Image captures courtesy of [NIO](#)

## Occupant Crash Protection

FMVSS Standard No. 208

*Each front outboard designated seating position has a Type 1 or Type 2 seat belt assembly that conforms to Standard No. 209 and S7.1 through S7.3, and that meets the requirements of S5.1 with front test dummies.*





# Discussion