

# RTA 18TH ANNUAL MEETING THE STATE OF MOBILITY 2020

Presented by:



# THE STATE OF MOBILITY 2020

# Welcome

## Joe Milazzo II

RTA Executive Director

# Today's Agenda

- Celebrating achievement of our highest priority – 540
- Commencing our new number-one priority – RDU
- The State of Mobility 2020
- Glimpsing the future of mobility innovation



# Today's Agenda

- Celebrating achievement of our highest priority – 540
- Commencing our new number-one priority – RDU
- The State of Mobility 2020
- Glimpsing the future of mobility innovation
- Welcoming RTA 2020 Chair



# Recognitions

**Maeve Gardner**

GlaxoSmithKline

RTA 2020 Chair

# THE STATE OF MOBILITY 2020

## Presenting Sponsors of the RTA 18<sup>th</sup> Annual Meeting



# THE STATE OF MOBILITY 2020

## RTA Gold Members



# THE STATE OF MOBILITY 2020

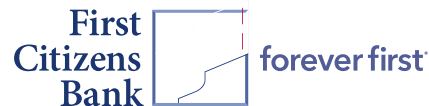
## RTA Gold Members





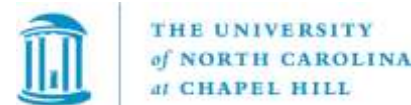
# THE STATE OF MOBILITY 2020

## RTA Silver Members



# THE STATE OF MOBILITY 2020

## RTA Silver Members



# THE STATE OF MOBILITY 2020

## Senior Regional Partners

**Capital Area Metropolitan Planning Organization**

**Durham-Chapel Hill-Carrboro MPO**

**GoRaleigh / City of Raleigh**

**GoTriangle**

**Raleigh-Durham Airport Authority**

**Town of Cary**

**Triangle J Council of Governments**



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TRIMAT

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Wake Technical Community College

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Company

# THE STATE OF MOBILITY 2020

## Member Chambers of Commerce

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Chapel Hill-Carrboro  
Clayton  
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Franklin County

Fuquay-Varina Area  
Garner  
Hillsborough/Orange County  
Holly Springs  
Knightdale  
Moore County  
Morrisville  
Raleigh  
Rocky Mount Area

Rolesville Area  
Roxboro Area  
Sanford Area Growth Alliance  
Triangle East  
Wake Forest  
Wayne County  
Wendell  
Zebulon

# THE STATE OF MOBILITY 2020

## Special Recognition



# THE STATE OF MOBILITY 2020

## Special Recognition



# THE STATE OF MOBILITY 2020

## Event Sponsors

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Town of Cary

Town of Morrisville





**THANK YOU**

**Elected Representatives**



**THANK YOU**

**Transportation Partners**



# RTA 18TH ANNUAL MEETING THE STATE OF MOBILITY 2020

Presented by:  
Research Triangle Foundation of North Carolina  
and the Research Triangle Authority



# THE STATE OF MOBILITY 2020

**Maeve Gardner**  
GlaxoSmithKline  
RTA 2020 Chair



## 540 Celebration



## 540 Celebration

**Linda Hall**

Research Triangle Foundation of NC  
Executive VP and CFO



# THE STATE OF MOBILITY 2020

## 540 Celebration

**Joe Milazzo II**  
RTA Executive Director

## 2020 Regional Partnership Awards





# 2020 Regional Partnership Awards

**Southern Environmental Law Center**

**NC Department of Transportation**

*For accelerating 540  
While preserving and protecting the environment*



# 2020 Regional Partnership Awards

**Southern Environmental Law Center**

*Accepted by*  
**Kym Hunter, Senior Attorney**



# 2020 Regional Partnership Awards

NC Department of Transportation

*Accepted by*  
**Bobby Lewis, Chief Operating Officer**



## 540 Celebration



## RDU Vision 2040



## RDU Vision 2040

**Michael Landguth**

Raleigh-Durham Airport Authority  
President and CEO

# RDU Vision 2040



<https://youtu.be/YfOPMAcrSAM>

## RDU Vision 2040

**Michael Landguth**

Raleigh-Durham Airport Authority  
President and CEO



## Funding the Future of RDU



## RTA RDU AID Task Force

**Joe Milazzo II**  
RTA Executive Director

# RTA RDU AID Task Force

“Having the business community take a fresh look at our revenues and expenses creates a tremendous opportunity for the airport to share understanding, gain insight and build support.

We are grateful for the partnership and we look forward to learning together.”

*-- Michael Landguth, RDU Airport Authority president and CEO*



## Members of the RTA RDU AID Task Force

# RTA RDU AID Task Force members



**Michael Schoenfeld**  
**Duke University**

VP Public Affairs and Government Relations

RTA Air Service Chair

# RTA RDU AID Task Force members



**Joe Anglim**  
**Red Hat, Inc.**

Senior Director, Corporate Strategy



# RTA RDU AID Task Force members



**Jim Beley**  
**The Umstead Hotel and Spa**  
General Manager



# RTA RDU AID Task Force members



**Sarah Gaskill**  
**Morrisville Chamber of Commerce**  
President and CEO





# RTA RDU AID Task Force members



**Lauren Guy**  
**HH Architecture**  
Marketing Manager

# RTA RDU AID Task Force members



**Linda Hall**  
**Research Triangle Foundation of NC**  
Executive VP and CEO

# RTA RDU AID Task Force members



**Rob Herman**

**Lenovo**

GM/Executive Director,  
Workstation Business Unit



# RTA RDU AID Task Force members



**Harold Hicks**  
**Fidelity Investments**  
Senior Director, Real Estate

# RTA RDU AID Task Force members



**Monty Irvin, PE**  
**Ramey Kemp and Associates, Inc.**  
President and CEO

# RTA RDU AID Task Force members



**David Krauss**  
**Credit Suisse**  
Managing Director

# RTA RDU AID Task Force members



**Sarah Quinlan**  
**Carolantic Fund**  
Managing Director

# RTA RDU AID Task Force members



**Gray Styers**

**Fox Rothschild LLP**

Attorney

Co-chair of Infrastructure Practice





## RTA RDU AID Task Force Findings

**Michael Schoenfeld**

Duke University

RTA Air Service Chair



# RTA RDU AID Task Force Findings

- Overview, Economic Impact, Master Plan and Growth
- Funding Recommendations
- Land Use Recommendations
- Your Thoughts



# RTA RDU AID Task Force Findings

## Overview, Economic Impact Master Plan, and Growth



# RTA RDU AID Task Force Findings

## Preliminary Funding Recommendations



# RTA RDU AID Task Force Findings

## Preliminary Land Use Recommendations



## RTA RDU AID Task Force Findings

**Michael Schoenfeld**

Duke University

RTA Air Service Chair



## RTA RDU AID Task Force Findings

**Joe Milazzo II**  
RTA Executive Director

# RTA RDU AID Task Force: Preliminary Findings, Recommendations

## **Your thoughts, initial reactions?**

What do you agree with?

What surprised/alarmed you?

What did you not hear?

What do you not believe?

## **What other ideas do you have?**

### **Selected findings and observations**

- 12 years ahead of projections
- \$12 billion economic impact
- \$1-\$2 billion funding gap
- RDU / Umstead relationship

### **Sample funding recommendations**

- Increase air carrier landing fees
- Activate general aviation fees
- \$2 airport access fee
- Reallocate rental car taxes to RDU
- Fee for premium curb access
- \$1 PFC increase
- Increase bond financing
- Create new RDU Real Estate Master Plan
- Create new Terminal 3, have carriers fund





# RTA RDU AID Task Force Findings

[letsgetmoving.org/RDU AID](https://letsgetmoving.org/RDU AID)



# The State of Mobility 2020



# The State of Mobility 2020

**Natalie Ridout**

RTA Policy and Engagement Director

**Joe Milazzo II**

RTA Executive Director



# The State of Mobility 2020

- RTA overview
- Top 5 priority areas
- Regional travel experience



# Regional Transportation Alliance

*The voice of the regional business community on transportation*

## **RTA Mission:**

Deliver business leadership to get our region moving faster.



@RTATriangle  
#RTASOM20

# Regional Transportation Alliance

*The voice of the regional business community on transportation*

## RTA approach to success:

- Identify **opportunities**
- Provide **focus**
- Build **consensus** with partners
- Provide **staying power** for long-term success



# Regional Transportation Alliance

*Reliable, ongoing business-focused communication*

- **Weekly member briefings** – every week since spring 2016
- **Thursday Thoughts at 3 blog** – weekly since January 2019
- **letsgetmoving.org** – RTA website since 2002, relaunching in 2020
- **@RTATriangle** - RTA Twitter account
- Periodic RTA business briefings and opportunity series events



# Regional Transportation Alliance

*The voice of the regional business community on transportation*

**2020 theme: Dauntless resolution**



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# 2020 RTA theme: Dauntless resolution

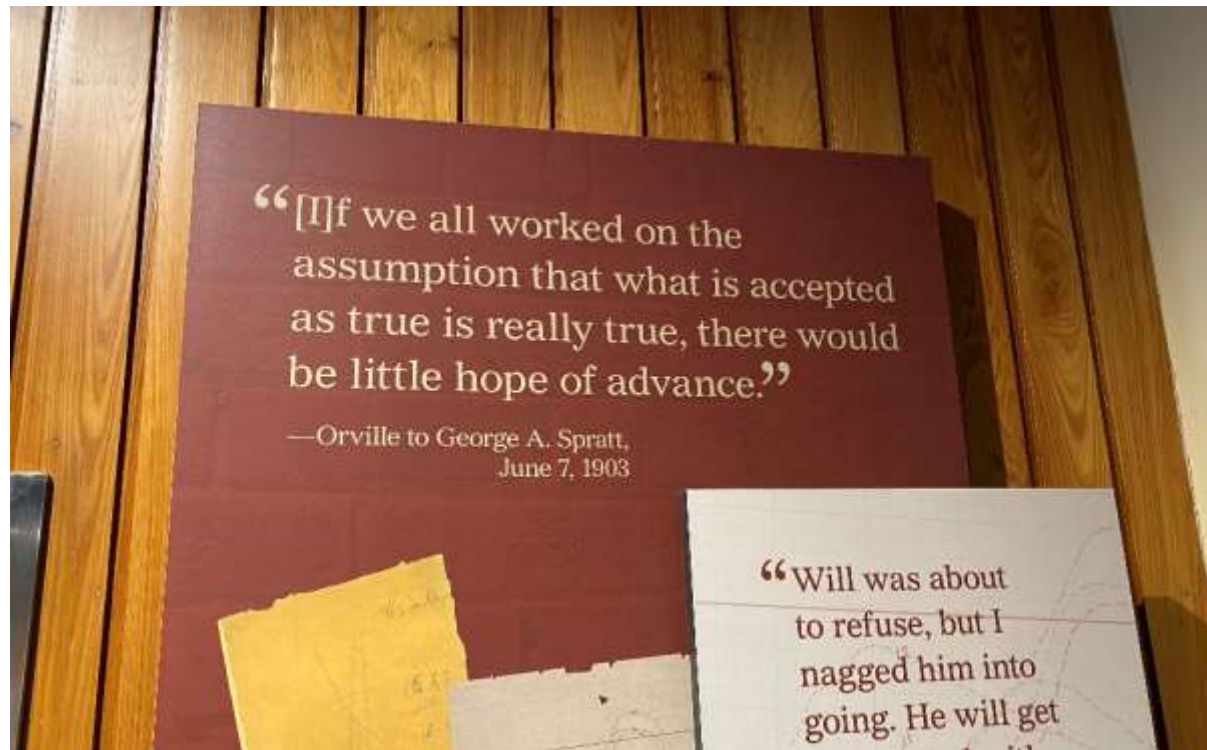
*The voice of the regional business community on transportation*



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#RTASOM20

# 2020 RTA theme: Dauntless resolution

*The voice of the regional business community on transportation*



# 2020 RTA theme: Dauntless resolution

*The voice of the regional business community on transportation*



@RTATriangle  
#RTASOM20

# 2020 RTA theme: Dauntless resolution

*The voice of the regional business community on transportation*

“They done it, they  
done it, damned if  
they ain’t flew!”

—sixteen-year-old  
Johnny Moore from nearby  
Nags Head, one of five  
who watched Orville fly



# Regional Transportation Alliance

*The voice of the regional business community on transportation*

**2020 theme: Dauntless resolution**



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#RTASOM20

# Regional Transportation Alliance

*Top transportation priorities of the regional business community*

- **Identifying sustainable funding for essential growth at RDU**
- Advocate for fast, enhanced transit and accelerated completion of regional transit corridors
- Promote congestion relief
- Advance innovative mobility solutions
- Support short-term relief and sustainable funding



# Regional Transportation Alliance

*Top transportation priorities of the regional business community*

- **Identifying sustainable funding for essential growth at RDU**
- Advocate for fast, enhanced transit and accelerated completion of regional transit corridors
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# Fast, enhanced transit

## Accelerated completion of regional transit corridors

- Ongoing support for completion of 5 BRT corridors in region





# Fast, enhanced transit

## Accelerated completion of regional transit corridors

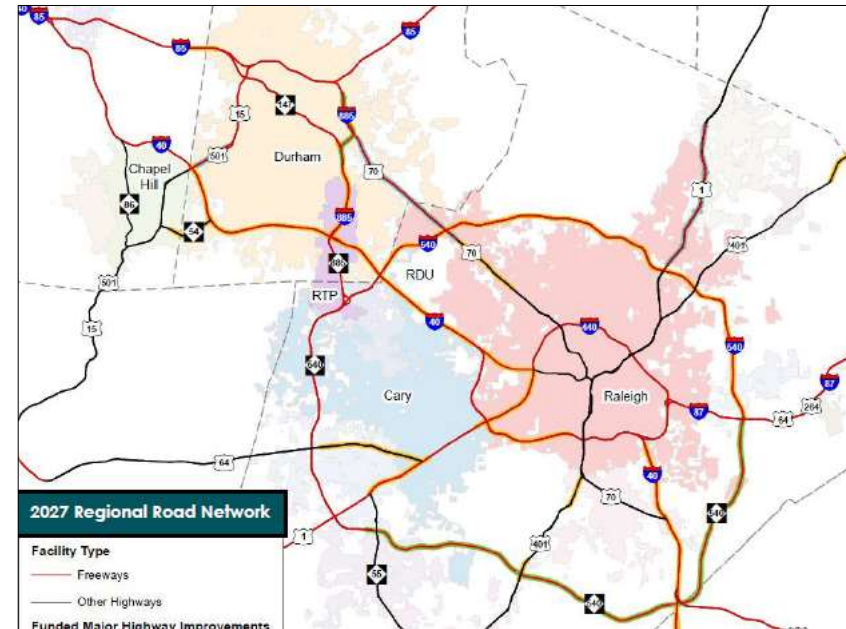
- **RTA supporting scalable implementation of commuter rail**



# Fast, enhanced transit

## Accelerated completion of regional transit corridors

- **Initiating Freeway and Street-based Transit (FAST) network study**
  - RFP with GoTriangle and NCDOT, proposals due Thursday
  - BOSS plus ...



# Fast, enhanced transit

## Accelerated completion of regional transit corridors

- **Support pilot of expanded Zero Fare for Everyone in Triangle**
  - RFP with partners



# Regional Transportation Alliance

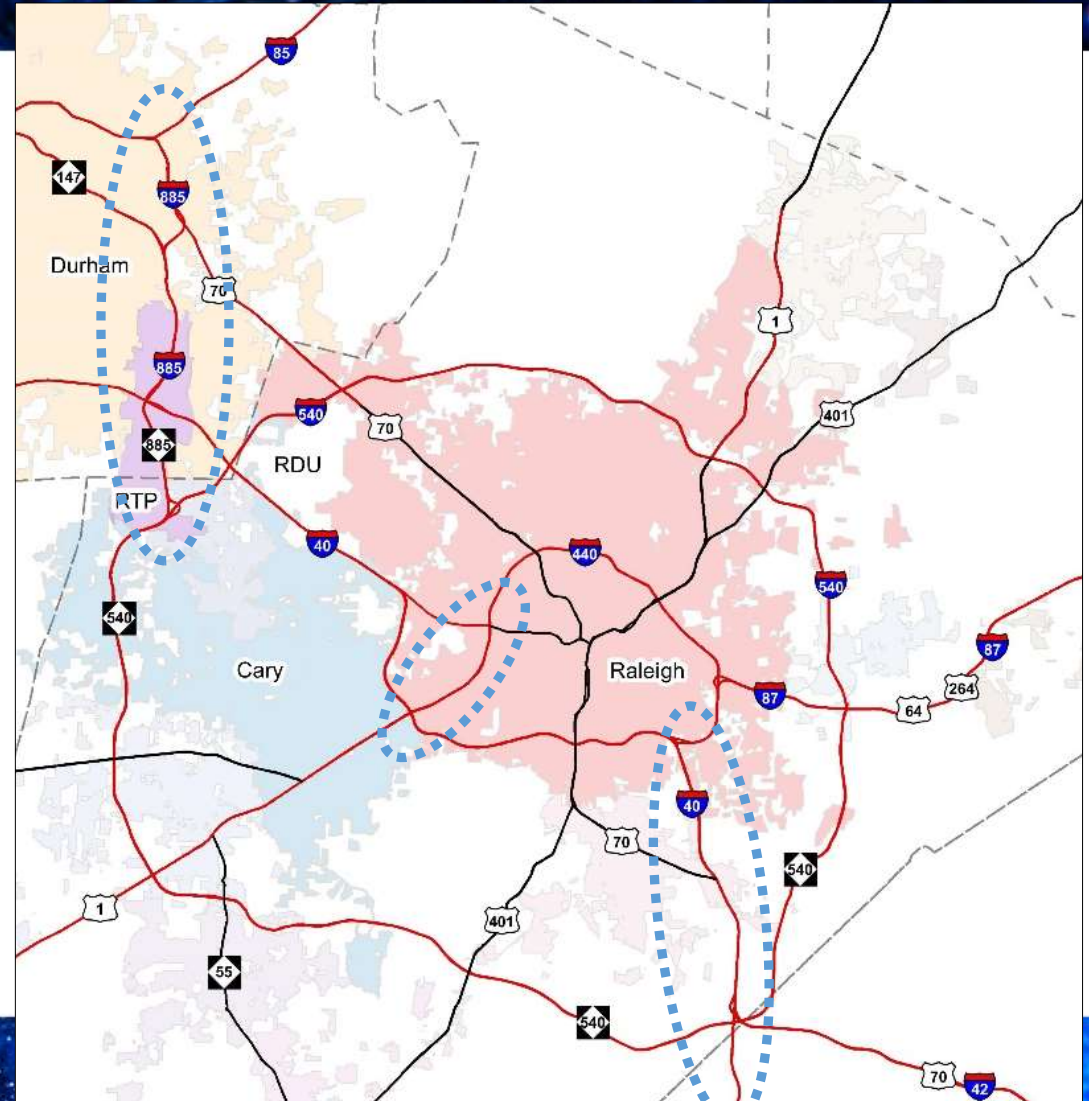
*Top transportation priorities of the regional business community*

- **Identifying sustainable funding for essential growth at RDU**
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# Promote congestion relief

- Freeway construction and modernization underway



# Promote congestion relief

- **Initiating Freeway and Street-based Transit (FAST) network study**
  - Study results to be presented at RTA breakfast on July 17
  - “Freeways of the Future”

## 2020 TRANSPORTATION BREAKFAST

### Freeways of the Future

July 17, 2020



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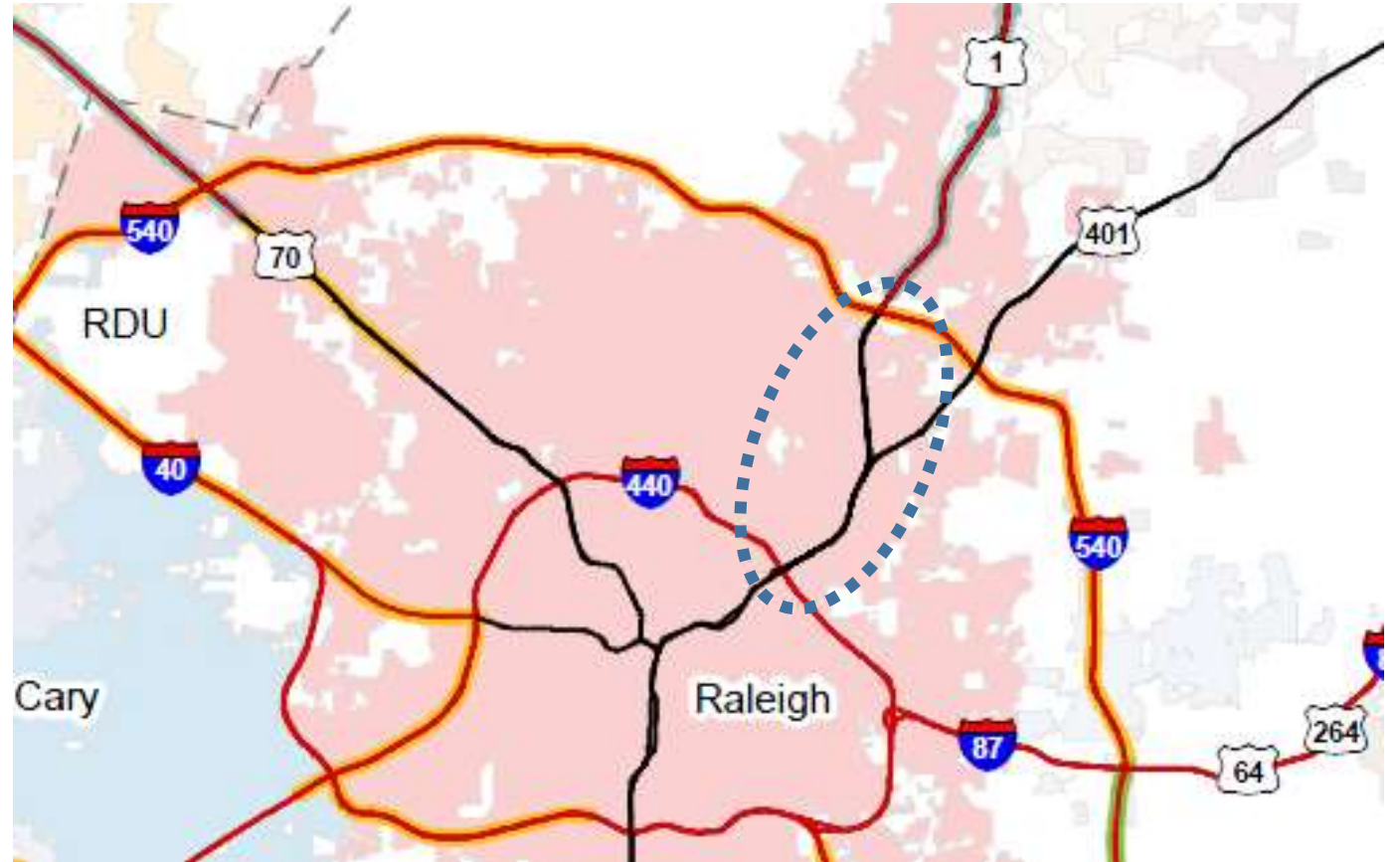
# Promote congestion relief

- Support City of Raleigh's efforts to create "Multimodal Gateway for" Capital Boulevard



# Promote congestion relief

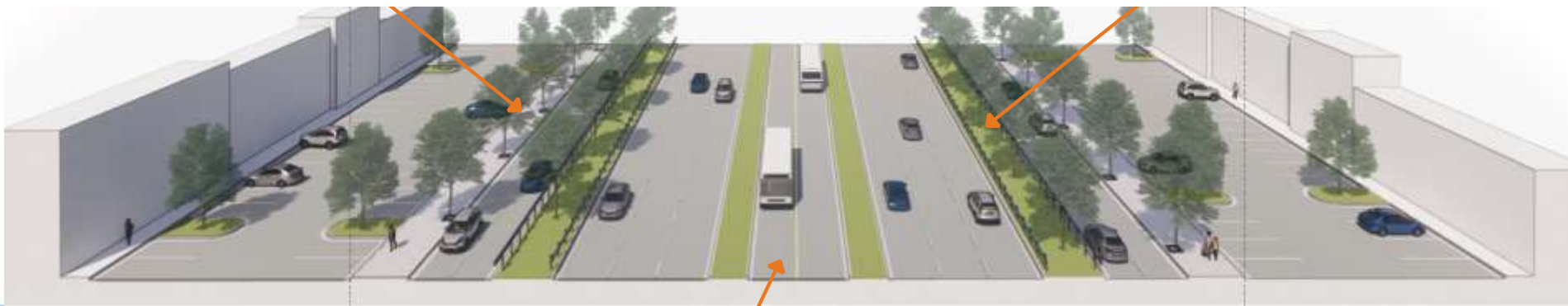
**US 1 / Capital Blvd:  
“Multimodal Gateway”**





# Promote congestion relief

## US 1 / Capital Blvd: “Multimodal Gateway”



# Promote congestion relief

## US 1 / Capital Blvd: “Multimodal Gateway”

- If nothing is done:
  - 2045 through travel time between N of 440 and 540: **50-55 mins**



# Promote congestion relief

## US 1 / Capital Blvd: “Multimodal Gateway”

- If nothing is done:
  - 2045 through travel time between N of 440 and 540: **50-55 mins**
- With multimodal gateway concept:
  - 2045 through travel time between N of 440 and 540: **6-8 mins**



# Promote congestion relief

## US 1 / Capital Blvd: “Multimodal Gateway”

- Endorsed by RTA and Raleigh Chamber



# Promote congestion relief

- I-40 Partnership – low-cost improvements



# Promote congestion relief

- **I-40 Partnership – low-cost improvements**
  - NCDOT currently reviewing I-40, and 540, for simpler solutions
  - Some potential for early, albeit temporary, relief



# Regional Transportation Alliance

*Top transportation priorities of the regional business community*

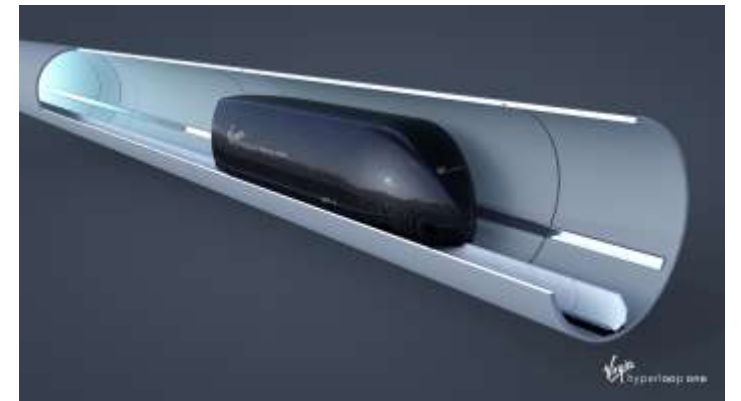
- **Identifying sustainable funding for essential growth at RDU**
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# Innovative mobility solutions

- **Hyperloop in North Carolina**

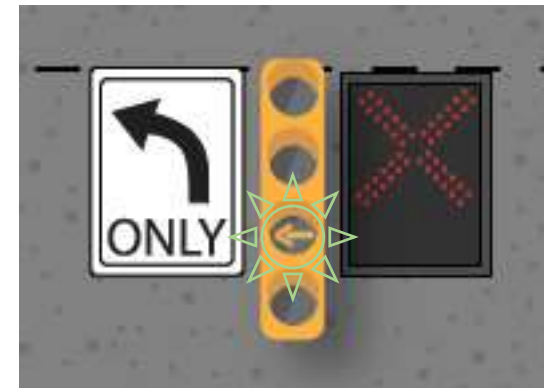
- Speaker at RTA annual breakfast in July 2019
- RTA funded pre-feasibility study
- Preliminary response submitted to Virgin Hyperloop One
- *Active economic development project*





# Innovative mobility solutions

- **Dynamic Left Turn intersection (DLTi)**
  - Partnership between NCDOT, Town of Cary, RTA
  - Combining familiar intersection elements in a new way to reduce delay, throughout the day
  - Clayton and Cary pilot locations
  - RTA funding before-after study



# Regional Transportation Alliance

*Top transportation priorities of the regional business community*

- **Identifying sustainable funding for essential growth at RDU**
- Advocate for fast, enhanced transit and accelerated completion of regional transit corridors
- Promote congestion relief
- Advance innovative mobility solutions
- Support short-term relief and sustainable funding



# Sustainable funding

- **Road network access fees**
  - Reduce, eventually replace, motor fuels tax with access fee
  - Expansion of vehicle registration fee in lieu of gas taxes
  - Already in place for electric vehicles in North Carolina



# Sustainable funding

- **Focus on operations and maintenance**
  - Smart cities are great and IOT is needed
  - Detectors must work, no “green for no one”
  - If we can't maintain it, don't build it



# Regional Transportation Alliance

*The voice of the regional business community on transportation*

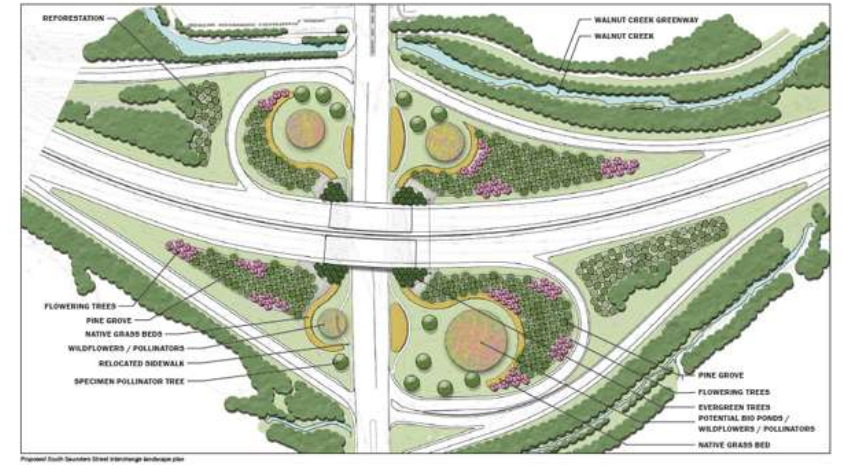
- **Everything we advocate for can be wrapped up into what we call the “regional travel experience”**



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# Make our system look better

- **Beautify I-40 Fortify project**



# Make our system look better

- **Beautify I-40 Fortify project**



Make our system look better



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# Regional Transportation Alliance

*The voice of the regional business community on transportation*

- **Never be surprised at how long projects take to construct...**



# Regional Transportation Alliance

*The voice of the regional business community on transportation*

- **Never be surprised at how long projects take to construct...**
- **... Be amazed that anything ever gets built to begin with.**



# Regional Transportation Alliance

*The voice of the regional business community on transportation*

## Welcome to America



*courtesy Vicki Scuri*



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# Regional Transportation Alliance

*The voice of the regional business community on transportation*

## Welcome to America



***Let's get moving.***



@RTATriangle  
#RTASOM20

# The State of Mobility 2020

**Natalie Ridout**

RTA Policy and Engagement Director

**Joe Milazzo II**

RTA Executive Director



## Keynote presentations: Disruptive technology and future cities

## Keynote Introductions

**Jay Irby**

First Citizens Bank

RTA Rapid Research Chair



# THE STATE OF MOBILITY 2020

## Keynote Speakers



**Dr. Stuart Ginn**  
**WakeMed Innovations**



**Dr. Marc Hoit**  
**NC State University**





**Dr. Stuart Ginn**  
**WakeMed Innovations**

## Emerging Mobility Systems in Healthcare



WakeMed



# Emerging Mobility Systems in Healthcare



# Drones at WakeMed - Overview

- **The Need:** Poor courier reliability, visibility, cost structure
- **Solution Model:** Development
  - Developed internal model for theoretical drone network
  - Matched specifications with emerging technology providers
  - Matternet selected as early partner
- **Integration Pilot Program:**
  - Federally sponsored
  - Governance at State/Region/Local levels (NC DOT)
- Scoping
  - Partnerships - UPS



# Drones at WakeMed - Progress

Total # of Flights (as of September 30):	1531 flights
# Minus ~200 (estimate of flights flown before WakeMed began transporting actual patient samples or for test purposes.)	1330 one way flights in delivery operation
Delivery flights - # divided by 2 (return flights are empty) 1330/2=665	665 delivery flights
Per Lab, approximately 12 specimens are received per flight (ranges from 6 to 20 specimens per received payload box). 665*12=7,980 Specimens	7,980 specimens delivered
Estimate approximately 3 specimens per patient 7,980/3=2,660 Patients	2,660 patients served

- Logistics systems to drive healthcare improvements
- Evolving partnership with UPS
- Novel approach to healthcare system redesign
- Mobility/Automation in Healthcare – Broad focus



**ups**

### The Future Is Taking Off

UPS, in collaboration with Materiel, WakeMed, North Carolina Dept. of Transportation, and the FAA, is using drones to take healthcare logistics in the U.S. to new levels. Now, medical samples can be transported faster and more efficiently via these unmanned aerial vehicles (UAVs). Drone delivery is one more way UPS is using breakthrough technologies to support healthcare providers.

**3 MINUTES 16 SECONDS**

**ROUTINE DAILY FLIGHTS**

**AVERAGE SPEED = 40 MPH**

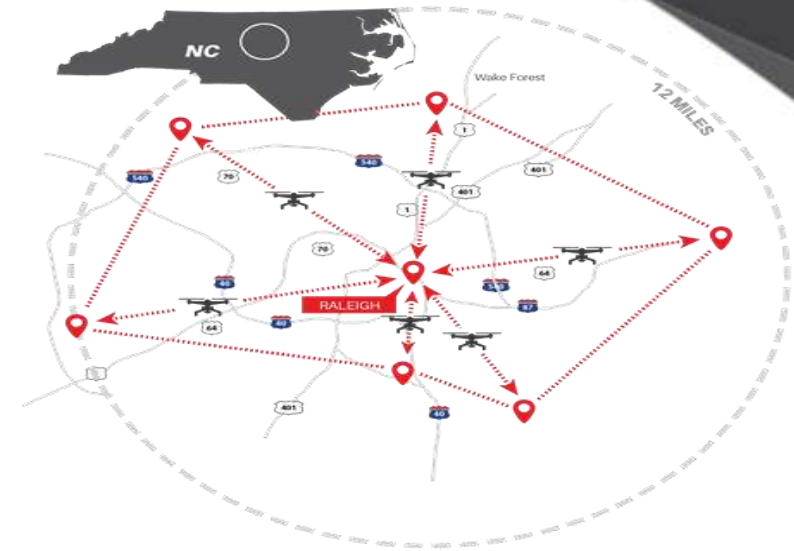
**UP TO 30 MIN**

WakeMed Lab  
WakeMed Clinic

**SAVING TIME. | SAVING MONEY. | SAVING LIVES.**

# Drones at WakeMed – Future State

- Healthcare Services + Systems Re-Design
  - Drones and emerging mobility technologies can:
    - Drive **expanded services** at outpatient/community locations
    - **Consolidate services** to drive economies of scale
    - Expand our **community reach/impact**
  - Network: Partner practices, facilities, services
    - Retail pharmacies
    - Community health centers/urgent care





WakeMed





- "Aerospace" technology
- Regulated as Aircraft
- "Connected"
- "Smart"/Automated



- Deep ground-side integration
- Interactions at "street level"





Med



- Physically connects locations
- Open to public use
- Built and governed by civic authorities

- Supports livability
- Supports commerce
- "Commons" Concept
- Leverages 3<sup>rd</sup> Dimension





Cyber

Physical

Infrastructure



# Cyber

Environmental data

Data integration

Interoperability/Open Data Standards

Civic compliance/governance

Cybersecurity and Privacy

Vehicle monitoring

# Physical

Vehicles

Sensor networks

Vertiports/Vertistops

Recharging stations

Structural integrations



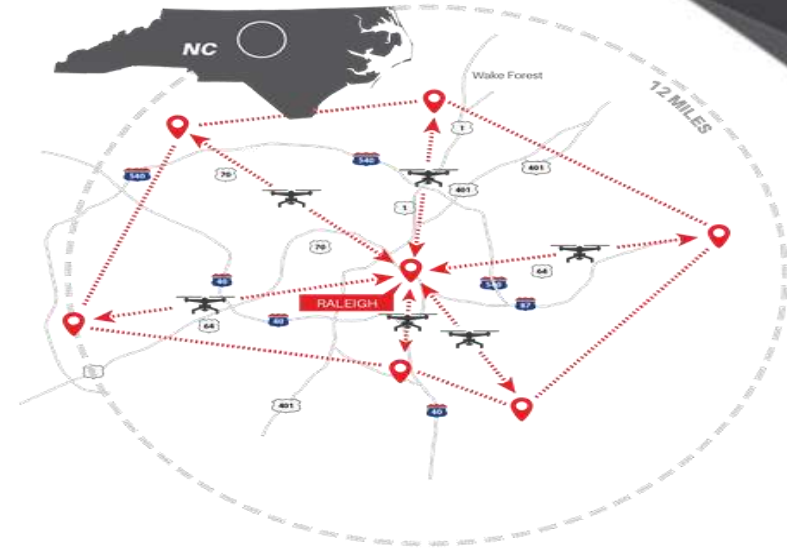
Image Credits: Prasit photo

# Infrastructure

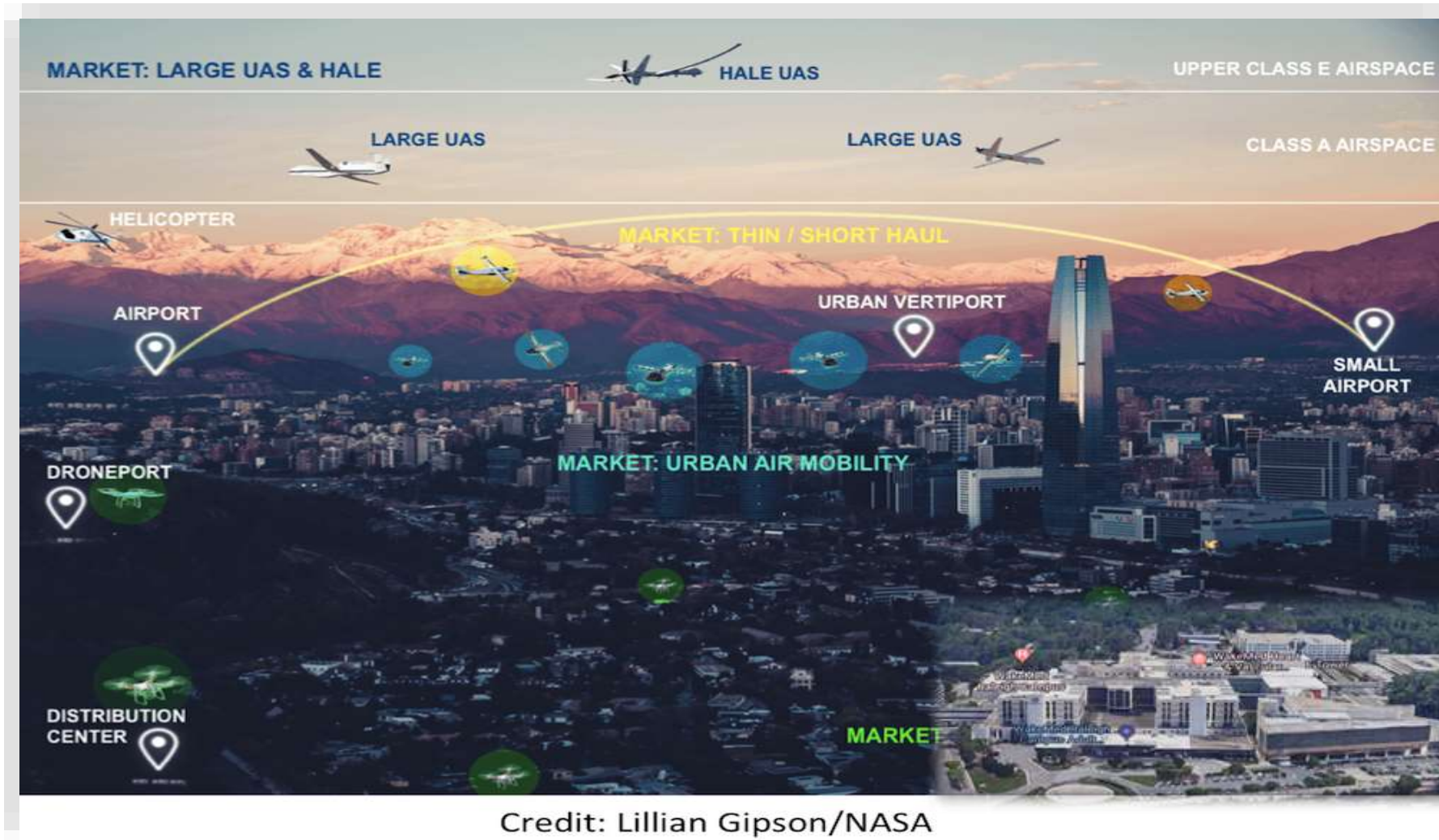
Governance ("ground-up") Integration

# Emerging Mobility Systems in Healthcare

- Healthcare Systems are **deeply integrated** into communities
- We have many discreet “businesses”, but the consolidated aim is to **produce healthy communities**
- Reach every level and aspect of society and enterprise
- Many “socio-technical” aspects
  
- Successful communities/cities/economies require robust healthcare systems and services
- **Microcosmic** for “cities”, part of the **infrastructure**
- Future State: **Connected → Smart → Responsive**



# Emerging Mobility Systems in Healthcare





**Dr. Stuart Ginn**  
**WakeMed Innovations**

## Emerging Mobility Systems in Healthcare



**Dr. Marc Hoit**  
**NC State University**

## **Drones, Wireless, and Future Cities**





# Drones, Wireless and Future Cities

State of Mobility 2020

Marc Hoit, PhD

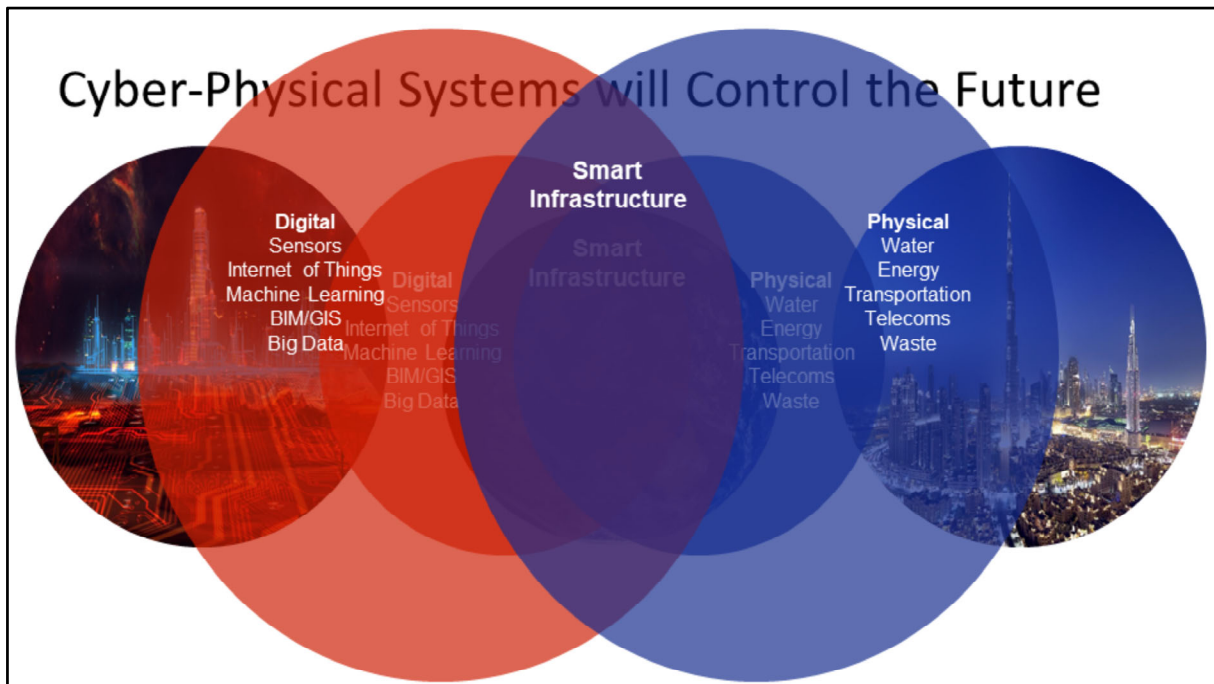
NC State University

January 17, 2020





Autonomous vehicles are not a new idea but the innovation is happening and we need to adapt

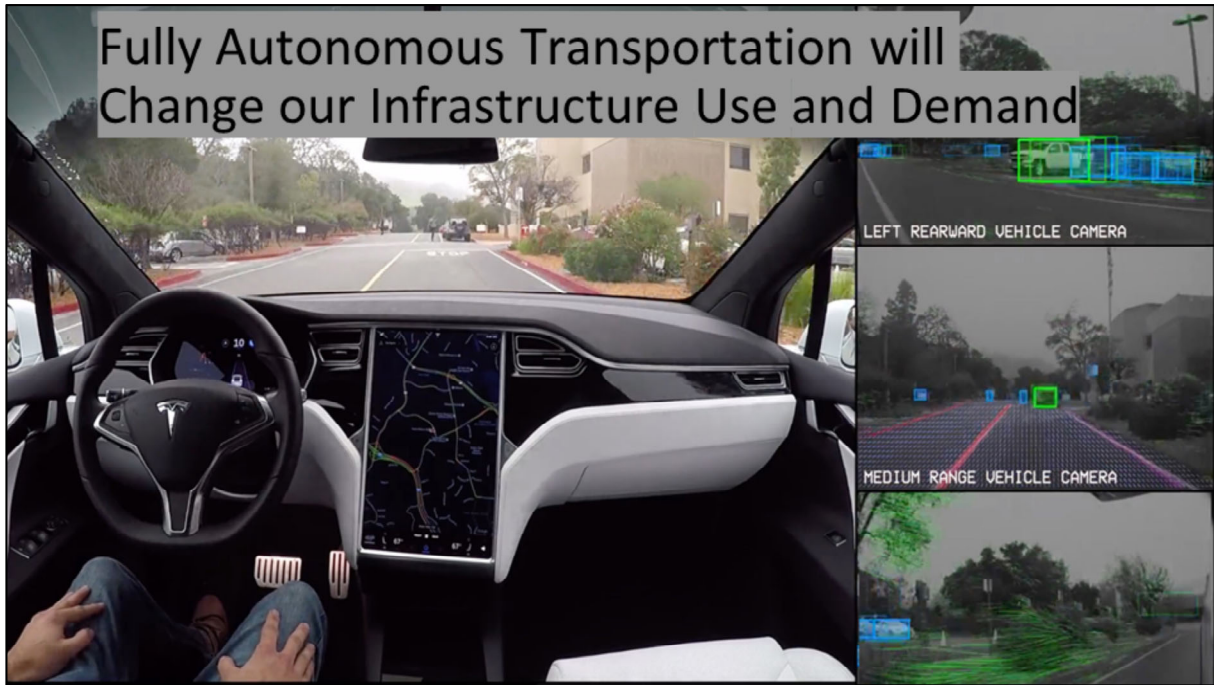


This marriage of the digital technologies with physical infrastructure has given birth to smart infrastructure.

we are beginning to build **digital models of our physical systems** for water, energy, transportation, waste and the built environment.

layering in sensors, IoT, BIM, GIS, machine learning, and big data

We are doing this at a time when we have much greater awareness of the **operating limits of Earth's physical system** necessary for keeping the planet hospitable to life as we know it.



Some real implications we are seeing:  
Autonomous transportation will change how we build and maintain our infrastructure

- Will we need traffic signals, speed limits?
- How about tolls? Speed cameras or police monitoring traffic?
- Is the new infrastructure fiber & 5G
- How does mass transit interact?



Crossrail - the largest engineering project in Europe actual built two railways — one real, one virtual!

Construction is well known to be a technological laggard - with low levels of innovation and productivity. McKinsey research, however, has shown that **emerging technologies is bolstering infrastructure productivity by 30%**.

The UK Government, for example, mandated that all publicly funded infrastructure projects use Building Information Management. This industry-wide initiative resulted in **a 20% reduction in overall construction costs** and helped increase public support for infrastructure funding.

Research, by Navil Shetty at Atkins, has shown that Digital Asset Management can lead to **saving up to 30% in maintenance and operation costs**.

In more advanced economies, **smart infrastructure asset management** is seen as the underlying operating system for delivering better social, economic and environmental outcomes required by smart, sustainable cities.



The American Society for Civil Engineer (ASCE) has set a grand challenge: reduce life cycle costs by 50% (total life of the asset)

To move in that direction, we have focused on a few major initiative – I want to mention 2:

- 1) Innovation
- 2) Future World Vision

FWV – based on 6 highly probable and with huge variability changes: (list on slide)

# Focus: Innovation



Photo by [Mitch Nielsen](#) on [Unsplash](#)

See: <http://go.ncsu.edu/asce-regional-innovation>

Civil Engineering is embarking on promoting more innovation in its projects, student, engineers and designs.

ASCE runs an innovation contest – now becoming part of the hundreds of student chapter annual conference events

See [go.ncsu.edu/asce-regional-innovation](http://go.ncsu.edu/asce-regional-innovation)

Next innovation is FWV:

We did deep research on the 6 major disruptions to civil infrastructure and developed scenarios for 5 potential cities

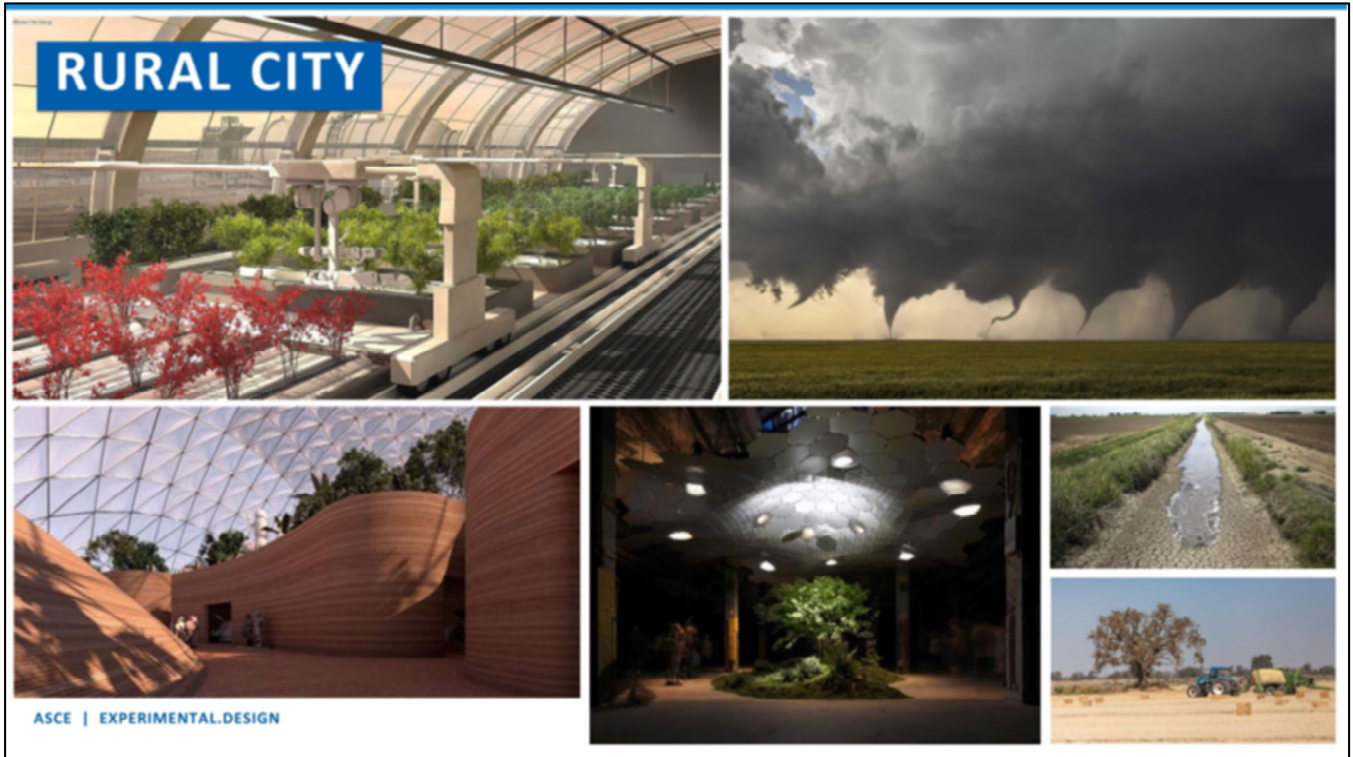


This is obvious and happening now



This is a result of huge climate change – and developed by adding floating habitation (cruise boat as housing) and then grows into larger and finally independent cities.





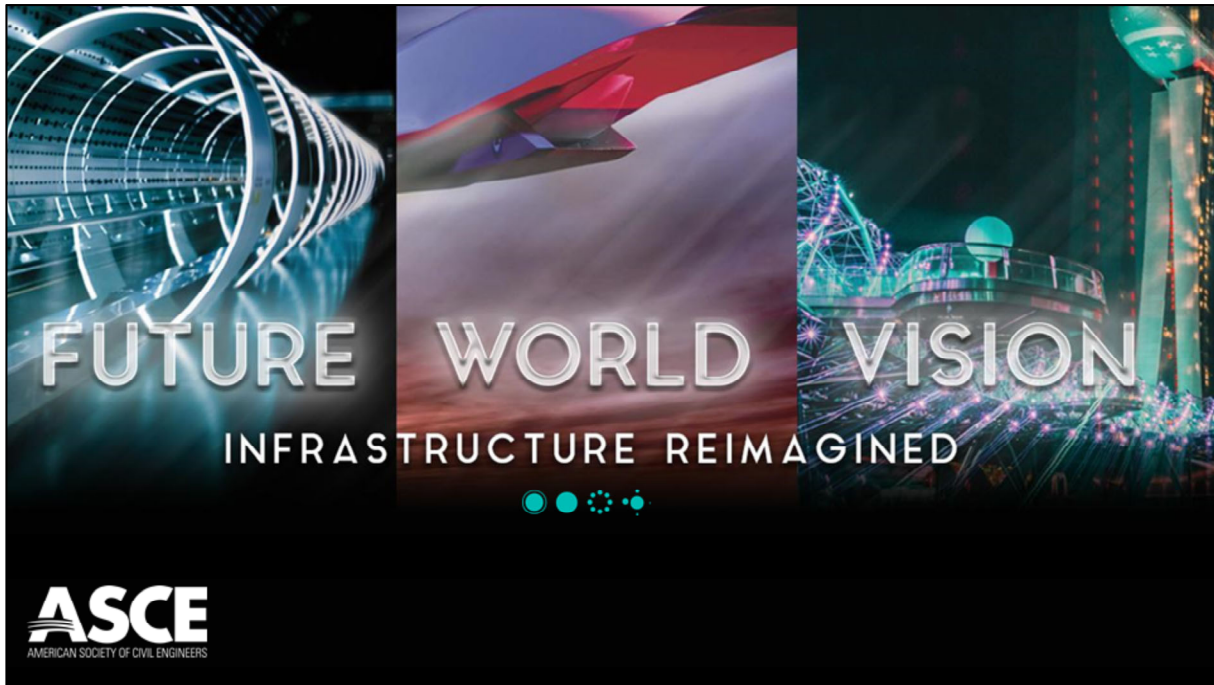
Creating rural enclaves that become self sufficient due to technology allow people a quality of life with remote connections and work



This is representative of harsh environments



A logical direction to push the engineering ideas and demands



The boldest step yet: \$10M effort  
Creating a virtual environment to allow collaboration and discussion  
None of these are correct – but elements of all of them will help us plan for the future.



**Dr. Marc Hoit**  
**NC State University**

## **Drones, Wireless, and Future Cities**



# Closing Remarks

**Maeve Gardner**

GlaxoSmithKline

RTA 2020 Chair

# 2020 RTA Transportation Breakfast: Freeways of the Future

*Presented by Research Triangle Foundation  
and Fred Smith Company*

**Friday, July 17, 2020**

**The Umstead Hotel and Spa**

[letsgetmoving.org/breakfast](https://letsgetmoving.org/breakfast)



# RTA 18TH ANNUAL MEETING THE STATE OF MOBILITY 2020

Presented by:

