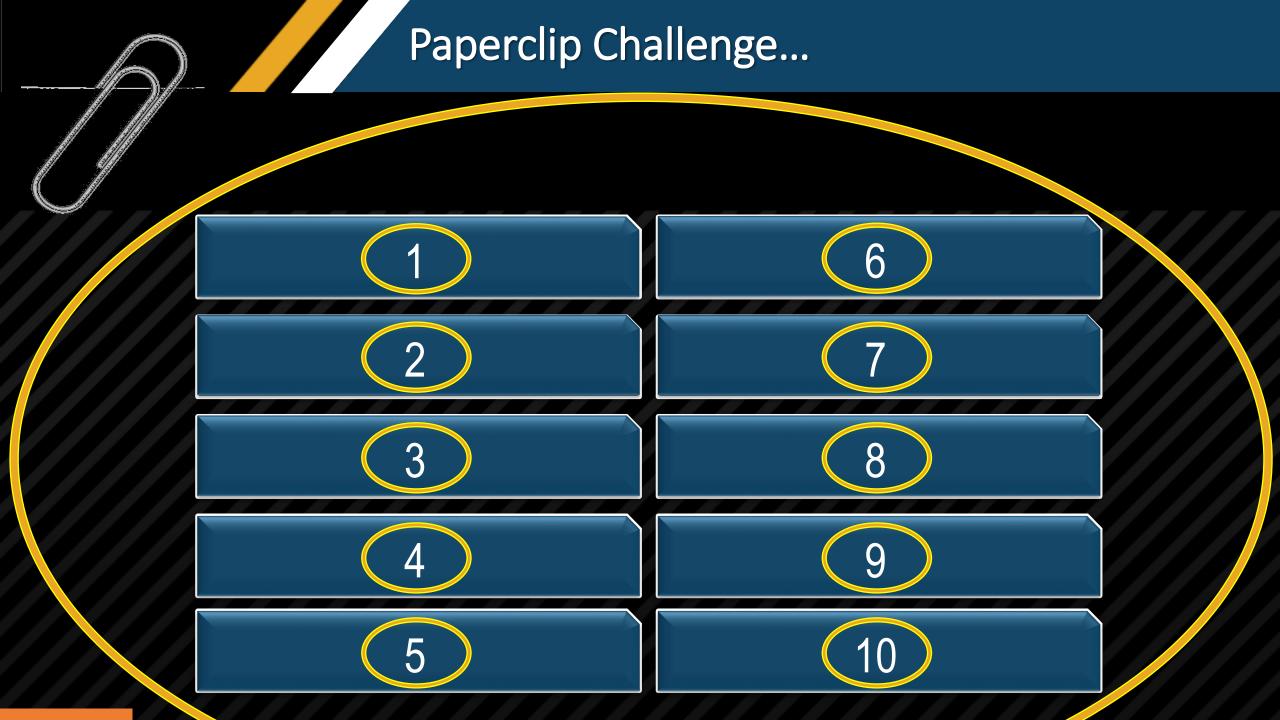


# How many uses can you think of for Paperclips? (in 30 seconds)





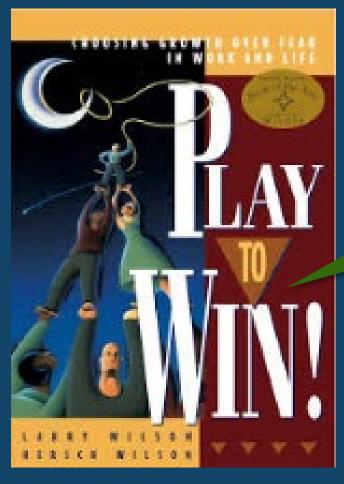
https://www.fhwa.dot.gov/innovation/

Have an Idea, Thought, Comment???





#### My Least Favorite Quote...



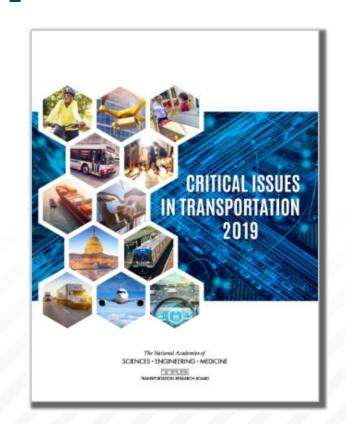
Anyone can make a difference, most don't.



#### Critical Issues in Transportation - 2019

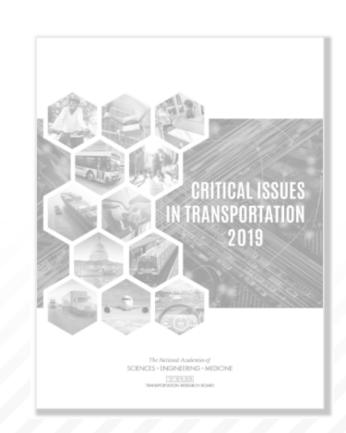
#### NEITHER COMPREHENSIVE NOR MUTUALLY EXCLUSIVE

- Transformational Innovations
- Growing and Shifting Population
- Section 2 Energy and Sustainability
- **Preparing for Threats**
- Safeguarding the Public
- Serving the Disadvantaged





- **Managing Our Systems**
- System Performance and Management
- **Paying the Tab**
- 10 Moving Freight
- 11 Workforce
- 12 R&I: Preparing for the Future





#### Our Challenge...



### What Awesome



## NNOVATIONS

are within our reach?

# Are you an Innovator?

### KEYS to being an Innovator

# YOU

(Today)

# Customer's Needs

3.
 4.
 5.

a Story...

In my early 30's...

...every Saturday in the fall...

...I played football with friends...

#### What did TOM do?



### KEYS to being an Innovator

#### 1. RISK Taker

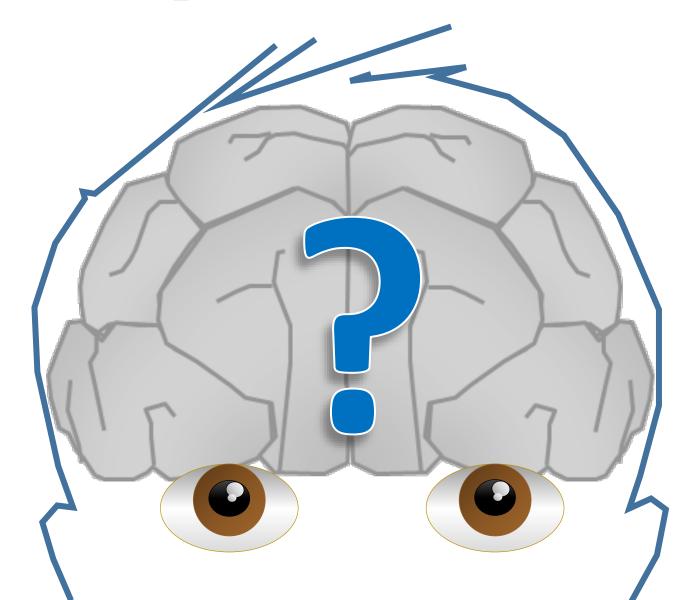
- 2.
- 3.

YOU

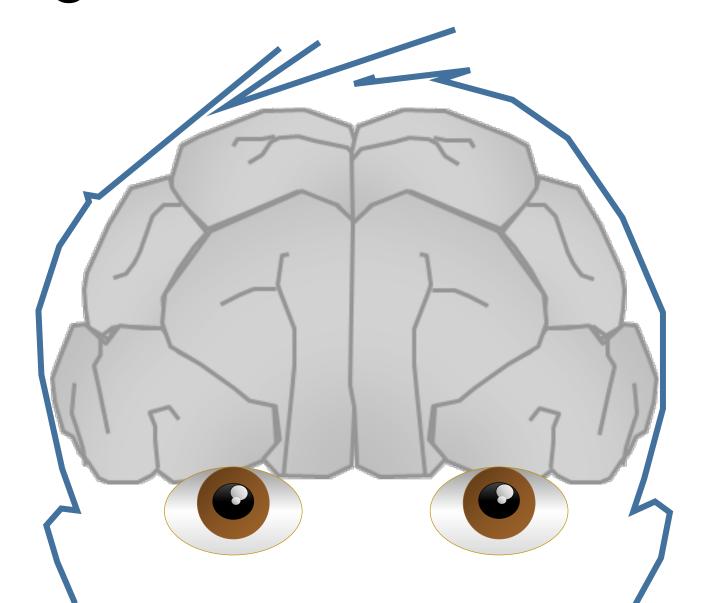
- **J**.
- 4.
- 5.
- 6
- 7.

# Customer's Needs

#### I need your help?



#### I'm looking for a volunteer...





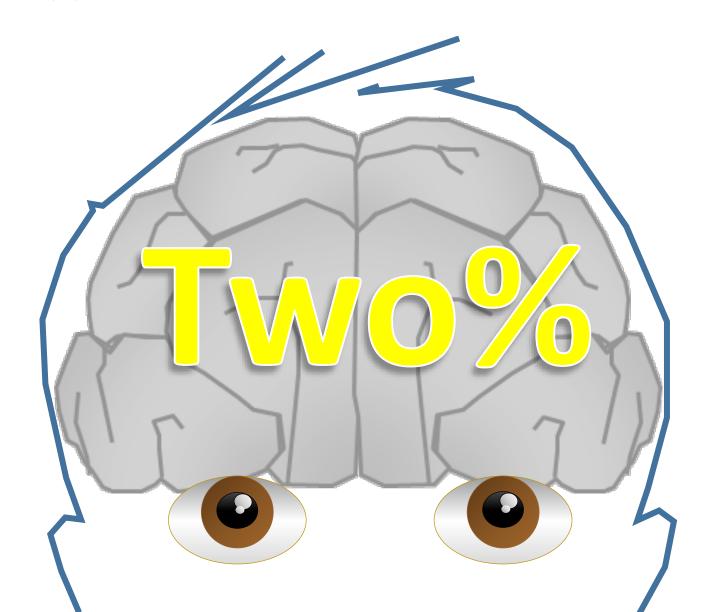
# YOU

### KEYS to being an Innovator

- 1. RISK Taker
- 2. Relationship Builder (E.I.)
- 3.
- 4
- \_
- 6.
- 7

# Customer's Needs

#### TOM's Two% Challenge...



#### What is the **Two% Challenge**?

Two% of **24Hours** is 28.8minutes ~ ½ hour And a ½ hour "can" change everything...

#### Deliberate practice

- Identify ½ hour on your e-Calendar (every day or just twice a week) to...
  - Be creative (draw)
  - Read about something new / a new innovation
  - Watch a TEDTalk® on something you don't know
  - Collaborate with a friend
  - Go for a walk... play

#### An Innovator is Situationally Aware







Resist CHANGE and Die...

Accept CHANGE and Survive...

Lead CHANGE and Thrive!

### KEYS to being an Innovator

### YOU

- 1. RISK Taker
- 2. Relationship Builder (E.I.)
- 3. Deliberate Practice Two%
- 4. Leads, not reacts, change
- 5.
- 6
- 7.

#### Customer's Needs



another Story...

In 2001,

my wife & I were blessed with our second child...

...Corey Thomas was perfect, but...

### The F.A.C. Human Development *it happens when...*

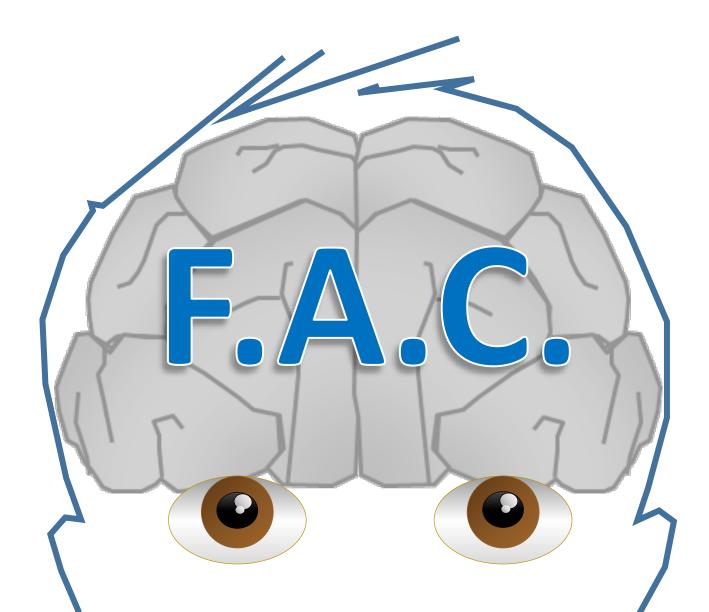
Fun (to you)

Achievable

Challenging



#### Two% Challenge...



#### President John F. Kennedy

# "Leadership and Learning are indispensable to each other."



#### Three Zones



Downtime
Relax
Recharge
Unplug

#### Two 'Work' Zones... New Job



#### Two 'Work' Zones... ~after 3 years



### KEYS to being an Innovator

### YOU

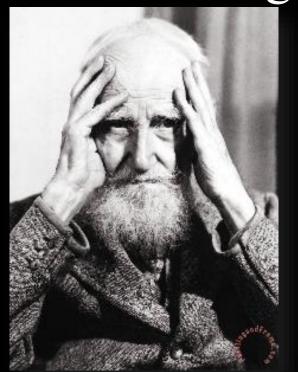
- 1. RISK Taker
- 2. Relationship Builder (E.I.)
- 3. Deliberate Practice Two%
- 4. Leads, not reacts, change
- 5. Life-long learner (F.A.C.)
- 6.
- 7.

#### Customer's Needs

#### George Bernard Shaw

Irish Playwright (1856-1950)

"The reasonable *person* adapts to the conditions that surround *them*... The unreasonable person adapts surrounding conditions to *themselves*...



All progress depends on the unreasonable *person*."

#### Thomas Philip Harman

American Inventor (1963-∞Beyond)

"Innovation is disruptive.

If you want to be an Innovator...

you need to be a little disruptive."

### KEYS to being an InnoVator

### YOU

- 1. RISK Taker
- 2. Relationship Builder (E.I.)
- 3. Deliberate Practice Two%
- 4. Leads, not reacts, change
- 5. Life-long learner (F.A.C.)
- 6. a little disruptive
- 7

#### Customer's Needs

# Attributed to both Wayne Gretzky & Michael Jordon

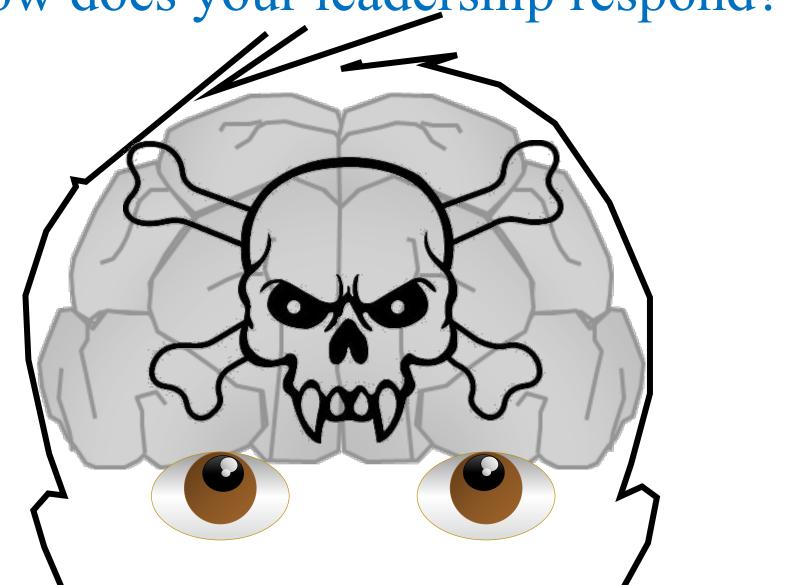
"You miss 100% of the shots you don't take."







When someone makes a mistake... how does your leadership respond?



I don't know?

Didn't we already try something like that and it failed?
I guess, its your neck on the line.
Really???

An Innovator - Fosters a Supportive Environment

A peer comes to you with a new idea...

What should be your response to something new?

# YOU

# KEYS to being an Innovator

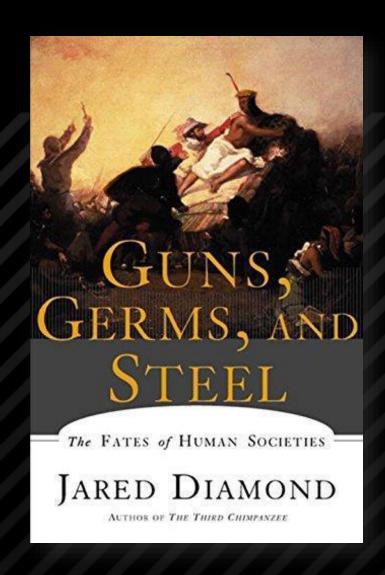
- 1. RISK Taker
- 2. Relationship Builder (E.I.)
- 3. Deliberate Practice Two%
- 4. Leads, not reacts, change
- 5. Life-long learner (F.A.C.)
- 6. a little disruptive
- 7. Fosters a supportive environment

# Customer's Needs

# TOM's Brain...



## Why Innovate???



"Naturally, I don't subscribe to the obvious fallacy that every society promptly adopts every innovation that would be useful for it. The fact is that, over entire continents and other large areas containing hundreds of competing societies, some societies will be more open to innovation, and some will be more resistant."

-Excerpt GG&S Chapter 15

# Let's Lalk

ineory...

## Rogers' Key Elements of Diffusion

Innovation (What) Adopters (Who) Communication (How) Passage of Time (Impact) Social Systems (Network)

# Communication Channels



- Rogers defines homophily as "the degree to which individuals who interact are similar in certain attributes, such as beliefs, education, social status, and the like."
- When given the choice, individuals usually choose to interact with someone similar to themselves.

Communication Channels



- Diffusion requires a certain degree of heterophily to introduce new ideas into a relationship.
- An "ideal situation" would involve potential adopters who are homophilous in every way, except in knowledge of the innovation.

In non-Ph.D. speak: Peer-to-Peer communication is more effective than outside expert to potential user.

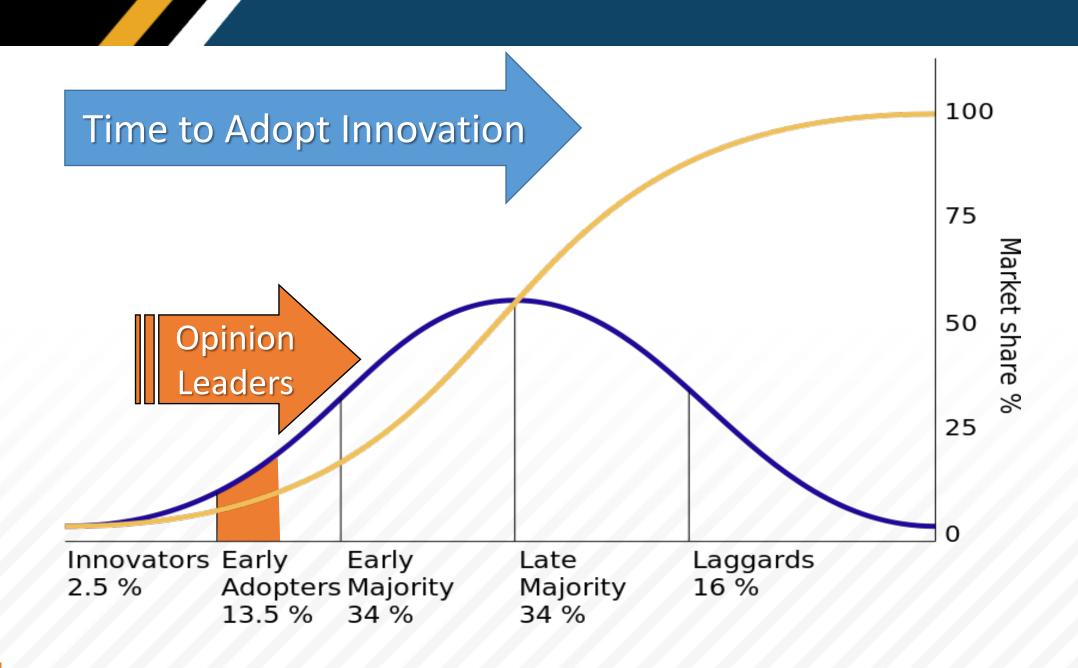
# Key Variables in Diffusion...



# Rogers KEY: Opinion Leaders

 Not all individuals exert an equal amount of influence over others.

Opinion Leaders are influential in spreading either positive or negative information about an innovation.



# **SUCCESS:**

# Focus on your Customer's Needs NOT "an Innovation"

# Okay... what 'can'this ook III (EZ

## a STIC Model (Online)





EVALUATE – TAG...
potential benefits, challenges, resources, expectations...

DEVELOP – STIC concurs,
TAG responsible for detailed development

ADVANCE — STIC concurs and the Innovation advances







# 5 Steps to Innovation Bliss- David Esse



#### Incubate

- Discuss feasibility and document idea
- Conduct initial financial assessment

Go/No-Go

#### Demonstrate

- Collect and review existing research
- Demos from vendors, lead states, or others

Go/No-Go



#### Pilot

- Practitioners validate expected benefits/ROI
- Identify needs for implementation

Go/No-Go

### Communicate

- Share results and best practices with Stakeholders
- Determine width and depth of implementation

Go/No-Go

### **Implement**

- Creation of an implementation plan, budget, resources
- Selection of implementation Champions

Go/No-Go

# The difference between invention and innovation is...



Invention

Marketing & Communication

Innovation

# **CHALLENGE:**

# Bureaucracies are a Normalizing Force

# Policies Procedures Laws Regulations Rule Specifications Compliance Standard Structure

# KEY QUESTION (REMINDER):

How can we reword our conversation to STOP limiting our potential?

# Employees say, "Yes, if" vs. "No, because"







Director Brian Ness — 9 STEPS TO A RESULTS-FOCUSED CULTURE



# let's Talk nnoyations

## My Center's Portfolio of Programs for You

### https://www.fhwa.dot.gov/innovation











National STIC Network

Up to \$100k/ea/yr

Every Day

Counts

\$15M/2yr

AID Demo Grants

Up to \$10M/yr

AMR Internal/ External

Up to \$3M/yr

MarComm

Goodies



### https://www.fhwa.dot.gov/innovation/everydaycounts/



A State-based model that identifies and deploys proven, yet underutilized innovations saving time, money and resources that can be used to deliver more projects.



Shorten Project Delivery



Enhance Roadway Safety



Reduce Traffic Congestion



Integrate Automation

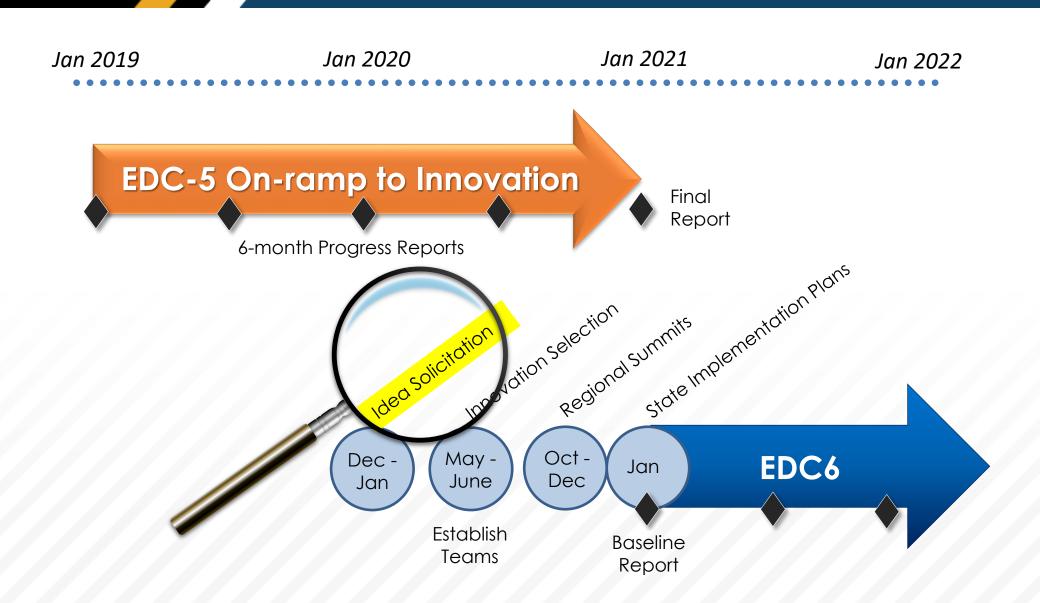
## Market-ready, Proven... underutilized

Every State advanced 14 or more of the 43 innovations promoted in the first four EDC rounds, and 28 States adopted 30 or more innovations.





# EDC-5 to EDC6



### Innovations Of Interest

- Initial thoughts:
  - a. Advancing Leading Practices in Strategic Workforce Development
  - **b.** BIM for Infrastructure
  - c. Pavement Overlays Driving to Higher Performance & Reducing Risk
  - d. AII Lead State Technology Wrong Way Driving Detection (customizable kit of tools)
  - e. UHPC for Structure Rehabilitation
  - f. Probabilistic Cost Estimation
  - g. CARMA Cooperative Automation Research Mobility Applications (Open Source Mobility)

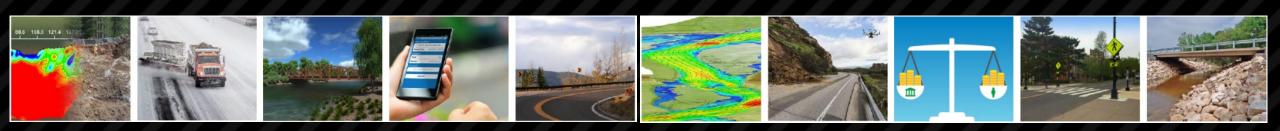


# EDC-5 New Jersey

Institutionalized				*						*
Assessment		<b></b>					_		_	
Demonstration		_								
Development										
Not Implementing										
EDC-5 Innovation	A-GaME	WR	VPI	Crowd source	RRRD	CHANGE	UAS Drones	Value Capture	STEP	Project Bundling
1. 1.	85 1080 127.4 12;									

Every State plans to explore at least 3 innovations

- Seven of the 10 innovations are being advanced in 30 or more States!
  - CHANGE, UAS, virtual public involvement, reducing rural roadway departures, STEP, Crowdsourcing for Operations, and A-GaME



In 2017, 37,133 people killed in traffic crashes

2018, NHTSA projects a 1% decrease: HOWEVER that is still almost 37,000 people



# Reducing Rural Roadway Departures





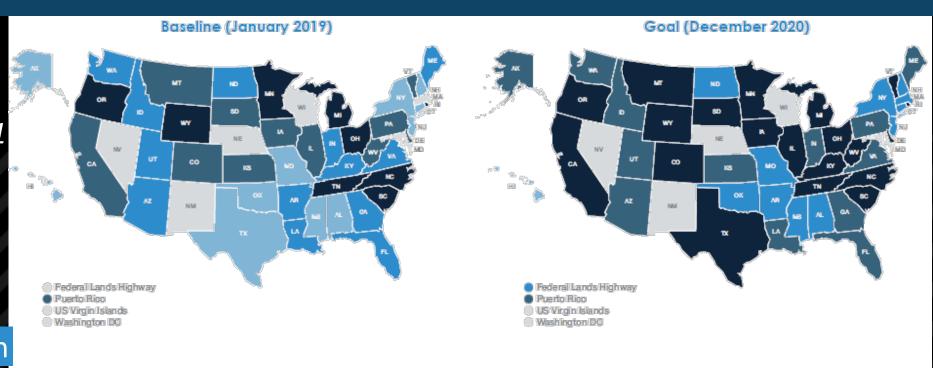
## Reducing Rural Roadway Departures

### 2-Year Cycle

Baseline (Jan 201 34 STICs

Goal (Dec 2020)
46 STICs at
Demonstration

Assessment or Institutionalized



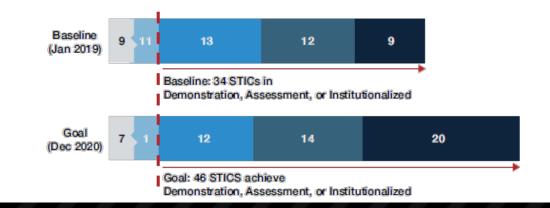
Institutionalized

Assessment

Demonstration

Development

Not Implementing



In 2017, 5,977 pedestrians were killed in traffic crashes

2018, NHTSB projects a 4% increase for pedestrians and almost 10% for pedal-cyclists.



# Safe Transportation for Every Pedestrian (STEP)





STEP: The Spectacular Seven...

Systemic application of cost-effective countermeasures



# Safety Resource: Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations

• <a href="https://www.fhwa.dot.gov/innovation/everydaycounts/edc-4/STEP-guide-improving-ped-safety.pdf">https://www.fhwa.dot.gov/innovation/everydaycounts/edc-4/STEP-guide-improving-ped-safety.pdf</a>?utm content=&utm medium=email&utm source=govdelivery

Table 1. Application of pedestrian crash countermeasures by roadway feature.

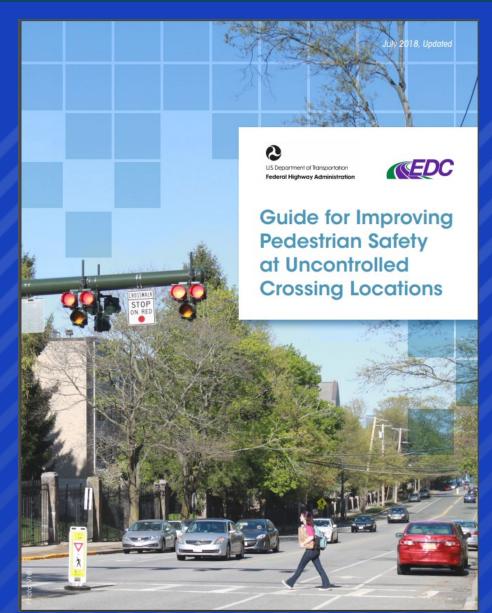
		Posted Speed Limit and AADT																								
	Vehicle AADT <9					9,00	Vehicle AADT 9,000						-15,000			Vehicle AADT >						15,000				
Roadway Configuration	≤30 mph		35 mph			≥40 mph			≤30 mph			35 mph			≥40 mph			≤30 mph		nph	35 mph		bh	≥40 mph		
2 lanes	0	2		0			1			0			0			1			0			1			1	
(1 lane in each direction)	4	5	6	7	5	6	0	5	6 <b>9</b>	4	5	6	7	5	6	0	5	6 <b>0</b>	7	5	6	7	5	6		5 6 <b>Ω</b>
	0	2	3	0		·	-		6	①		3	0		·	-		8	-		·	-	_	<b>3</b>	(II)	- 6
3 lanes with raised median (1 lane in each direction)	4	5	-		5	•		5	•	4	5	Ī		5	_		5	•	_	5	Ĭ	Ĭ	5		Ŭ	5
(Trune in eden direction)				7		9	0		0	7		9	0		0	0		0	7		9	0		0		0
3 lanes w/o raised median	0	2	3	0		8	1		8	1		3	1		8	1		8	1		8	1		8	1	8
(1 lane in each direction with a	4	5	6		5	6		5	6	4	5	6		5	6		5	6	4	5	6		5	6	5	_
two-way left-turn lane)	7		9	7		9			0	7		9	0		0			0	7		9			0		•
4+ lanes with raised median	0		0	0	_	8	0	_	0	0	_	8	0	_	8	0		8	0		0	0		0	1	_ 0
(2 or more lanes in each direction)	_	5	_	_	5	_		5		_	5	_		5	_		5	_		5	•		5	_		5
	7	8	9	/	8	9		8	0		8	9	0	8	0			0	0	8	0		_	0	_	8 0
4+ lanes w/o raised median	0		0	0		0	0		0	1		0	0		0	0		8	0			0		_	1	8
(2 or more lanes in each direction)		5	6		5	0		5	0		5	0	_	5	0			0		5	0			0		5 0
	7	8	9	7	8	9		8	0	7	8	9	7	8	0		8	0	0	8	0		8	0		8 0

Given the set of conditions in a cell

- # Signifies that the countermeasure is a candidate treatment at a marked uncontrolled crossing location.
- Signifies that the countermeasure should always be considered, but not mandated or required, based upon engineering judgment at a marked uncontrolled crossing location.
- Signifies that crosswalk visibility enhancements should always occur in conjunction with other identified countermeasures.\*

The absence of a number signifies that the countermeasure is generally not an appropriate treatment, but exceptions may be considered following engineering judgment.

- High-visibility crosswalk markings, parking restrictions on crosswalk approach, adequate nighttime lighting levels, and crossing warning signs
- 2 Raised crosswalk
- 3 Advance Yield Here To (Stop Here For) Pedestrians sign and yield (stop) line
- 4 In-Street Pedestrian Crossing sign
- 5 Curb extension
- 6 Pedestrian refuge island
- 7 Rectangular Rapid-Flashing Beacon (RRFB)\*\*
- 8 Road Diet
- 9 Pedestrian Hybrid Beacon (PHB)\*\*



## Pedestrian Gateway Treatment (AASHTO)

http://aii.transportation.org/Pages/Pedestrian-Gateway-Treatment.aspx





# Foster a Culture of Innovation

- a. Focus on Customer's Needs (Rogers)
- b. Simplify our Language
- c. Engage Stakeholders (Early-Often)
- d. Reword the Conversation, e.g. Yes, if...
- e. Invest (time/\$\$\$) in New Opportunity and take RISK (Harman)

# Foster a Culture of Innovation

- f. Openly discuss competing alternatives
- g. Create opportunity to be creative and incubate ideas (Esse)
- h. Trust & Relationships (Braceras)
- i. And...???



# I want to hear from you!







