



**ADVANCING TRANSPORTATION
INNOVATION IN ARIZONA**
FEBRUARY 25, 2020

Arizona Councils of Governments (COG)
&
Metropolitan Planning Organizations (MPO)
Director's Meeting

Karla Petty, FHWA
Administrator, Arizona Division
ACTI, Co-Chair

STRATEGIC GOAL - INNOVATION

Innovation is one of US DOT and FHWA's

four strategic goals:

- SAFETY

- INFRASTRUCTURE

- INNOVATION –

Lead in the Development and Deployment of Innovative Practices and Technologies that Improve the Safety and Performance of the Nations' Transportation System

- ACCOUNTABILITY

INNOVATION

- ✓ Save Lives
- ✓ Save Money
- ✓ Save Time
- ✓ Improve Mobility / Connectivity
- ✓ Resource Responsible

CULTURE OF INNOVATION

State Transportation Innovation Council - STIC



Arizona's STIC – ACTI
Formed in 2012
Co-Chairs,
Karla Petty and Dallas Hammit

Arizona Council for Transportation Innovation – ACTI
Member Organizations: FHWA, ADOT, AGC, ACEC,
MPO, APWA, RTAC, County, City, Universities,
Contractor and Consultant

EVERY DAY COUNTS (EDC) – WHAT IS IT?

State-based model to identify and rapidly deploy proven but underutilized innovations to:

- Shorten the project delivery process
- Enhance roadway safety
- Reduce congestion
- Improve environmental sustainability

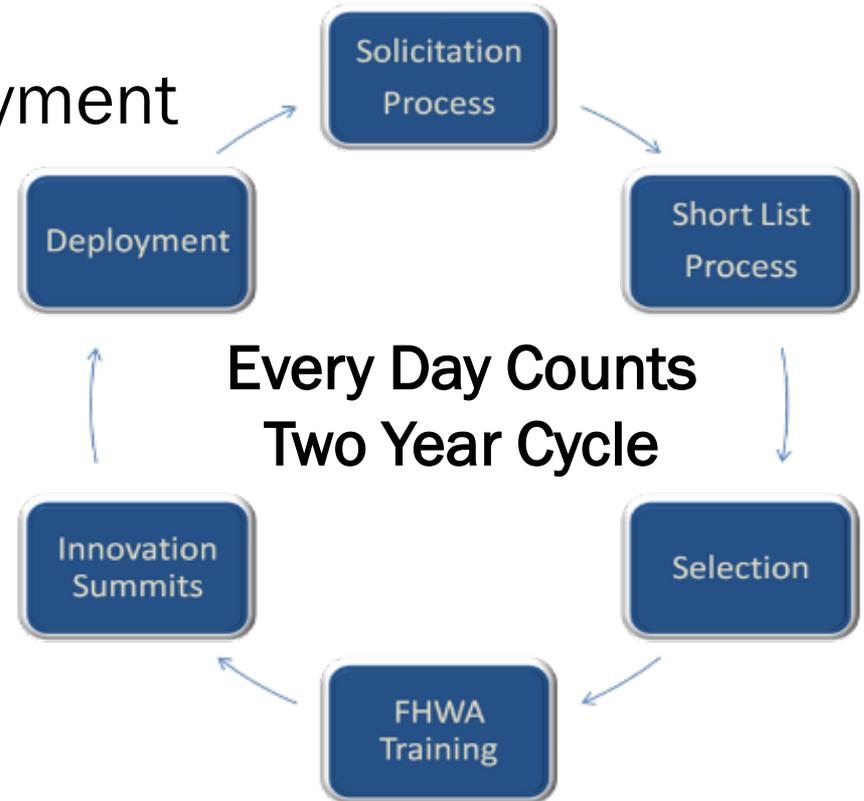
EDC is Federal Highway Administration's --



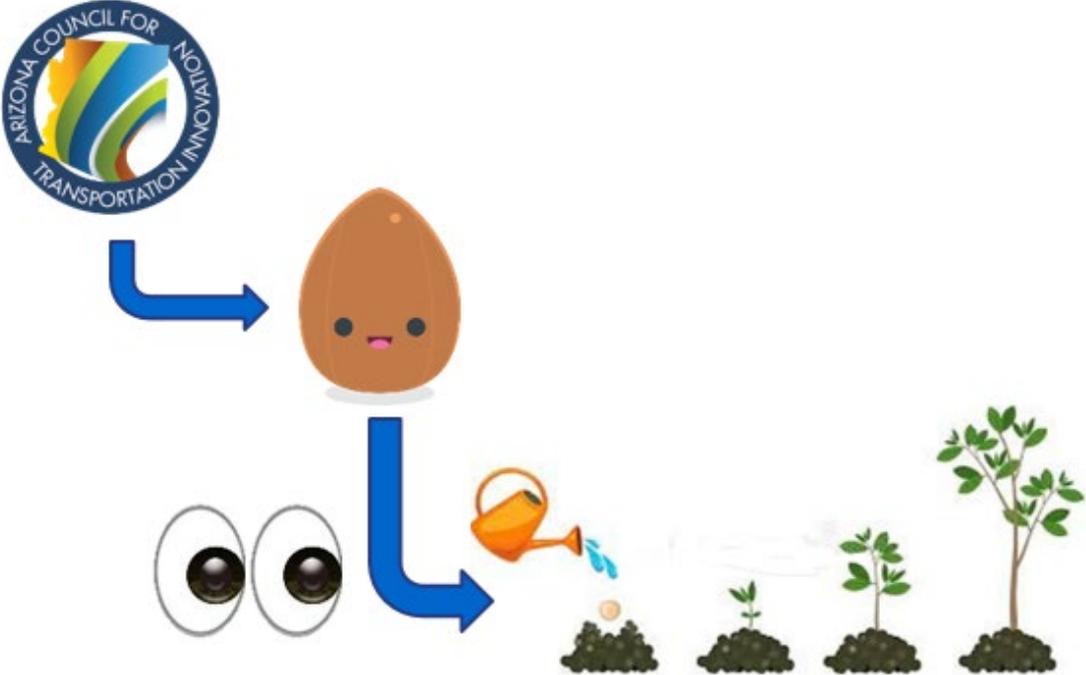
EVERY DAY COUNTS

Model for Innovation Deployment

- 4 Rounds completed
- Over 40 innovations
- Currently in Deployment for Round 5
- Soon: Kicking off Solicitation for Round 6



ACTI & EDC plant the seed



Every Day Counts

Better, Faster, Smarter

EDC-1
(2011-2012)



[Adaptive Signal Control Technology](#)



[Flexibilities in Right-of-Way](#)



[Programmatic Agreements](#)



[Clarifying Scope of Prelim Design](#)



[Flexibilities in Utility](#)



[Safety Edge™](#)



[CM/GC](#)



[GRS-IBS](#)



[Use of In-Lieu Fee & Mitigation](#)



[Design-Build](#)



[Planning and Environmental Linkages](#)



[Warm Mix Asphalt](#)



[Enhanced Technical Assistance
Environmental Impact Statements](#)



[Prefabricated Bridge Elements and
Systems](#)

Every Day Counts

Better, Faster, Smarter

EDC-2
(2013-2014)



[3D Engineered Models for Construction](#)



[Geospatial Data Collaboration](#)



[Programmatic Agreements](#)



[Accelerated Bridge Construction \(ABC\)](#)



[High Friction Surface Treatments](#)



[Intersection & Interchange Geo.](#)



[CM/GC](#)



[GRS-IBS](#)



[Locally Administered Federal-Aid Projects](#)



[Design-Build](#)



[Implementing Quality Environmental Doc](#)



[National Traffic Incident Management Responder Training \(SHRP2 L12\)](#)



[Alternative Technical Concepts \(ATC\)](#)



[Intelligent Compaction](#)

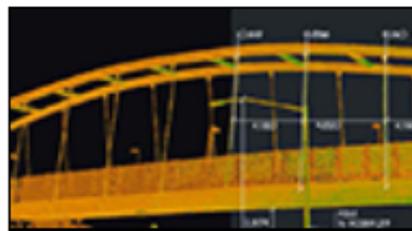
Every Day Counts

Better, Faster, Smarter

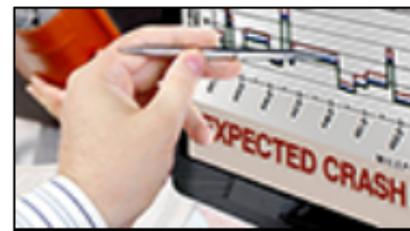
EDC-3
(2015-2016)



EDC-3 Overview Video



3D Engineered Models



Data-Driven Safety
Analysis



e-Construction



eNEPA and IQED



Geosynthetic Reinforced
Soil-Integrated Bridge
System



Railroad Coordination



Regional Models of
Cooperation



Road Diets



Smarter Work Zones



Stakeholder Partnering



Ultra-High Performance
Concrete Connections

Every Day Counts

Better, Faster, Smarter

EDC-4
(2017-2018)



EDC Overview Video



ATSPMs



Collaborative
Hydraulics (CHANGE)



Community
Connections



Data-Driven Safety
Analysis



e-Construction and
Partnering



Integrating NEPA and
Permitting



Pavement
Preservation (When,
Where, How)



Road Weather
Management –
Weather-Savvy Roads



Safe Transportation for
Every Pedestrian



Ultra-High
Performance Concrete
Connections



Using Data to Improve
Traffic Incident
Management

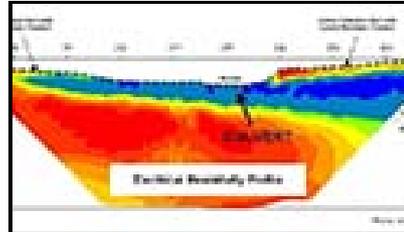
Every Day Counts

Better, Faster, Smarter

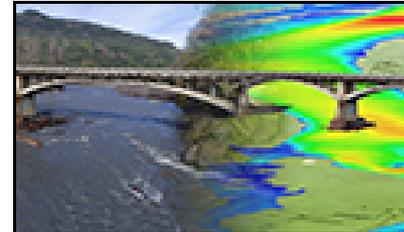
EDC-5
(2019-2020)



EDC Overview Video



Advanced
Geotechnical Methods
in Exploration



Collaborative
Hydraulics



Project Bundling



Reducing Rural
Roadway Departures



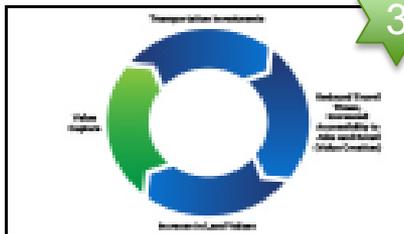
Safe Transportation for
Every Pedestrian



Unmanned Aerial
Systems



Crowdsourcing for
Operations



Value Capture



Virtual Public
Involvement



Weather-Responsive
Strategies



SAFE TRANSPORTATION FOR EVERY PEDESTRIAN

STEP



Pedestrian fatalities increased
27% from 2007-2016



1

STEP – THE SPECTACULAR SEVEN

- Rectangular Rapid Flashing Beacon (RRFB) (-47%)
- Leading Pedestrian Interval (-60%)
- Crosswalk Visibility Enhancements(-23-48%)
- Raised Crosswalks (-45%)
- Pedestrian Refuge Islands (-56%)
- Pedestrian Hybrid Beacons (PHB) (-69%)
- Road Diet (-19-47%)

(Percent reduction in Pedestrian Crashes)

AZ STEP Implementation Team



The Spectacular Seven



Contact: Jeff King, FHWA
602-382-8991
Jeffrey.King@dot.gov

ONE

- Determine Roadway Configuration
You will need to know:
 - Number of lanes in each direction
 - Existence of a raised median
- Select Roadway Configuration from list.



TWO

- Generate Countermeasure Chart:
You will need to know:
 - Vehicle AADT
 - Posted speed Limit
- Follow flowchart to determine which countermeasure chart applies to your roadway configuration, AADT, and Speed Limit.
- Select appropriate countermeasure chart.

THREE

- Determine safety issues to be addressed:
You will need to know:
 - What conditions are causing conflicts at your location
- Using engineering discretion, choose a set of countermeasures to address the safety issues at your location.

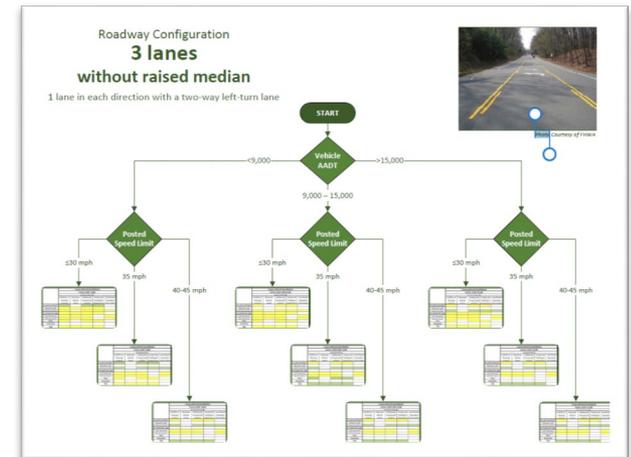
FOUR

- Select links to countermeasures to access suggested specifications and example drawings.

Roadway Configurations

- [Two lanes \(One lane each direction\)](#)
- [Three lanes \(with raised median\)](#)
- [Three lanes \(without raised median\)](#)
- [Four+ lanes \(with raised median\)](#)
- [Four+ lanes \(without raised median\)](#)

- Vehicle AADT < 9,000
 - [Posted Speed Limit <= 30 MPH](#)
 - [Posted Speed Limit = 35 MPH](#)
 - [Posted Speed Limit = 40-45 MPH](#)
- Vehicle AADT = 9,000 - 15,000
 - [Posted Speed Limit <= 30 MPH](#)
 - [Posted Speed Limit = 35 MPH](#)
 - [Posted Speed Limit = 40-45 MPH](#)
- Vehicle AADT > 15,000
 - [Posted Speed Limit <= 30 MPH](#)
 - [Posted Speed Limit = 35 MPH](#)
 - [Posted Speed Limit = 40-45 MPH](#)



VIRTUAL PUBLIC INVOLVEMENT

Why change traditional approaches?

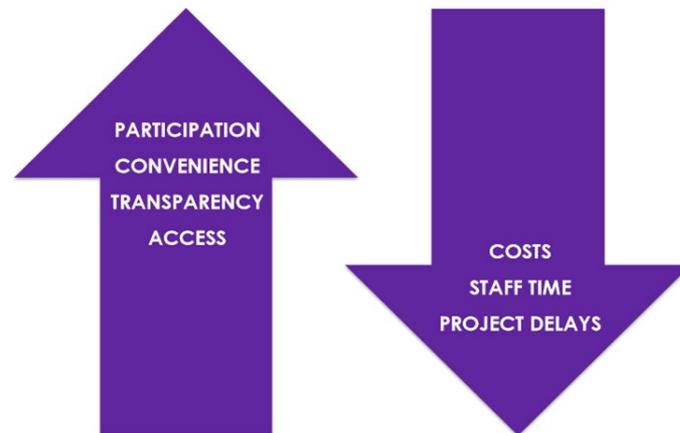
- Low or inconsistent participation early on
- Language and cultural barriers
- Work, family, and social schedules
- Expensive and time-consuming for agencies
- Changing expectations of 21st Century population

Sometimes it is a struggle to be effective



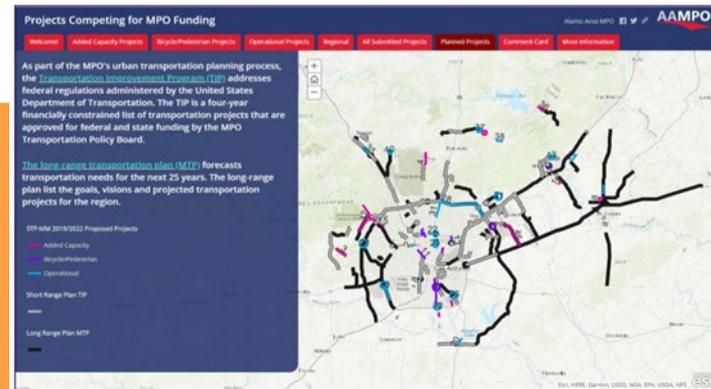
But, this doesn't mean the public isn't interested in participating!

Virtual Public Involvement is the use of digital technology to engage individuals or to visualize projects and plans.



VIRTUAL PUBLIC INVOLVEMENT TOOLS

1. Mobile Applications
2. Project Visualizations
3. Do-It-Yourself Videos
4. Crowdsourcing Tools
5. Virtual Town Halls
6. Mapping Tools
7. All-in-One Tools
8. Digital Tools to Enhance In-Person Events





Value Capture:

Capitalizing on the Value Created by Transportation

Promotes the use of value capture mechanisms as part of a mixed funding and innovative finance strategy to accelerate project delivery and provide equitable funding for sustainable transportation investments.





REDUCING RURAL ROADWAY DEPARTURES

System application of proven roadway departure countermeasures can save lives on all rural roads



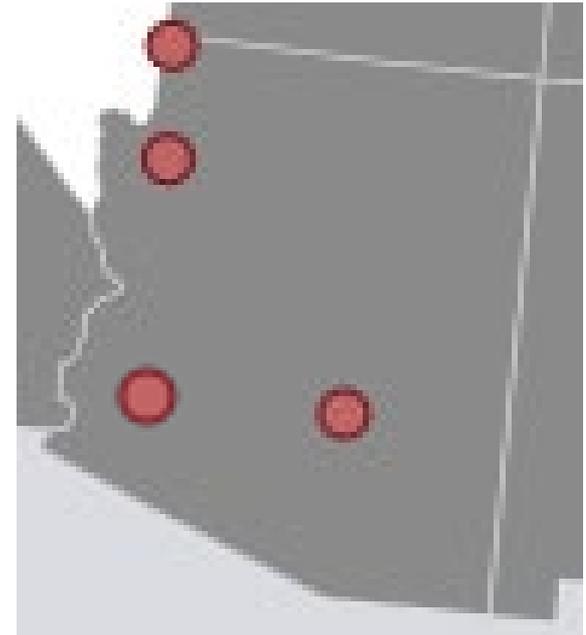
Focus on Reducing Rural Roadway Departures (FoRRRwD)

- All Public Roads
- Proven Countermeasures
- A System approach
- Safety action plans



ACCELERATING INNOVATION DEPLOYMENT (AID) GRANTS - ARIZONA

- ADOT - US 60 – Light-Emitting Diode lighting system in the Queen Creek Tunnel
- ADOT- I-15 Virgin River Bridges – Structural Health Monitoring
- Mohave Co & ADOT -- Oatman Highway Crossing at Sacramento Wash in Topock, AZ Prefabricated Bridge Elements and Systems
- MAG/SCMPO/PAG/ADOT – Sun Cloud Data Portal

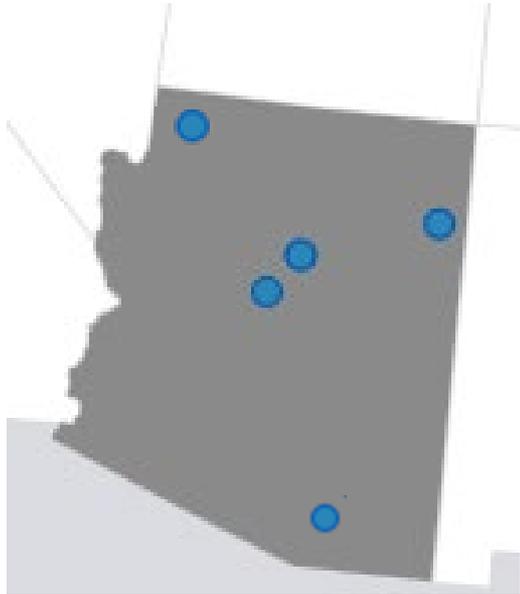


The AID Demonstration program provides funding as an incentive for eligible entities to accelerate the implementation and adoption of innovation in highway transportation.

<https://www.fhwa.dot.gov/innovation/grants/>



INCREASED FEDERAL-SHARE FOR PROJECT-LEVEL INNOVATION - ARIZONA



- US-260 Thousand Trails to I-17
 - CM/GC, Intelligent Compaction
- SR-92 San Pedro River Bridge
 - e-plans
- I-40 Bellemont TI
 - Ultra-high performance concrete
 - Pre-fabricated bridge elements
- I-40 Meteor City TI
 - GRS-IBS w/ Pre-cast elements
- I-15 Virgin River Bridge #2
 - Queue warning system

January 2020, ADOT approved Specification 109.14 – Increased Federal Share

Section 120(c)(3) of title 23, United States Code (U.S.C.) provides the option of an increased Federal share for projects using innovative project delivery methods. The purpose is to promote the use of innovative technologies through an incentive of increased federal share.

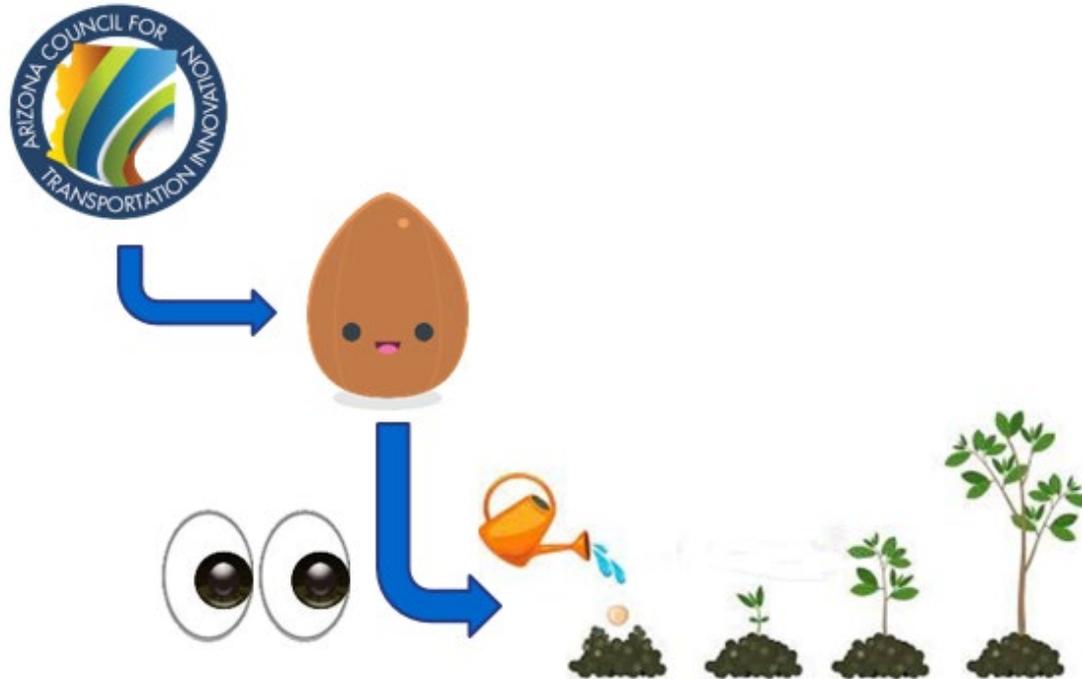


RESOURCES AVAILABLE

- **FHWA Center for Accelerating Innovation (CAI)**
 - www.fhwa.dot.gov/innovation
 - Innovator – Bimonthly Newsletter
- **Every Day Counts**
 - www.fhwa.dot.gov/innovation/everydaycounts
 - EDC NEWS – Weekly Newsletter
- **Accelerating Innovation Deployment (AID) Grants**
- **Increased Federal Share – Project-level Innovation**
- **FHWA Arizona Division and Arizona Council for Transportation**



ACTI & EDC plant the seed



Questions to Ponder:
Have you nurtured a seed?
Are you engaged in innovation?
Are there seeds you are interested in growing?





WWW.AZDOT.GOV/ACTI

ARIZONA COUNCIL FOR TRANSPORTATION INNOVATION

WWW.FHWA.DOT.GOV/INNOVATION

FHWA'S CENTER FOR ACCELERATING INNOVATION (CAI)

Questions?