

Preparing Tulsa for an Autonomous Future

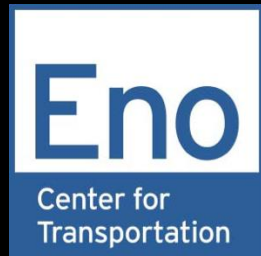
Greg Rogers

Senior Policy Analyst & Asst. Editor

Eno Center for Transportation



@EnoGregR



First of all...

RANK	CITY	INRIX CITY SCORE
1	New Orleans, LA	90.33
2	Albuquerque, NM	89.85
3	Tucson, AZ	89.35
4	Portland, OR	89.32
5	Omaha, NE	89.20
6	El Paso, TX	89.12
7	Fresno, CA	89.07
8	Wichita, KS	89.06
9	Las Vegas, NV	88.99
10	Tulsa, OK	88.09

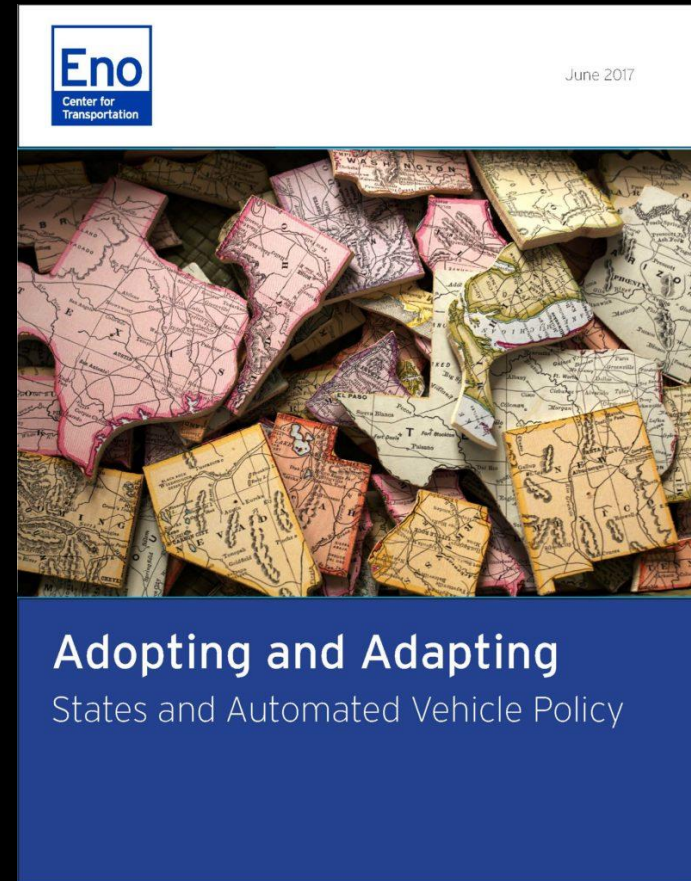
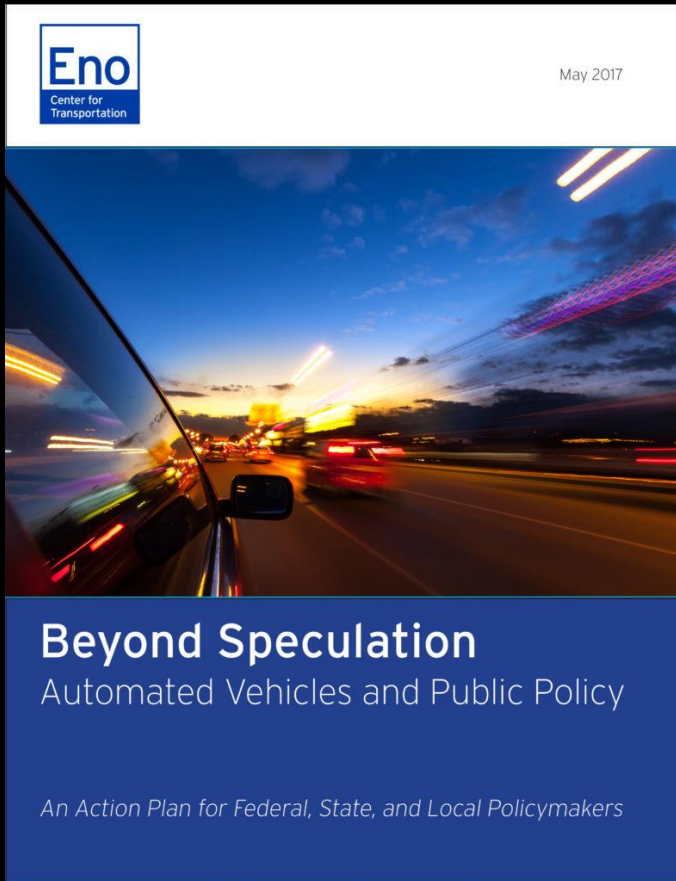
Congratulations!

(Source: INRIX)

Eno

Center for
Transportation

Preparing for AVs



Available at EnoTrans.org

Eno Center for Transportation

- Independent, nonpartisan thinktank
- William P. Eno's "Rules of the Road" were adopted by New York City in 1909, establishing the world's first city traffic plan
- Government roles in managing and funding infrastructure have evolved over time



Today's Discussion

- Best Practices
- Case Studies
- Opportunities for Innovation

Preparing for AVs



This is not a race

WIRED

DMV Data Says Waymo and GM Are Leading the Self-Driving Car Race

Self-Driving Cars Are Coming. Oregon Isn't Ready.

While other states power forward, Oregon lawmakers struggle with how to handle the coming wave of self-driving vehicles.

Pizza Hut and Toyota want to deliver your pizza in driverless vehicles

Grace Schneider, Louisville Courier Journal | Published 3:31 p.m. ET Jan. 12, 2018 | Updated 5:10 p.m. ET Jan. 12, 2018

Waymo Is Definitely Winning The Self-Driving Car Race

The autonomous car company says its vehicles have been getting around without backup drivers behind the wheel.

FutureStructure

TRANSPORTATION

Ohio Tries to Pull Ahead in Transportation Tech Race

Eno
Center for
Transportation

The Secret Sauce for AV Testing

- Local AV manufacturers
- Skilled workforce
- Climate
- Local universities
- Well-maintained roads
- Policy frameworks

Best Practice: Publish a Statement of Principles

Cities are developing **statements of principles** that tell their residents, stakeholders, and AV developers:

- **Why** they are interested in AVs (e.g., safety, mobility, efficiency)
- **How** they will work with the public, stakeholders, and industry
- **What** type of AV pilot programs they are interested in (small driverless shuttles, self-driving Uber/Lyft/Waymo, etc.)

Learning from Uber and Pittsburgh

- First city with a self-driving rideshare service
- Communications breakdown between Mayor Peduto, Uber, and general public
- Resolution



Being SAVI in Portland



- Mayor and Commissioner-in-Charge of Transportation sent a letter to the Portland Bureau of Transportation
- Separate letter sent to state legislators opposing HB 3119 as introduced: “preempts state and local authority to ensure safe use of our rights of way...”

Available at: PortlandOregon.gov/SAVI

Being SAVI in Portland

“Portland can show how to “do AV smart” by working with transportation providers and the public to implement testing and piloting of this technology, while advancing public safety, protection of the environment and transportation access for everyone, regardless of income.”

-Mayor Ted Wheeler and Dan Saltzman, Commissioner-in-Charge of Transportation

Available at: PortlandOregon.gov/SAVI



Best Practice: Create a Roadmap

“If you don’t have a plan, you’re already there.”

Seattle developed a comprehensive playbook that not only outlines a vision for AVs, but a **playbook** for integrating AVs in their **mobility ecosystem**.

Seattle Department of Transportation

NEW MOBILITY PLAYBOOK



Version 1.0

September 2017



Seattle
Department of
Transportation

Eno

Center for
Transportation

Case Study: Seattle (Principles)

Put People and Safety First	The public right-of-way is our most valuable and most flexible public space. Our streets should prioritize access for people, amplifying the role and value of walking, biking, and transit in Seattle. We respect the desire to retain and use privately owned vehicles but will continue to manage the transportation system to move people and goods safely and efficiently. Safety is paramount, no matter how you get around Seattle. Our streets should be comfortable and intuitive for our most vulnerable travelers (people walking and biking). Shared, automated, and other new mobility models should not only advance our Vision Zero safety goals, they should also maintain consumer protections.
Design for Customer Dignity and Happiness	Transportation happiness is a key indicator of the 21st century Seattle Department of Transportation. We will not only simplify and enhance the user experience of public transit and new mobility services, we will also continue to promote a diversity of transportation choices. Dignified public transit and new mobility services must accommodate people with mobility impairments, non-traditional schedules, and families that need flexible mobility options.
Advance Race and Social Justice	Mobility, whether shared, public, private, or automated, is a fundamental human need. Everyone needs a barrier-free transportation system and affordable transportation options that are understandable and accessible to all who want to use them. New mobility models should also promote clean transportation and roll back systemic racial and social injustices borne by the transportation system.
Forge a Clean Mobility Future	We are committed to climate action. We will transition our transportation sector to one that furthers our climate goals and builds replicable models for the rest of the world. New mobility services should use clean energy and expand human-powered transportation.
Keep an Even Playing Field	Data infrastructure is foundational to understanding, operating, and planning in a constantly changing transportation system. Partnerships and a fair and flexible regulatory environment will nurture and expand new mobility ideas, companies, jobs, and workforce training.

Case Study: Seattle (Plays)

Our five plays are to:

PLAY 1:

Ensure new mobility delivers a fair and just transportation system for all

PLAY 2:

Enable safer, more active, and people-first uses of the public right of way

PLAY 3:

Reorganize and retool SDOT to manage innovation and data

PLAY 4:

Build new information and data infrastructure so new services can “plug-and-play”

PLAY 5:

Anticipate, adapt to, and leverage innovative and disruptive transportation technologies

PLAY 3:

Reorganize and retool SDOT to manage innovation and data



Strategy 3.1: Manage risk related to emerging mobility services

Strategy 3.2: Foster a culture of innovation and proficiency in new mobility solutions

Strategy 3.3: Understand the mobility needs of the community

Strategy 3.4: Continuously update citizens about mobility innovations

Strategy 3.5: Pursue nimble regulations that meet the public good while spurring innovation

Strategy 3.6: Establish new transportation funding mechanisms in response to the changing financing landscape

Strategy 3.7: Build strategic mobility partnerships with King County Metro, Sound Transit, and other public and private entities

Eno

Center for
Transportation

Best Practice: Establishing a Process

- **Release RFIs** to begin the conversation with potential industry partners
- **Publish** contact information for interested companies
- **Define** expectations with a statement of principles
- **Engage** potential partners

Best Practice: State of Good Repair

- **AVs are being designed for existing infrastructure:** no need for massive investments in connected infrastructure, etc.
- **AV manufacturers are clamoring for well-maintained roads:** no potholes, clear lane markings, adequate signage.
- **What is good for AVs is good for all road users.**

Best Practice: Identify Local, State, Federal Regulatory Barriers

The vast majority of traffic laws were written before AVs were even just a pipe dream.

Examples:

- **Falls Church, Virginia:** A vehicle must have a driver behind the wheel, monitoring the road while driving.
- **New York State:** A driver must have a hand on the wheel of a moving vehicle at all times.

Best Practice: AV Pilot Projects

- Consumer education is key
- Pilot projects allow a city and its residents to experience AVs firsthand
- Driverless shuttles are the easiest way to do this right now



Photo credit: Laura A. Oda/Bay Area News Group

Eno

Center for
Transportation

Case Study: Arlington, Texas



- Formerly the largest American city without a public transportation system
- Decided to experiment with AVs by renting two 12-person driverless shuttles from EasyMile
- Operates in the entertainment district between parking lots and venues

Case Study: Arlington, Texas

What if Arlington just rented two Ford Transit 15 passenger vans instead and contracted out drivers?

	<u>Transit Vans</u>	<u>EasyMile Shuttles</u>
Vehicle Lease	\$12,000	\$272,159
Labor	\$200,000	0
Gas	\$8,640	0
Total Cost	\$226,640	\$272,159

Source: Eno Transportation Weekly

(Not-so-)Best Practice: Chicago

Ban Self-Driving Cars To Avoid 'Back To The Future'-Style Crazy: Burke



By [Heather Cherone](#) | August 21, 2017 2:34pm

[@HeatherCherone](#)



CITY HALL — Dueling versions of the future of Chicago's streets were on display Monday at City Hall as aldermen weighed whether to [ban self-driving cars from the city's roads](#).

Ald. [Edward Burke](#) (14th) warned that the City Council needs to ban the automated vehicles to prevent



Ald. Edward Burke (left) and the character Doc Brown, played b...

Recommended

ROSELAND »

Police Hiring Process Discriminates Against Blacks, Latinos: Ald. Beale



PORTAGE PARK »

Aldi, Ross To Anchor Huge Center Set To Replace Empty Bank at Six Corners



GARFIELD PARK »



Eno

Center for
Transportation

Understanding the Roles of Government

Federal Government	State Government	Local Government “Boots on the Ground”
<ul style="list-style-type: none">• Establish Federal Motor Vehicle Safety Standards (FMVSS)• Conduct defect investigations• Issue recalls• Driver education	<ul style="list-style-type: none">• Vehicle registration• Driver licensing/education• Insurance/liability• Creating traffic laws• Enforcing traffic laws• Roadway maintenance• State grants and programs	<ul style="list-style-type: none">• Create traffic laws• Enforce traffic laws• Zoning• Roadway maintenance• Curb management• Pilot projects• Build localized partnerships and coalitions• Public education

Best Practice: Work with Federal, State Entities

Case Study - New York State

Last year, New York's state budget included a provision to allow for AV testing, but had stringent requirements:

- AV testing routes must be submitted in advance, with 1/8 mile accuracy
- AVs must always have police escorts
- Manufacturers must pay for the cost of the police escorts

Case Study: New York State

If Waymo moved all of its AV testing from California to New York State and drove the same amount of miles as in 2016, it would cost them...

	<u>Miles Driven Cost</u> (\$0.535/mile)	<u>Hours to Drive</u> 317,934 Miles	<u>Hourly Cost</u> (\$92.73/hr)	<u>Total Cost</u>
City (25mph)	\$170,094.63	12,717.33	\$1,179,278.01	\$1,349,372.64
Freeway (55mph)	\$170,094.63	5780.62	\$536,036.89	\$706,131.52
			TOTAL:	\$2,055,504.16

...\$2.055 million in police escorts alone.

Suggested Practice: Shared Use Mobility Zones (SUM Zones)

- Designated pick-up/drop-off locations – rebranding loading zones with mobility goals
- Shared between:
 - Uber, Lyft, other Transportation Network Companies (TNCs)
 - Paratransit services
 - Delivery trucks
 - AVs

Thinking About Parking

- About one-third of traffic is caused by non-recurring incidents
- Demands on the use of limited curb space are shifting
 - Uber/Lyft
 - Explosion of e-commerce
 - AVs

Thinking About Parking

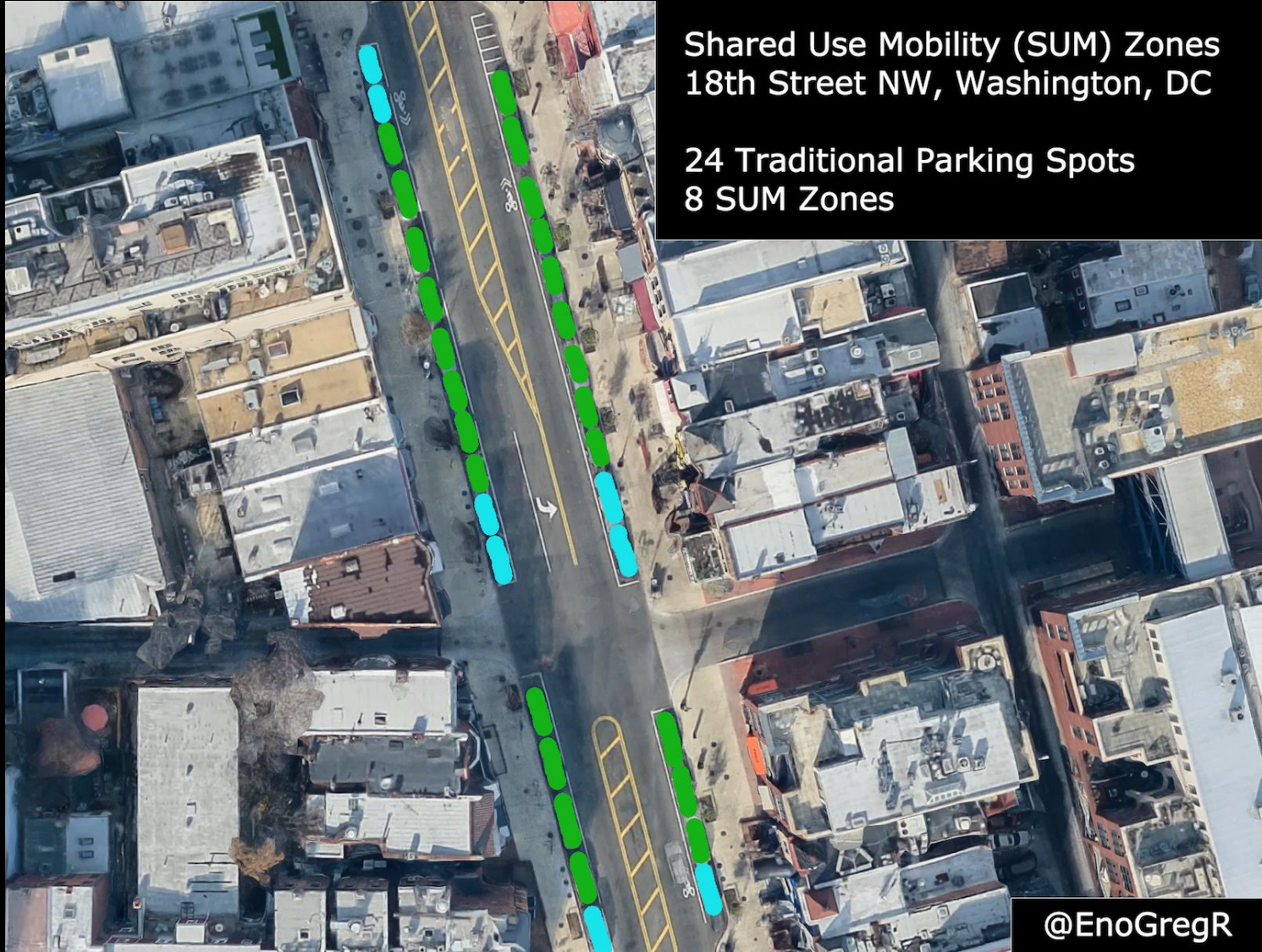


Existing Parking Designations

18th Street NW, Washington, DC

32 Traditional Parking Spaces

Shared Use Mobility Zones (SUM Zones)



Shared Use Mobility (SUM) Zones
18th Street NW, Washington, DC

24 Traditional Parking Spots
8 SUM Zones

@EnoGregR

How can cities like Tulsa prepare for AVs?

- First, focus on the essentials:
 - Establish local transportation goals and guiding principles for integrating new technologies
 - Maintain state of good repair on roadways
 - Continue to provide public transit services
- AVs are not a silver bullet for mobility

How can cities like Tulsa prepare for AVs?

- Consider innovative approaches to piloting new technologies, funding infrastructure, and urban design
 - Pilot programs
 - Infrastructure maintenance
 - New approaches to parking

Questions?

- Email: grogers@enotrans.org
- Twitter: [@EnoGregR](https://twitter.com/EnoGregR)

Download Eno's AV Reports:

*Beyond Speculation and
Adopting and Adapting*

at enotrans.org

