

TRANSPORTATION
TECHNOLOGY & TRENDS

T3 forum



SRE



Minnesota Guidestar Connected Automated Vehicles (CAV)

MnDOT CAV Update



JAY HIETPAS

CAV Executive Director, MnDOT

Jay.hietpas@state.mn.us

Jay is the Director of MnDOT's new Office of Connected and Automated Vehicles (CAV-X). In this role, he leads the statewide policy, research and deployment of CAV technology. Jay has 22 years experience in transportation, and holds a bachelor and master degree in civil engineering from the University of Minnesota.

FHWA Update NHTSA Update – CAV Guidelines Version 3



JIM MCCARTHY, PE, PTOE
Traffic Operations Engineer, FHWA
james.mccarthy@fhwa.dot.gov

Jim works on traffic analysis, traffic operations and ITS deployment in Minnesota. He is currently working on a number of ITS projects, including ITS deployments, managed lane projects, and connected vehicle operational tests. Jim is also a friend of TRB's Highway Capacity Manual Committee and a member of FHWA's Traffic Analysis Team, which supports the Analysis, Modeling and Simulation (AMS) program.

Jim holds a Bachelor of Science in Civil Engineering and a Master of Civil Engineering from the University of Minnesota. He is a licensed professional engineer in Minnesota and a PTOE, and is active on the Board of Directors of ITS Minnesota, North Central ITE and Minnesota Guidestar.

Featured Topic: Dockless Scooter Experiences



JOSH JOHNSON

City of Minneapolis

Josh serves as the Advanced Mobility Manager for the Department of Public Works in the City of Minneapolis. In this role, Josh focuses on emerging mobility planning, operations, and policy, including shared, electric, connected and automated vehicles.

Prior to his time with the City, Josh was the General Manager for car2go Twin Cities, overseeing its operations throughout Minneapolis and St. Paul. He graduated from Minnesota State University with a Bachelor of Science degree in Business Management.

Featured Topic: Dockless Scooter Experiences



REUBEN COLLINS

City of Saint Paul

Reuben has been a transportation engineer and planner with the City of Saint Paul for 6 years, and worked in the private sector doing traffic modeling prior to joining the City. His responsibilities at Saint Paul include managing the walking, biking, sidewalk, and transportation planning programs. He has Masters Degrees in Civil Engineering and Urban and Regional Planning from the University of Minnesota, and is passionate about building great cities. He lives in Minneapolis and wishes he could ride an electric scooter to work.

Featured Topic: Dockless Scooter Experiences



SAM REED

Director of Government Partnerships, Central Region, Bird Rides

sam.reed@bird.co

Sam oversees government partnerships for Bird, the last mile electric vehicle sharing solution bringing low-cost, environmentally friendly transportation alternatives to communities across the world. Prior to joining Bird, Sam was a strategic consultant for the Ingram Group in Nashville, leading government and public relations for Google, Ryman Hospitality, Bonnaroo, and ABC's Nashville. Reed is the former staff attorney to U.S. Congressman Jim Cooper.



MnDOT Update *T3 – October, 2018*

Executive Order 18-04

ADVISORY COUNCIL

**Report to Governor and Legislature by
December 1, 2018**

TESTING AND DEPLOYMENT

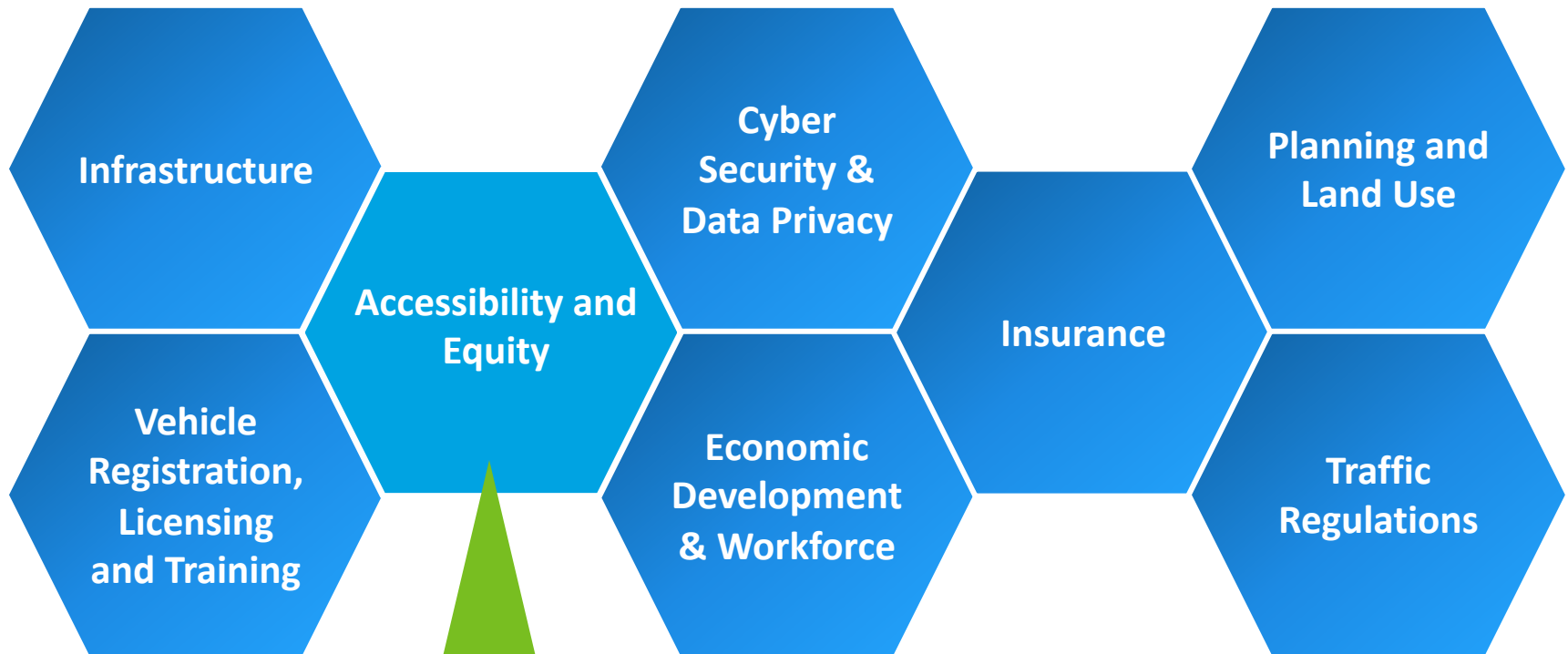
**Requires MnDOT and DPS to establish
testing and deployment programs**

COORDINATION

**Establishes Interagency CAV team
(I-CAV)**

Advisory Council

Report to Governor and Legislature by 12/01/18



Emphasis Areas










- ✓ Rural Minnesota
- ✓ Disabled
- ✓ Low Income
- ✓ Tribal Nations
- ✓ Elderly
- ✓ Communities of Color

Primary Recommendations

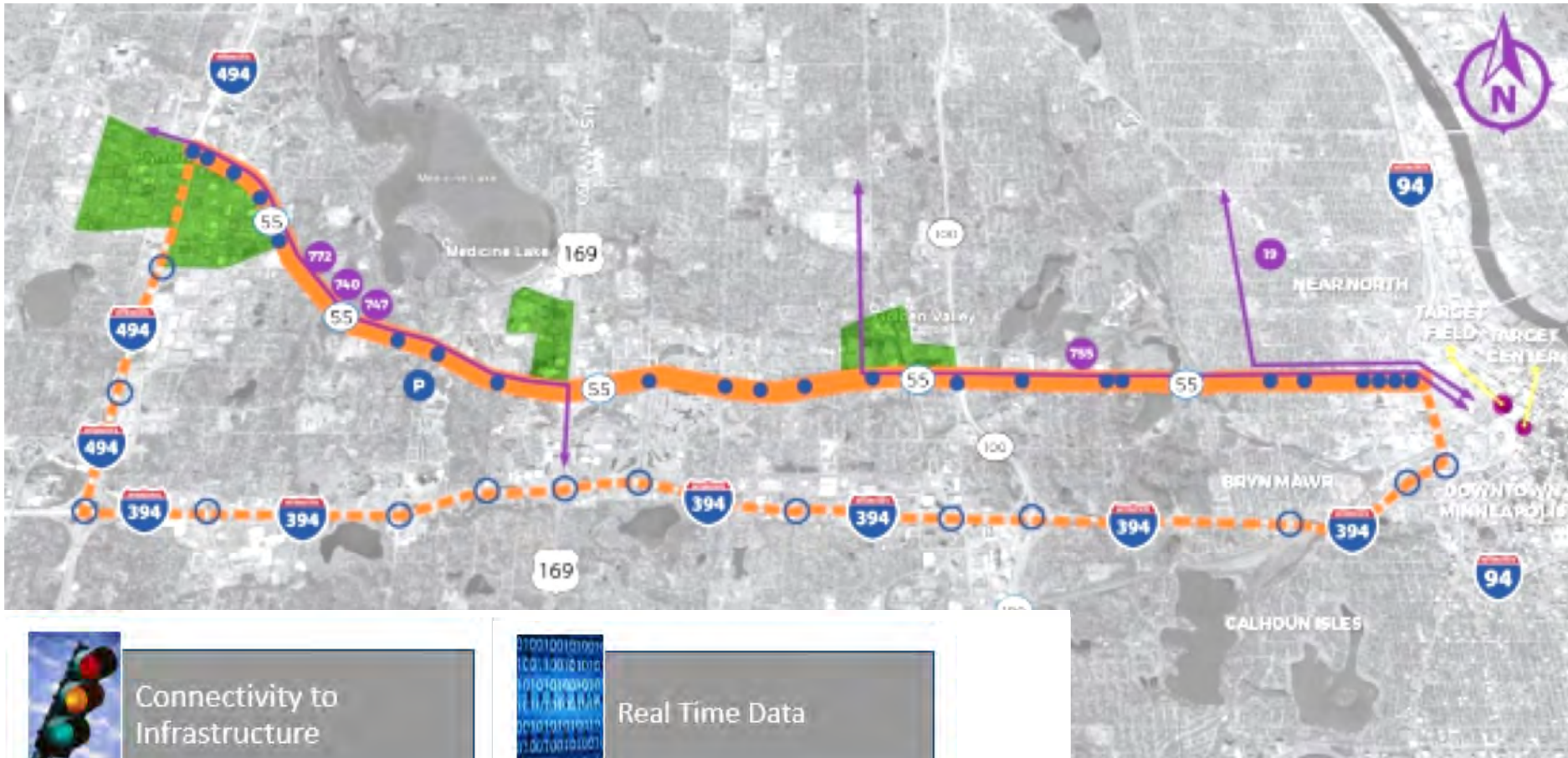
1. **Funding**
2. **Clear Policy.** Proactive legislation, duties of federal, state and local government
3. **Partnerships.** Industry, government, academia
4. **Public Education and Outreach.** Statewide opportunities
5. **Leadership.**

Strategic Plan



-  Long Range Planning
-  Capital Needs
-  Research
-  Partners
-  Regulation
-  Operations
-  Strategic Staffing
-  Multi-Modal
-  Outreach

TH 55 - Connected Corridor



Connectivity to Infrastructure



Real Time Data

Partnership Opportunities

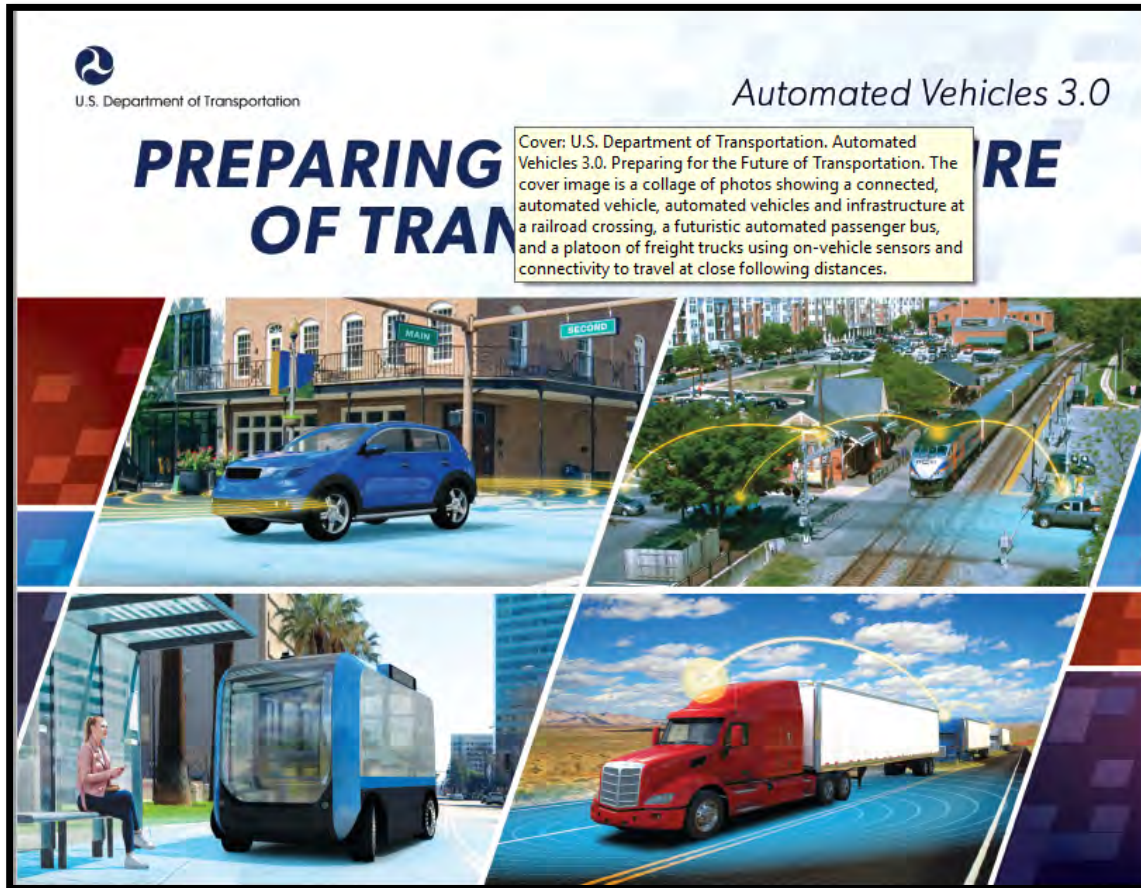
Minnesota CAV Challenge

Open Ended RFP

Allow Industry to Propose Unique Ideas

Evaluate Proposals / Ideas Every Two Months





- Includes freight and transit considerations
- Update MUTCD for CAV
- Considerations for Local Units of Government
- Comments due on December 3, 2018

NHTSA 3.0 – Local Considerations



- Testing on local streets
- Consider land use and curb space impacts
- VMT Increases
- Engage with citizens

Thank you!

Jay Hietpas

Jay.Hietpas@state.mn.us



CAV 3.0



Upper Section of Gooseberry Falls

Minnesota Division Office

CAV 3.0. - Oct. 2018 **3rd Version of USDOT Guidance**

James McCarthy, PE, PTOE





Fundamental Issue

Upper Section of Gooseberry Falls

Minnesota Division Office

USDOT

Vehicle Design/Safety
Regulations



State Government

Driver Regulations





Driverless Vehicle

Upper Section of Gooseberry Falls

Minnesota Division Office

USDOT

Vehicle Design/Safety
Regulations



State Government

Driver Regulations





CAV Principles

1. Will Prioritize Safety
2. Will remain communication tech neutral
3. Use performance based standards and rule





CAV Principles

4. Will Promote Regulatory Consistency
5. Will continue strong research, testing and pilot program at USDOT



CITY OF MINNEAPOLIS

Motorized Foot Scooter Pilot

T3 Forum

Scooter Pilot - Topics

- Overview
- Regulation
- ROW Implications
- Next Steps



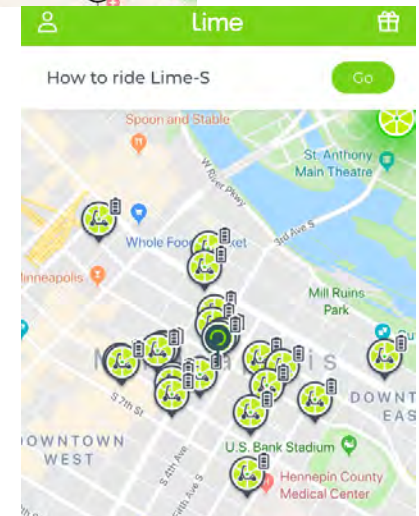
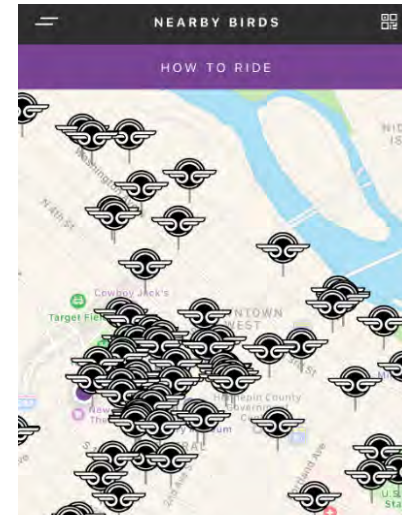
Scooter Pilot - Overview

Current Status

- Bird launched 100 scooters on July 10th
- Lime launched 100 scooters on July 23rd
- Increased to 200 scooters each starting Oct 1st
- U of MN also has a pilot with 100 scooters each

Usage Stats (7/10 – 10/29)

- 180,000+ rides
- 35% of rides are new users
- 6+ rides/scooter/day
- 1.4 mi/ride
- 13 min/ride



Scooter Pilot – State Regulation

Per MN Statute 169.011 (definition):

- Has handlebars and can be stood or sat on by operator
- Powered by internal combustion or electric motor
- Wheels no more than 12 inches in diameter
- Capable of max speed not more than 15 mph on flat surface

Per MN Statute 169.225 (operations):

- May not operate on sidewalk, except to cross it
- May not be operated with a passenger
- No helmet required to ride unless under the age of 18
- May operate on bicycle path, lane, trail or bikeway unless:
 - Reserved for exclusive use of nonmotorized traffic, or
 - Local authority or governing body prohibits operation by law

Scooter Pilot – City Regulation

Low Power Vehicle Ordinance

- Refers to state statute to define and regulate operations
- Requires a license agreement to operate shared scooter system
- Includes provisions for enforcement of scooter operations

License Agreement

- 4 month term (August – November)
- Operators must submit application to be considered
 - Questions include experience, pricing, service area, maintenance, hiring, education and outreach, data and privacy practices
- Max of 200 scooters in first two months, 400 in final two months
 - May be increased or reduced by Public Works Director at any time
 - \$20 fee per scooter, may include optional \$1/scooter/day

Scooter Pilot – ROW Implications

- Requires scooters be parked upright, using a kickstand
- Must be parked in the furnishing zone of the sidewalk
- May not impede pedestrian path of travel or access
- Geofencing may be required if deemed necessary
- Operators are required to maintain ongoing education of proper parking/riding behavior for users
- Complaints can be made to 311, this allows us to track the number, nature, and location of complaints

Scooter Parking 101



- Park upright on the sidewalk using the kickstand
- Keep pedestrian walkways and access clear
- Scooters can be parked at or near bike racks
- Do not park on private property



Scooter Riding 101



- Scooters cannot be ridden on sidewalks
- Follow the same traffic laws as bicyclists
- Ride in bikeways unless signs prohibit
- If riding in the street, ride in the same direction as traffic



Scooter Pilot – Next Steps

Analysis & Evaluation

- Right-of-way impact
 - Accessibility/pedestrian interaction
 - User operational and parking behavior
 - Infrastructure implications
- Equitable Access
 - Service area
 - Pricing and operational barriers
- Mode choice
 - Viable alternative or novelty

Determine how to re-introduce in 2019



Questions

Josh Johnson, Advanced Mobility Manager, Public Works

joshua.johnson2@minneapolismn.gov



Reuben Collins
Saint Paul Department
of Public Works
10/31/18



SAINT PAUL
MOTORIZED FOOT SCOOTER
PILOT PROGRAM

INITIAL ROLLOUT

- **7/10/2018**
 - Bird deployed 85-200 scooters in Saint Paul without prior notice. City asks Bird to remove scooters. Bird does not comply.
- **7/18/2018**
 - Mayor Carter announced that the City will impound scooters if not removed from the right-of-way by the following day.
 - Announces that City Council will create a pilot program allowing scooters to return.
- **8/1/2018**
 - City Council approves Pilot Program
- **8/3/2018**
 - Lime signs contract
- **8/9/2018**
 - Bird signs contract



SCOOTER PILOT PROGRAM

- 4 month duration – August-November 2018
- Unlimited number of vendors
- Each vendor may have up to 150 scooters (more with permission)
- Vendor must agree to predefined contract terms
- Scooters must comply with state statute 169.225 requirements
- Vendors must have 24 hour customer service hotline

IMPROPERLY PARKED SCOOTERS

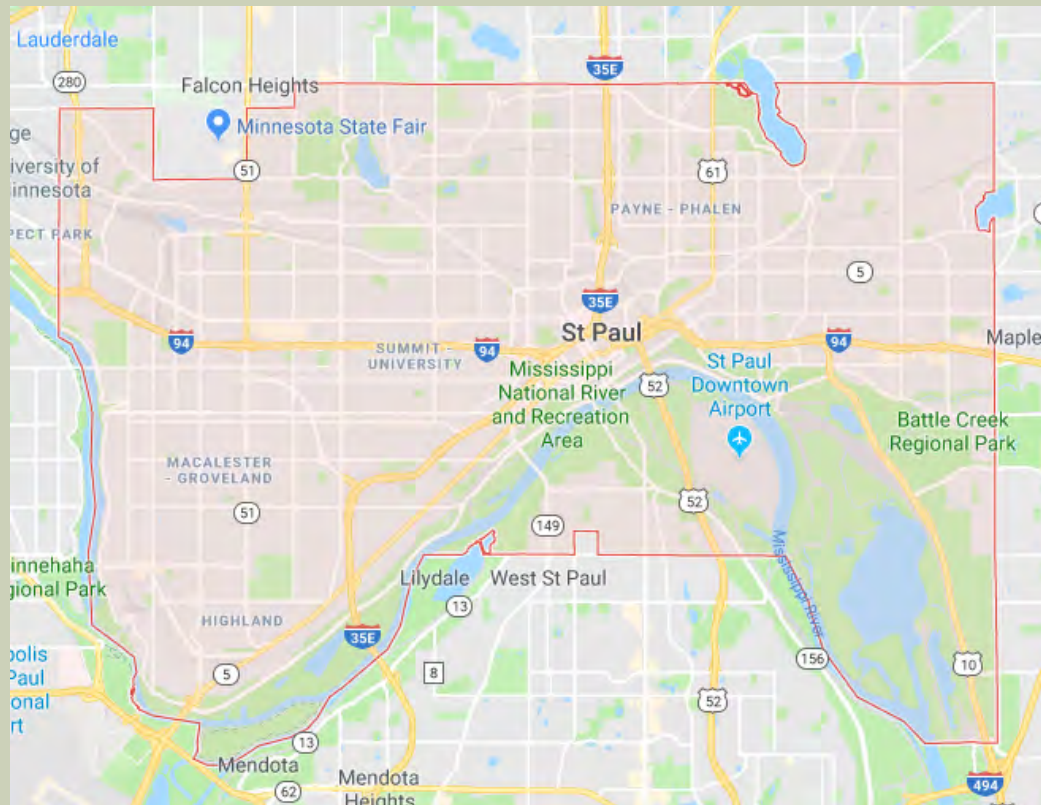
Contract Defines:

- Where scooters can be parked
- Vendor responsibility to ensure scooters are properly parked, and to correct improperly parked scooters.
- Response time requirements for improperly parked scooters
- Circumstances for when city staff will correct improperly parked scooters and rates to be reimbursed.



SERVICE ZONE

- Vendors can deploy scooters at their discretion, but must allow trips to start or end anywhere in the city.



PAYMENTS

- Vendor pays the city \$1 per scooter per day
 - Includes scooters operating or parked in ROW
 - Payable monthly



WHERE ARE THE SCOOTERS?

Contract Language:

“Vendor must provide City Staff an electronic method of visualizing the location and distribution of scooters in real-time.”

- Both vendors currently operating in Saint Paul have declined to satisfy this requirement.
- Hinders our ability to actively manage the system.

MONTHLY REPORTING REQUIREMENTS

- Number of rides for the previous month
- Number of scooters in service
- Number of scooters out of service (damaged or otherwise)
- Safety reports on any crashes involving scooters
- Aggregated repair information on scooters by type of repair
- Instances of illegal parking and corrective action taken by vendor
- Data regarding rebalancing efforts
- Scooter distribution and GPS-based natural movement in heat map format
- Summary of customer comments/complaints and resolution
- Summary of theft/vandalism and resolution
- Aggregated system usage: total unique users, total miles ridden, total number of rentals, average rental duration

SIDEWALK CLUTTER?













Eric Fidler

@EricFidler

Following



The problem with dockless cars is that they impede people in wheelchairs.



8:50 AM - 31 Jan 2018

64 Retweets 254 Likes



SUMMARY

■ Benefits

- Very popular and well liked by users.
- Serving parts of the city other shared mobility hasn't
- No direct costs to the city

■ Challenges

- Unable to reliably determine where scooters are located or how many are deployed
- Vendors not complying with contract terms
- Users riding on the sidewalk
- Impact to disability community



BIRD

Background on Bird



Our Mission

To **partner with cities** to get cars off the road. Our vision is to help create a harmonious and sustainable **transportation network** which, when operating together, provides citizens with a **compelling end-to-end alternative** to short car trips. By doing so, we improve air quality, city safety, and overall city quality of life.

Metro | Bus | Cabs | Bikes | **Bird**

Bird is Helping Cities

- Provide Affordable Transit
- Reduce Carbon Emissions
- Reduce Traffic Congestion
- Reduce Parking Problems
- Invest in Shared Infrastructure
- Promote Local Commerce
- Increase Access to Transportation
in Underserved Areas



Equity Programs

One Bird

Improves mobility and increase access to employment opportunities for underserved communities.

Red, White, and Bird

Expands access to convenient, last- mile transportation options for U.S. military service members and veterans.

Accessibility for the unbanked and or those without credit cards

We currently provide options for those without a credit card to use Bird, including the purchasing pre-loaded cash cards to use in the Bird app.

Non-smart phone access

We are currently developing text-to-ride services, call-to-ride services, and we are evaluating Near Field Communication (NFC) cards and readers.

Economic Impact

Bird employs a fleet management team in the cities we serve, and also works with a network of trained chargers and mechanics in the local markets where we operate.

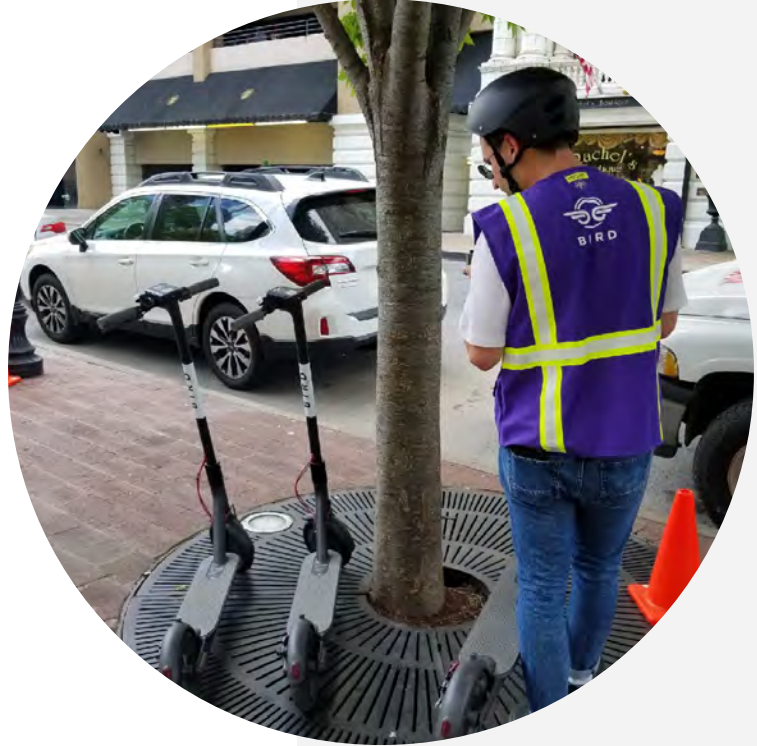
For every 1,000 Birds in a city...

\$2.5M

annual earnings received by Chargers

300

employment opportunities provided for contract workers



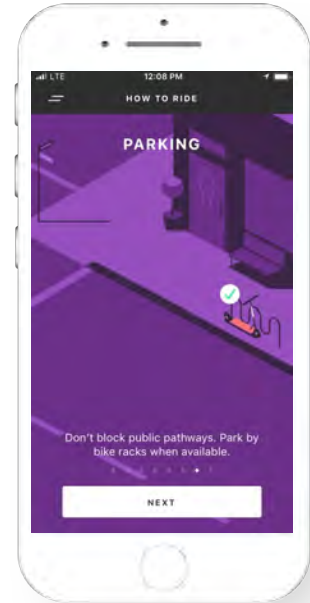
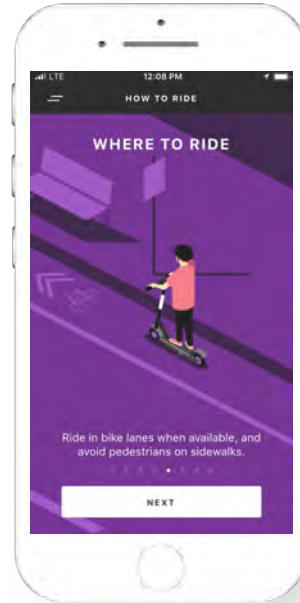
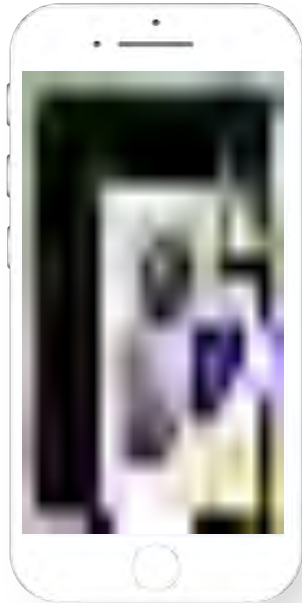
Safety

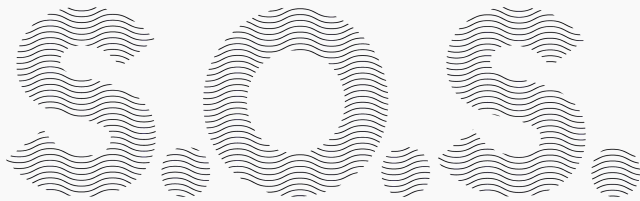
- Provided more than 50,000 free helmets to our riders
- Reduced the maximum speed of our vehicles to 15 mph
- Required all riders to scan their driver's license to ensure riders are 18 or older
- Implemented comprehensive rider safety campaigns and tutorials
- Announced the creation of a forward-thinking and inclusive Global Safety Advisory Board, led by David Strickland (former head of the NHTSA)



In-App Communication

Before beginning their first ride, all Bird riders must first complete an in-app tutorial focused on safety and rider education.





Save Our Sidewalks Pledge



Daily Pickup: All vehicles are retrieved from streets



Responsible Growth: We will not increase the number of vehicles in a market until they are being used on average at least three times per vehicle per day



Revenue Sharing: Offer to remit \$1 per vehicle per day to city governments to build infrastructure that supports alternative transportation

Bird x Minnesota

Pilot Program Recap

Days of operation

112

Number of rides taken

115,894

Miles traveled

163,090

CO2 emissions avoided

145,259 lbs

Had the same trips been
made by the average car

145K Pounds of CO2 Emissions is Equivalent to:

Greenhouse Gas Emissions From



161,203

Miles driven by an average
passenger vehicle

CO2 Emissions From



150+

Barrels of oil consumed

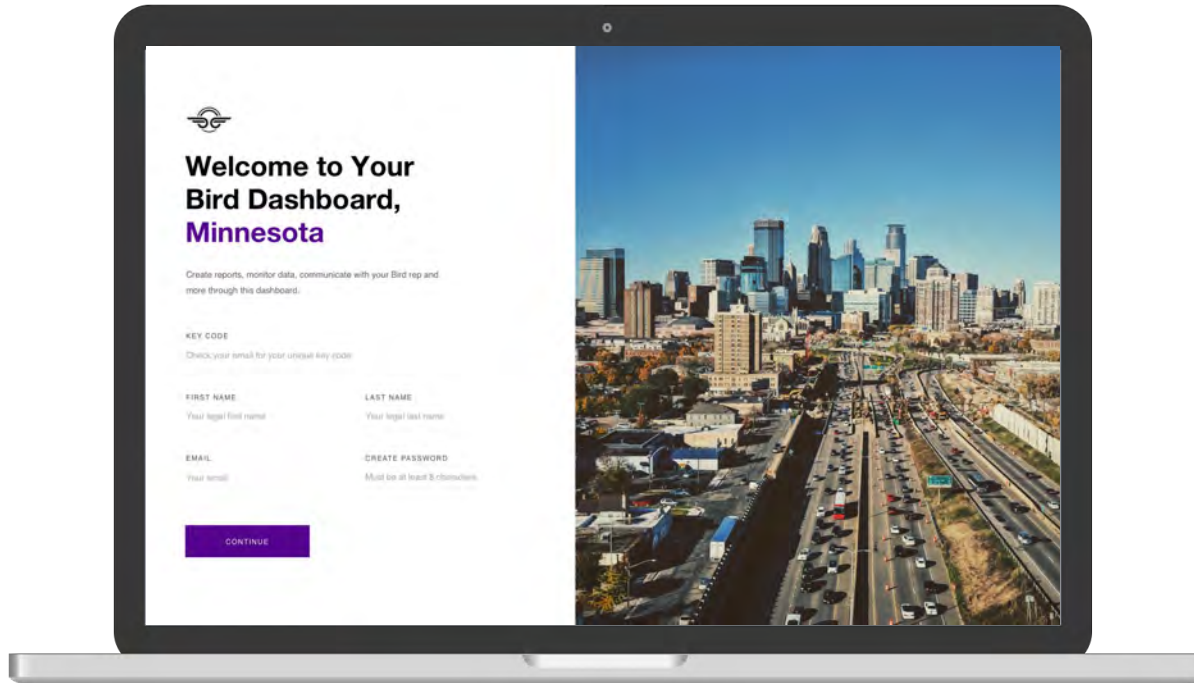
Technology

Sharing Data

Insights to inform and educate overall operations.

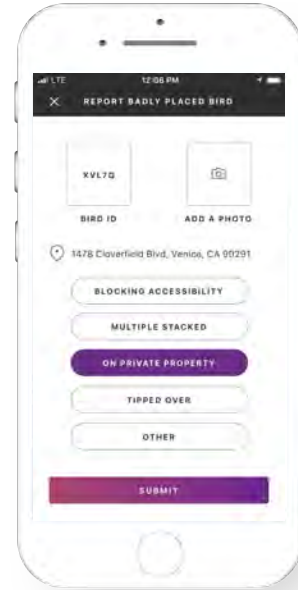
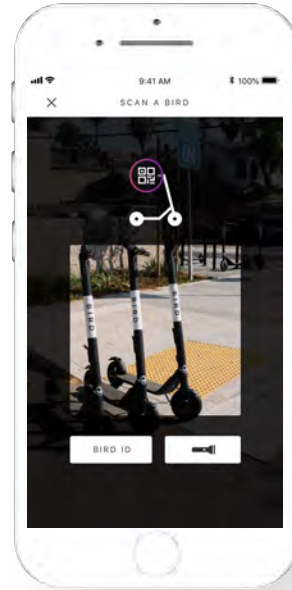
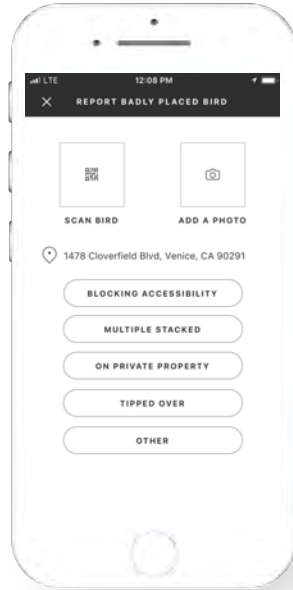
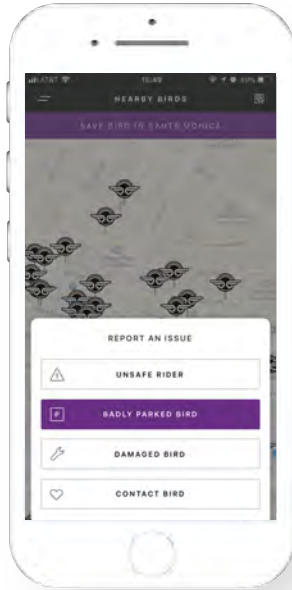
API Endpoints - vehicle status and trip data.

Aggregated and categorized complaints and reports.



Community Mode

Frictionless, intuitive feature enabling anyone to report bad parking and nest drops



Thank you





Round Robin Discussion