IncenTrip Webinar 1.19.22 for BRTB Bicycle and Pedestrian Advisory Group

Nudging Travel Behavior Changes via Incentives, Information Provision, and Gamification

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Travel Demand Management (TDM)

Gridlock October 21, 2015

What Pope Francis did for D.C. traffic

The Washington Post

"A 2 percent reduction in volume [in peak hours] generally led to a 27 percent decline in highway congestion."

8:00 AM - September 16, 2015 | 8:00 AM - September 23, 2015

Morning peak: without and with Pope
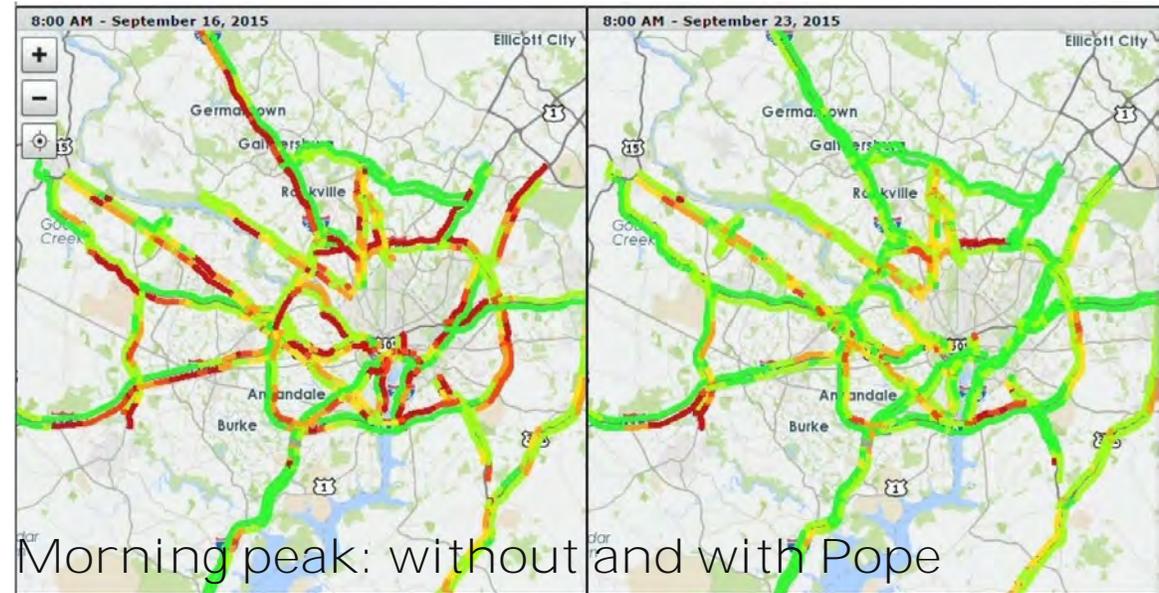
Would you change your commute for cash?

wtop

By Max Smith | @amaxsmith
January 21, 2019 5:09 am

Transportation August 18, 2018

This app wants to reward you for smart commuting choices

The Washington Post

# Reduction in Traffic Congestion due to COVID-19

Average travel speeds by month at 8:00 a.m.

Legend:
- 20 mph
- 30 mph
- 40 mph
- 50 mph
- 60 mph

2019: FEB, MAR, APR, MAY, JUN, JUL
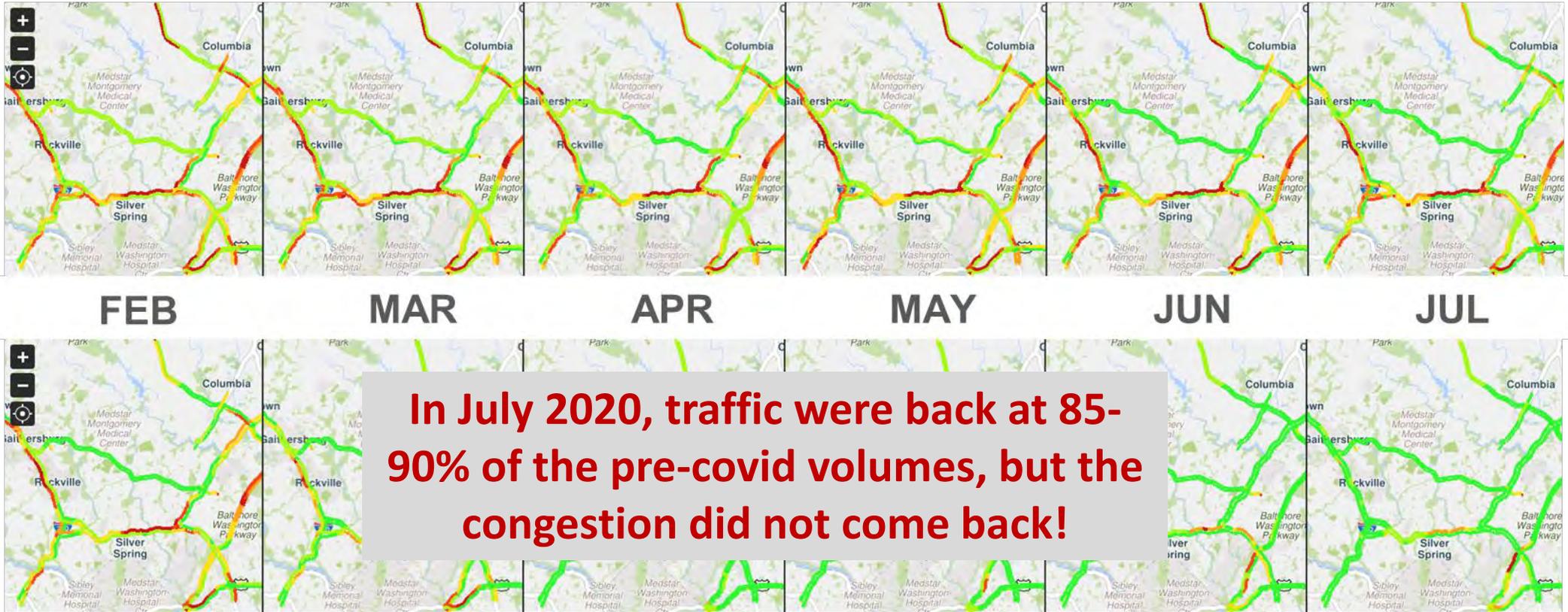
2020

In July 2020, traffic were back at 85-90% of the pre-covid volumes, but the congestion did not come back!

Timeline:
FEB 2020 — AUG 2020

03.05.20 Catastrophic Health Emergency declared

03.30.20 Stay at Home Order issued

04.15.20 Use of Face Coverings & Physical Distancing Order issued

05.15.20 Stay at Home Order replaced by Safer at Home Order

Congestion Mitigation with a Small % of Demand Reduction

Average Trip Delay (min) and % Changes
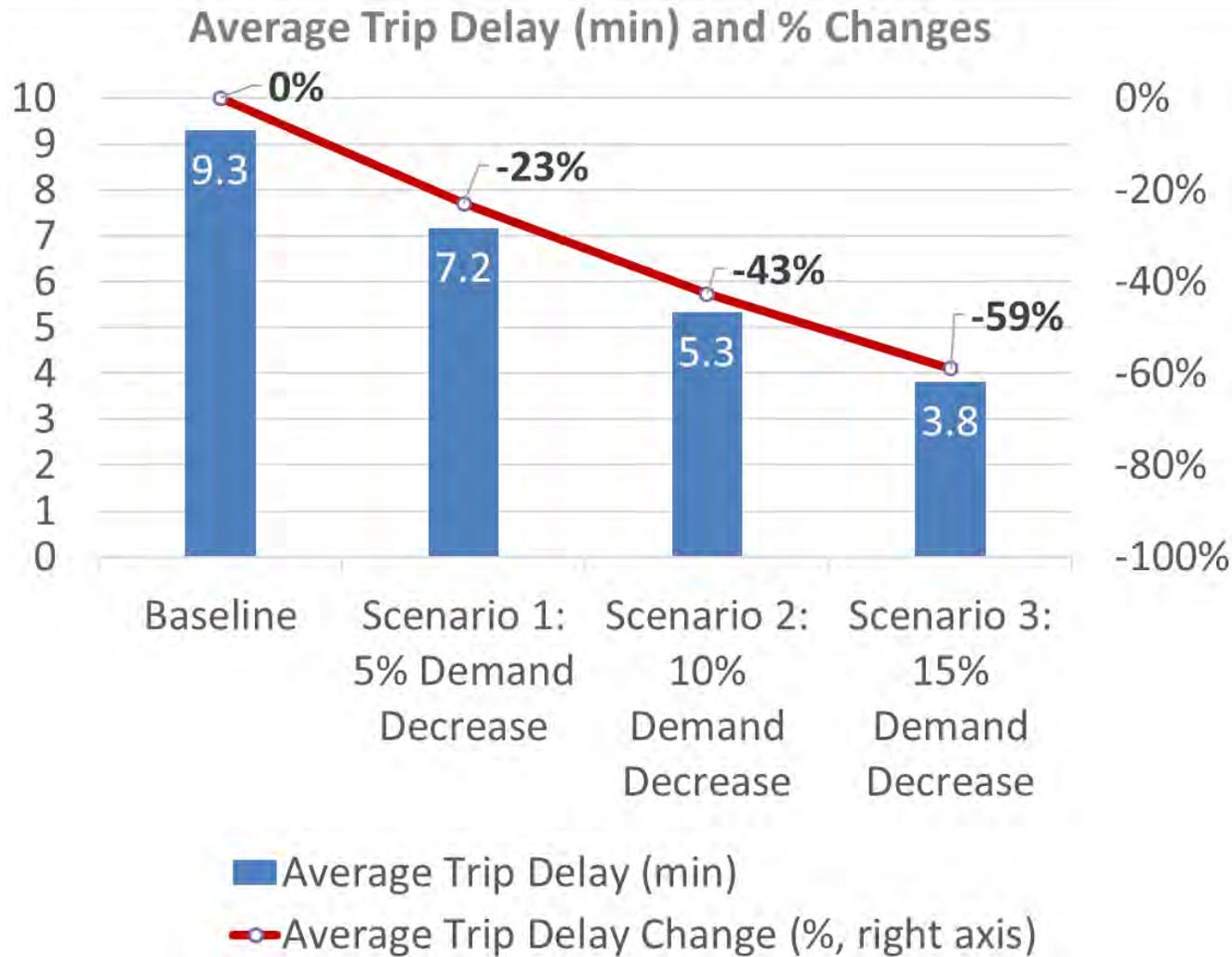
- **Just a 5% reduction in travel demand could reduce traffic congestion, as measured by trip delay, by 23%.**

- **If we could reduce travel demand by 15% in the morning peak period, the annual time savings from reduced congestion would be worth $918 million.**

Travel Demand Management (TDM)

Congestion is a highly non-linear phenomenon.

We only need to nudge a small percentage of people to change their driving routines in order to achieve a significant mitigation in traffic.

Travel Demand Management (TDM)

Higher	**NEW INFRASTRUCTURE**	Where affordable, to meet desired outcomes
	BEST USE OF EXISTING NETWORK	Through optimised levels of service on roads and public transport services
COST	**DEMAND MANAGEMENT**	Address demand through supply-side measures: active modes, public transport and school or workplace travel plans
Lower	**INTEGRATED PLANNING**	Align development with existing transport infrastructure and services, and plan for urban form which reduces travel demand

Behavior Research: How to Nudge Behavior, Effectively?

Focus Groups

- Find the most effective incentives

Surveys and Lab Experiments

- Market/technology adoption
- How do travelers make decisions
- How will they adjust decisions with personalized information, monetary & non-monetary incentives

Naturalistic Driving Tests

- Focus on driving styles

Real-World Tests

- In collaboration with partners
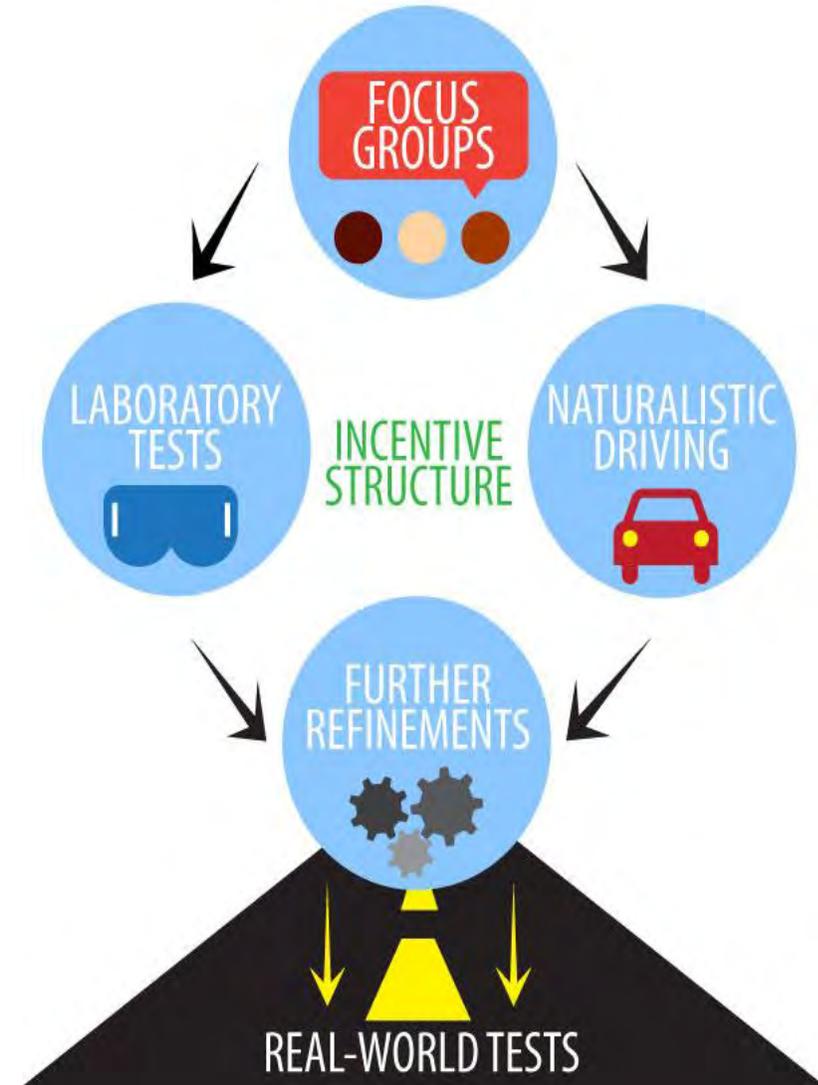
A structured incentive system is found 2~4 times more effective than plain cash (quantified via focus groups and lab experiments)

Incentive

Monetary

Non-Monetary

Gamification

Plain Cash

Information

Prosocial

Point system with levels

Personal saving

Societal gain

Social norms

Loss frame

Gain frame

Gamification

Gas & travel-related

Simplicity

Green: Preferred
Grey: Less-Preferred
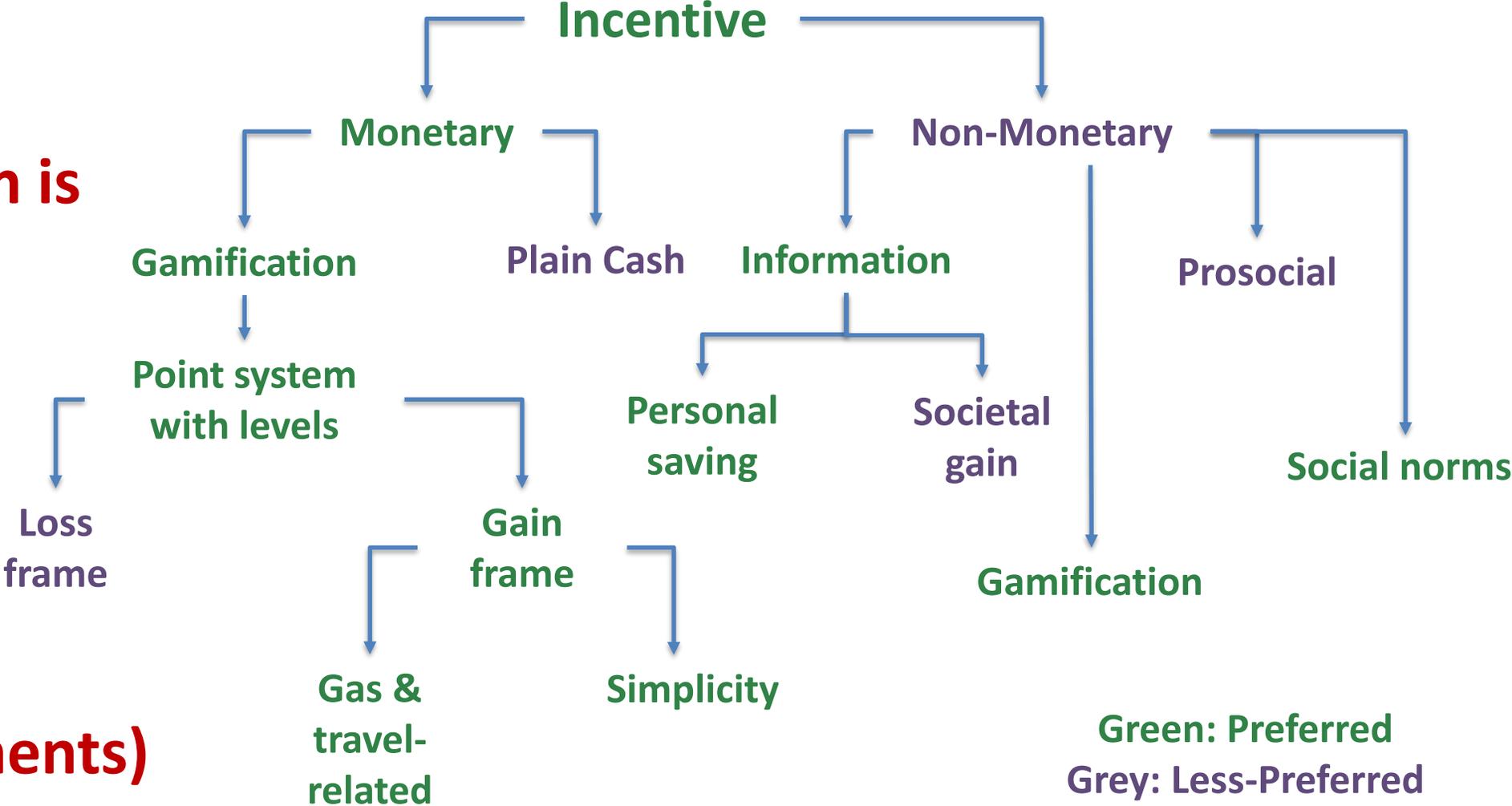
Behavior Research: How to Nudge Behavior, Effectively?

Monetary incentives are not always needed.
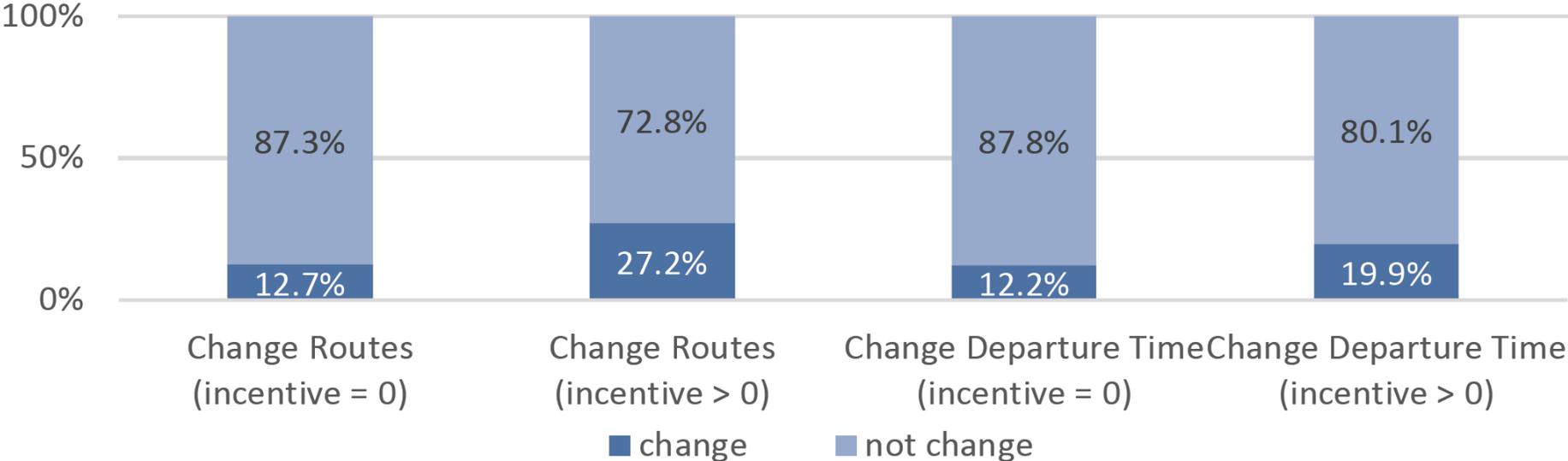
Findings from a survey with 1,250 DC-Maryland-Virginia residents:

- In some scenarios, subjects did not need incentives for making behavioral adjustments
- Travel time/costs information can play a substitution role in the incentivization process

incenTrip Vision and Goal

Emerging Technologies

Big Data

Artificial Intelligence

Internet of Things & Computing

Shared, Automated & Electrified

- **Personalized services**
- **Optimal resource allocation**
- **Sharing is the key for system benefits**

incenTrip.org

- <u>**Goal:**</u> Optimize and personalize traveler incentives to promote multimodal and shared mobility, off-peak travel, and smart routing/driving for reduced congestion, energy use and emissions **in the most cost-effective way**.

incenTrip Deployment Thus Far

incenTrip Travel Demand Management Pilot Deployment
Fall, 2021

Baltimore, MD

incenTrip Official Integration into Agency Work Program and Fiscal Budget
July 1, 2019

Washington, DC

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Dynamic Incentives For Dynamic Travelers

Personalized and Dynamic Incentives
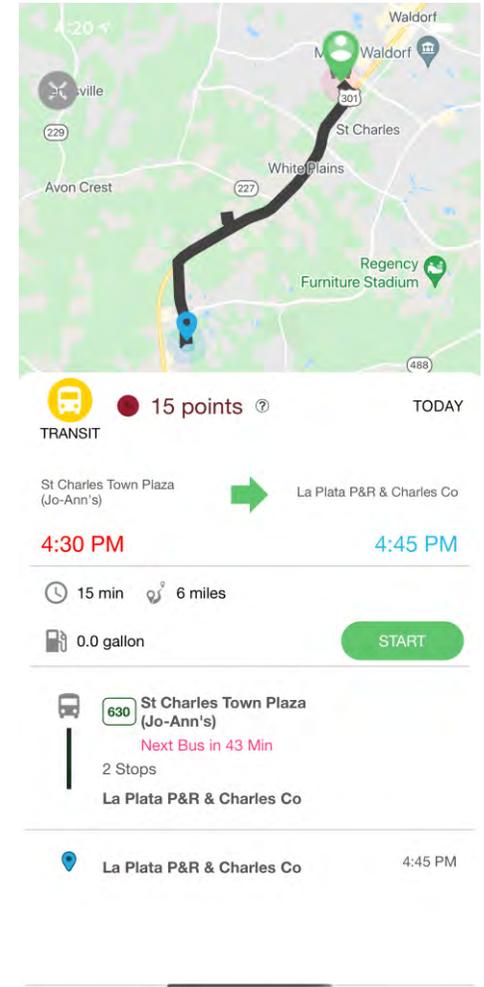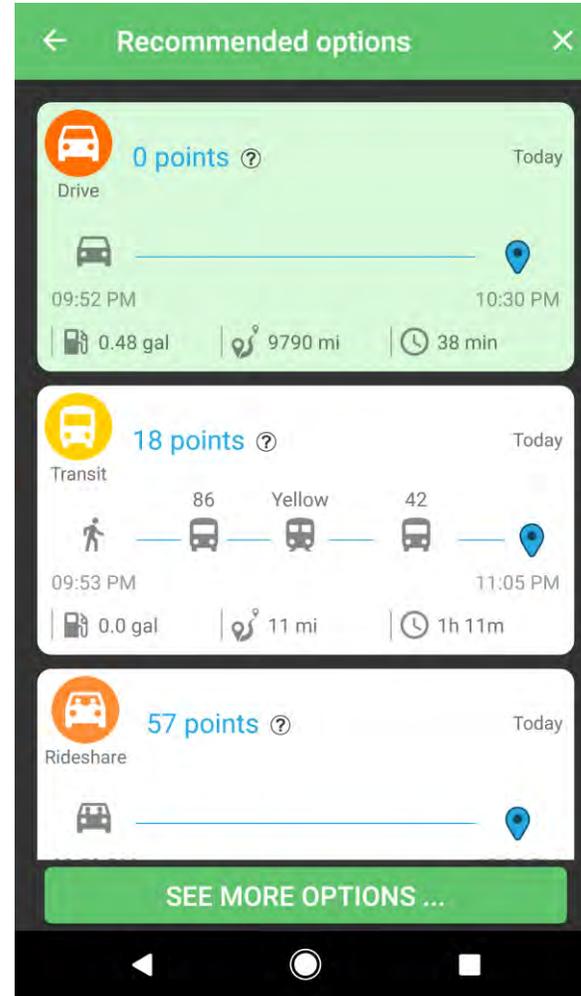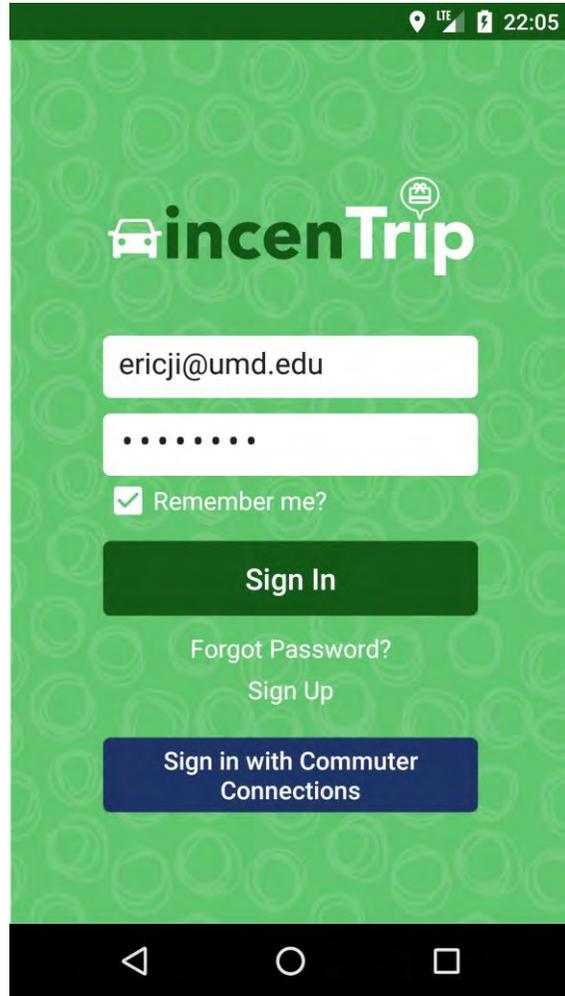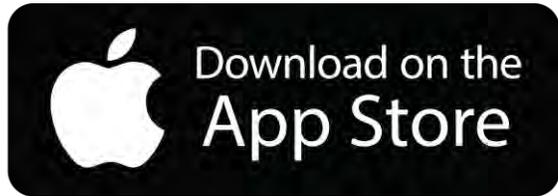
Gamification, Non-Monetary Incentives

An embedded menu allows users to add personal settings, join incentive programs, and redeem rewards.

New background trip logging function allows users to earn incentives simply by carrying their phones with them.

Challenges enable customized incentives targeting congestion relief for specific corridors, special events, accidents, holidays, and work zones.
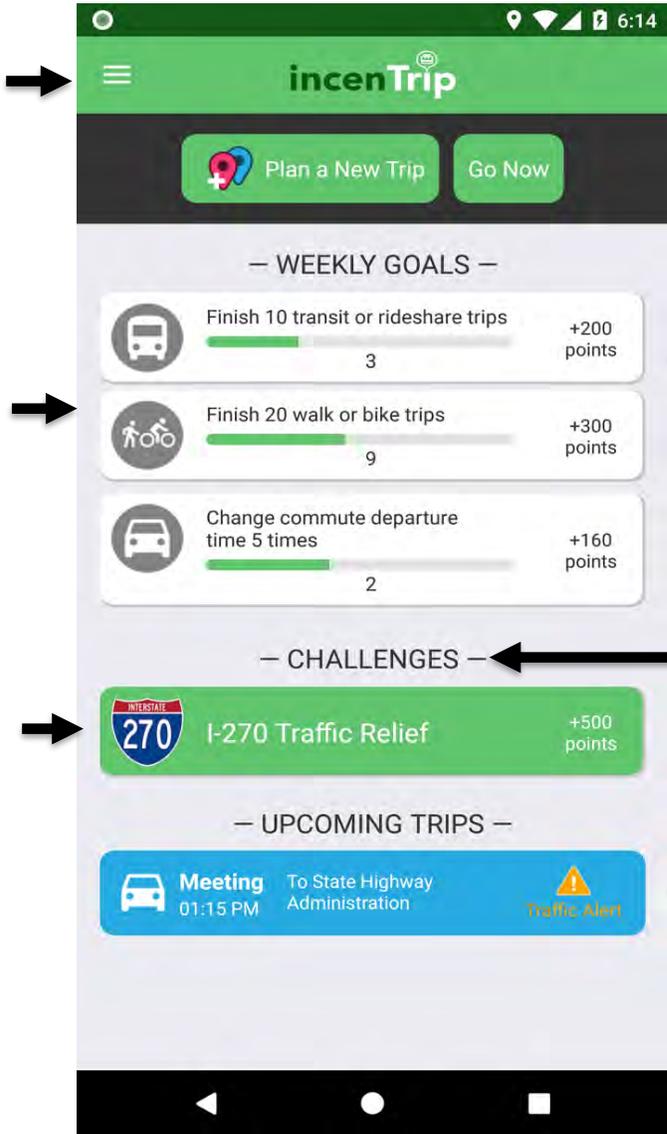
Trip planning function allows users to explore mode, departure time, and route options.

Users see trip statistics and personalized **weekly goals**.

Users/Stakeholders may suggest challenges and partners for crowd-sourced solutions.

Alerts of unusual travel conditions are sent to impacted road users before/during their trips.

Gamification, Non-Monetary Incentives

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DOE AGENCY DASHBOARD

Area [District of Columbia ▼]   Time Period [01/01/2019 ▼]   👤 Total Users: **2,126**   🚗 Total Trips: **512,175**

CONGESTION REDUCTION
Total hours of congestion reduced : **36,829**
Total cost of congestion reduced : **$570,725**

EMMISSIONS REDUCTION
Total tons of emission reduced : **14,528**
Total cost of emission reduced : **$290,808**

FUEL USAGE
Total gallons of fuel saved : **320,526**
Total cost of fuel saved : **$818,734**

TOTAL BENEFITS: **$1,780.267**

**TOTAL INCENTIVES:** **$98,652**

RETURN ON INVESTMENT: **18: 1**

Traveler Behavior Change

- Original — 44%
- Change Route — 20%
- Change Departure time — 21%
- Change to Transit and ride Share — 15%
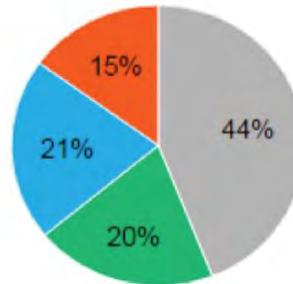
Trips taken by mode:

Transit: **2,082**
Drive: **1,584**
Ride Share: **1,076**
Multimodal: **154**
Bike/Walk: **141**

Drive
Ride Share
Transit
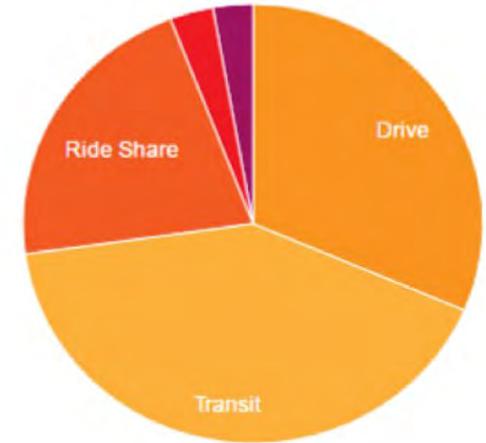
Incentive Distribution by Home Location

Incentive Distribution by Household Income

- 22% <50,000
- 23% 50,000-7...
- 37% 75,000-1...
- 18% >125,000

Incentive Distribution by Age
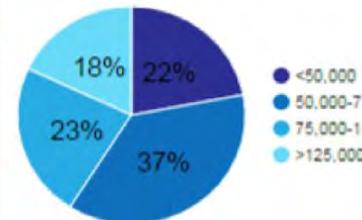
- 12% under 21
- 27% 22-29
- 30% 30-39
- 16% 40-49
- 12% 50-59
- 60 and above
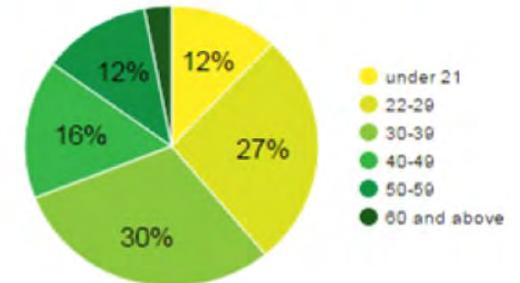
Follow these easy steps to start earning rewards!

1. Download incenTrip from Google Play or Apple App Store
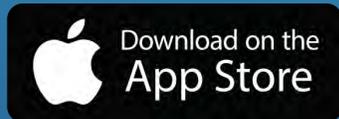
2. Create your account
3. Plan your trip
4. Take your trip- incenTrip logs your travel to calculate points
5. Collect Points and Redeem for rewards right through the app!

Learn more at mdot.Maryland.gov/incenTrip

Choices That Pay Cash!

incenTrip

CommuterChoice Maryland

MARYLAND DEPARTMENT OF TRANSPORTATION

incenTrip Progress Snapshot

➢ 476 Downloads (Apple & Google Play)
➢ 1,503 Total persons miles travelled
➢ 26% (400) of total persons miles travelled was Walking/Biking Miles Traveled
➢ Reached thousands of Marylanders with Promotions on Social Media

Inspiring and rewarding Maryland commuters. Earn Rewards.
Avoid Traffic Congestion. Save Money.
Reduce Carbon Footprint. Improve Air Quality.
Download the app today.

Inspiring and rewarding Maryland commuters for smart choices.
Download the app today.

Earn Cash Rewards!

incenTrip

Earn points by regularly or occasionally commuting with the following modes:

Walking Save $1.40 and burn 58 calories for each mile you walk.

Biking Save $1.40 and burn 31 calories for each mile you bike.

Transit Save $1.10 and reduce 411 grams of carbon emissions for each mile of transit you take.

Ridesharing/Carpooling Save around $1 and reduce 205 grams of carbon emissions for each mile you rideshare.

Multimodal Save around $1 and reduce 205 grams of carbon emissions for each multimodal mile you take.

Questions?

Please type your questions in the question window
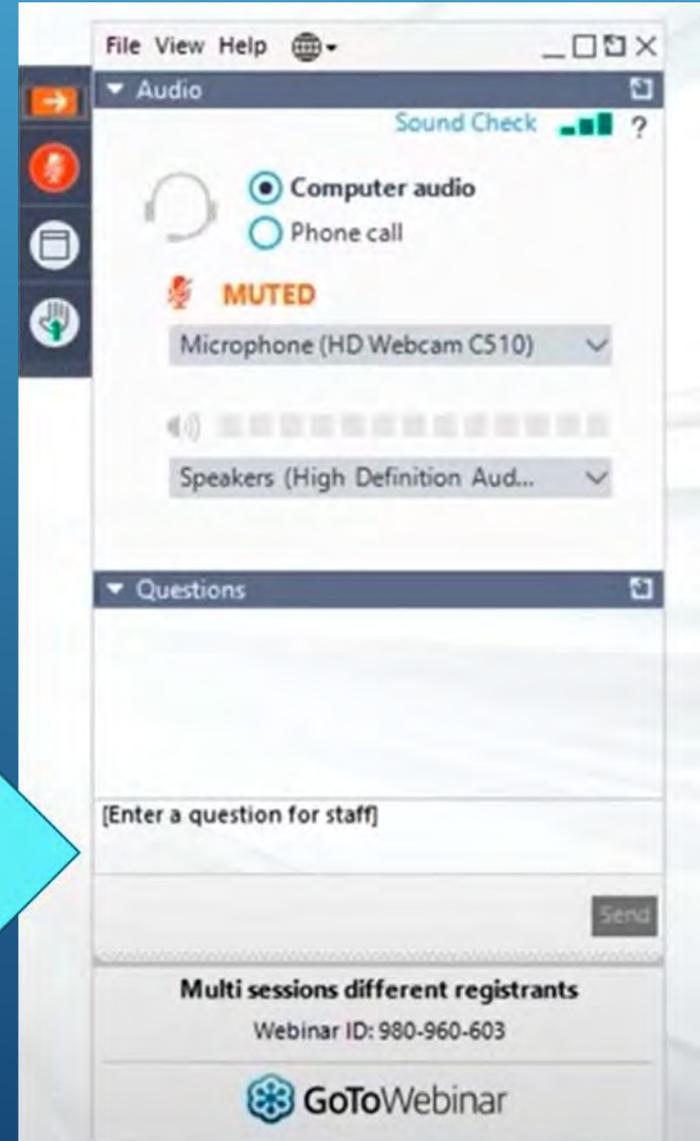
Thank You!

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