



# Transportation Demand Management:

## A Contemporary Approach

COMPASS Workshop

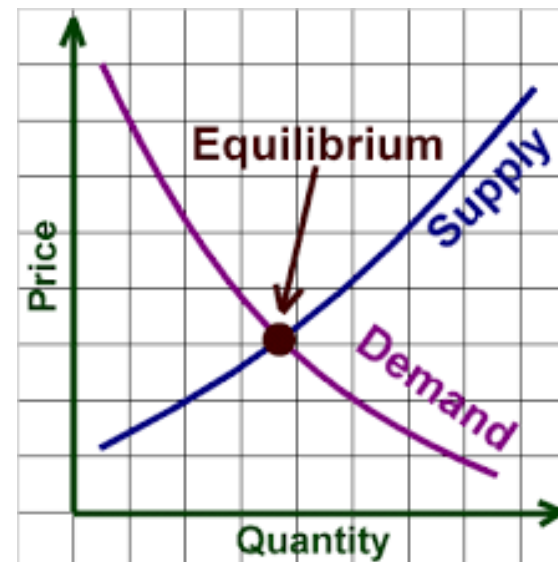
December 8, 2021

Eric Schreffler, Transportation Consultant

# Father Guido Sarducci's 5-Minute University

Final Exam:

1. Como está usted? Muy bien
2. Where is God? God is everywhere
3. Economics: Supply and Demand



V/C Ratio

# VOLUME CAPACITY

Shift from predict and provide (volume constant) to  
managing demand (capacity constant)

Poll: So, How Can We Manage Demand

**Quick Poll**



# Agenda

9:30 - 9:35 am	WELCOME
9:35 - 10:00 am	INTRODUCTION AND CONCEPTUAL FRAMEWORK
10:00 - 10:20 am	TDM AND TRAFFIC MANAGEMENT
10:20 - 10:30 am	DISCUSSION: TDM as an Operational Strategy
10:30 - 10:50 am	CASE STUDY: PORTLAND, OR - Caleb Winters, Oregon Metro
10:50 - 11:10 am	THE USE OF INFORMATION TECHNOLOGY AND INCENTIVES
11:10 - 11:20 am	DISCUSSION: Application to Treasure Valley
11:20 - 11:30 am	COMMUNICATING THE BENEFITS OF TDM

# DEFINITIONS

TRANSPORTATION DEMAND MANAGEMENT

TRAVEL DEMAND MANAGEMENT

A COMPONENT OF TRANSPORTATION SYSTEMS  
MANAGEMENT AND OPERATIONS (TSMO)

A COMPONENT OF ACTIVE (DEMAND)  
MANAGEMENT (ADM)

# FHWA DEFINITIONS

## 1993 - Travel Demand Management

TDM maximizes the people-moving capability of the transportation system by increasing the number of persons in a vehicle or by influencing the time of, or need to, travel.

*FHWA Report DOT-T-94-02*

## 2019 - Active Demand Management

1. A suite of solutions intended to **reduce** or **redistribute** travel demand to alternate modes or routes that **incentivizes** drivers by providing rewards for traveling during off-peak hours with less traffic congestion.
2. **Dynamically** manages demand, which could include redistributing travel to less congested times or routes or by influencing mode choice.

*FHWA Report FHWA-HOP-19-10*



# It all comes down to enhanced choices...

TDM is a set of strategies aimed at maximizing traveler choices



T  
c



# Beyond Commuter Ridesharing



Used for all trip types



Used before and during trips



An influencer on system reliability and performance

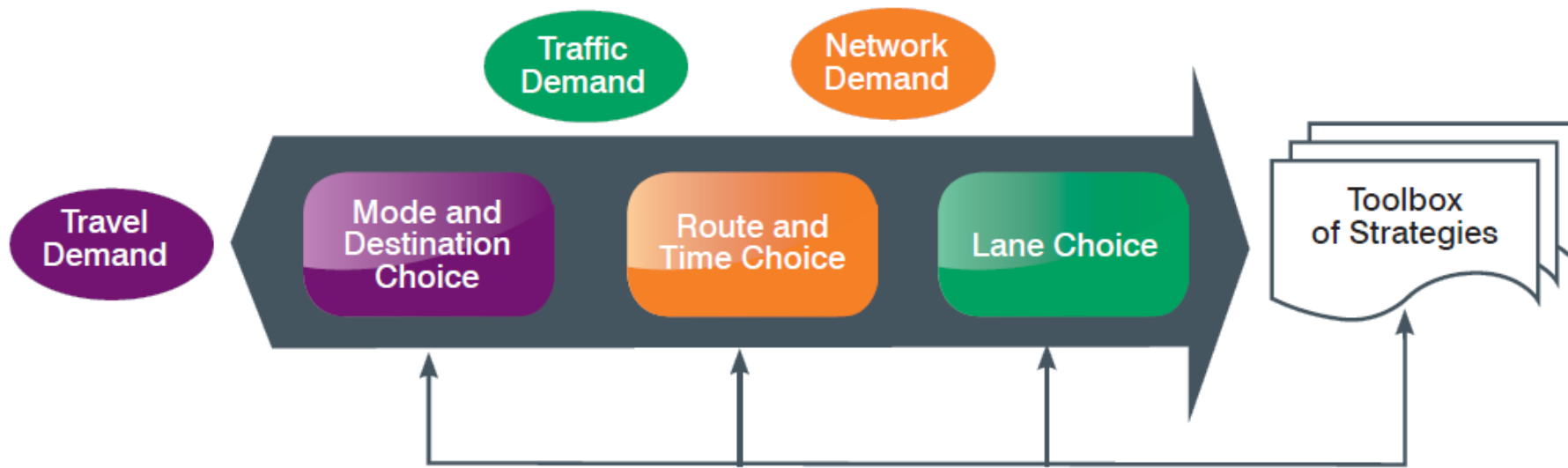


Integrated into system management and operations



Used to manage demand shifts (planned and unplanned)

# CONCEPTUAL FRAMEWORK: CHOICES



# CHOICES ARE THE KEY

- ▶ **Pre route and En-route trip choices:**
  - ▶ Mode and Destination
  - ▶ Route and Time
  - ▶ Lane
- ▶ **Choices enabled by:**
  - ▶ Information exchange
  - ▶ Operational collaboration
  - ▶ Roadside and in-vehicle technology
    - ▶ ITS, Connected Vehicles
  - ▶ Financial mechanisms
  - ▶ Smartphones
  - ▶ Shared Mobility



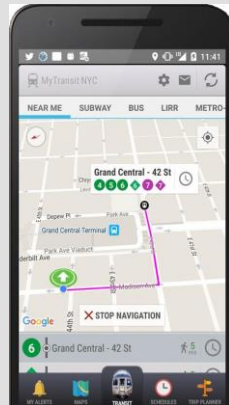
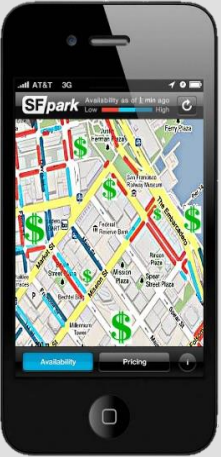
# Integrating TDM into the Transportation Planning Process

	State Level Planning	Metropolitan/ Regional Planning	Corridor Planning	Local/Municipal Planning
Regional Mobility/ Accessibility	Good	Excellent	Good	Fair
Congestion Reduction/ System Reliability	Fair	Excellent	Excellent	Good
Air Quality/ Environment *	Good	Excellent	Fair	Good
Economic Development*	Fair	Good	Fair	Good
Land Use/ Transportation	Good	Excellent	Good	Excellent
Goods Movement/ Freight	Fair	Good	Good	Good
Livability*	Fair	Good	Fair	Excellent

# ROLE OF TDM IN REGIONAL GOALS

CIM 2050 GOALS	CAN TDM ADDRESS?
ECONOMIC VITALITY	☺☺☺
SAFETY	☺
CONVENIENCE	☺☺
QUALITY OF LIFE	☺☺☺

# A Diverse Array of Strategies



# STRATEGIES TO MANAGE DEMAND



Beyond traditional  
commuter  
ridesharing



Integrating TDM  
and Traffic  
Management



Using technology  
and incentives

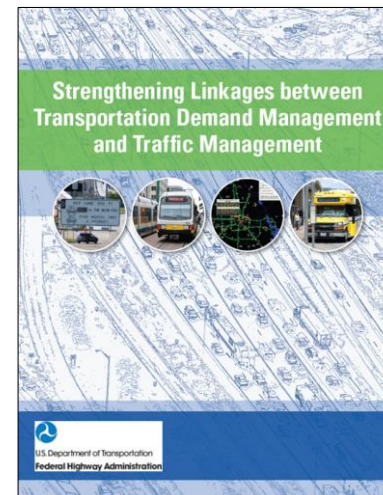
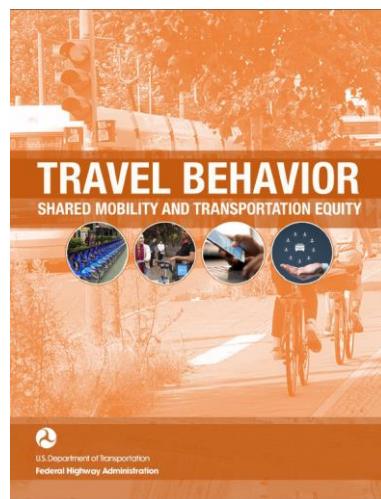
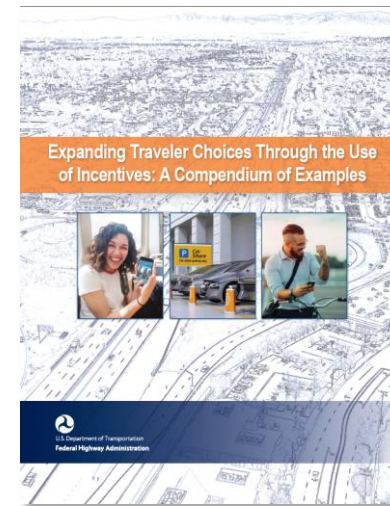
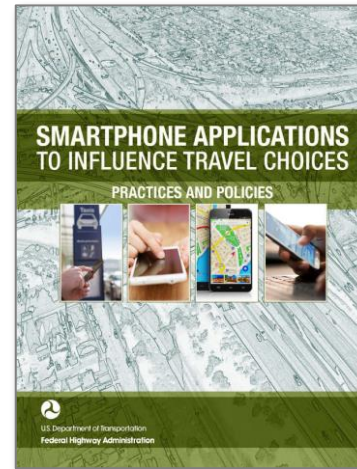
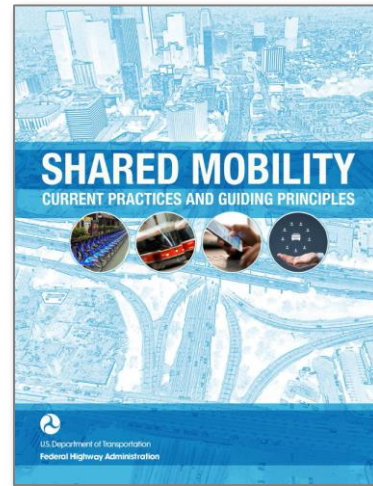
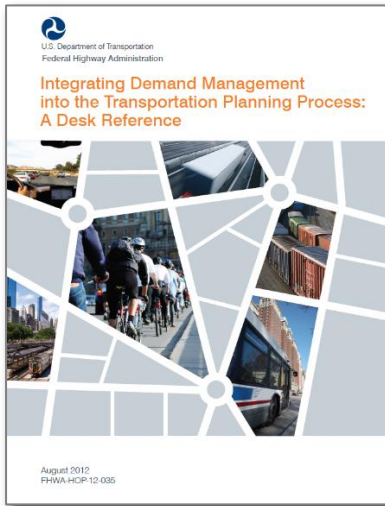


Great examples  
from Portland



Communicating  
the Benefits

# FHWA Demand Management Resources







# Transportation Demand Management: A Contemporary Approach

INTEGRATING TRAFFIC MANAGEMENT  
AND DEMAND MANAGEMENT

# Traditional TDM

Born of gas crises of 1970s

Focused on mode shift

Work with employer and commuters

Ridesharing (carpooling and vanpooling) key strategy

Aimed at reducing VMT to address air quality goals

Congestion mitigation a longer-term objective

# TDM vs. Traffic Management

Traffic Managers and TDM Professionals often speak a different language

## Traffic Management

- Engineering
- Incident Management
- Reliability
- Corridors
- Connected Vehicles



## TDM

- Planning/CMAQ
- Choices
- Sustainability
- Gamification
- Shared-Use
- Active Transportation

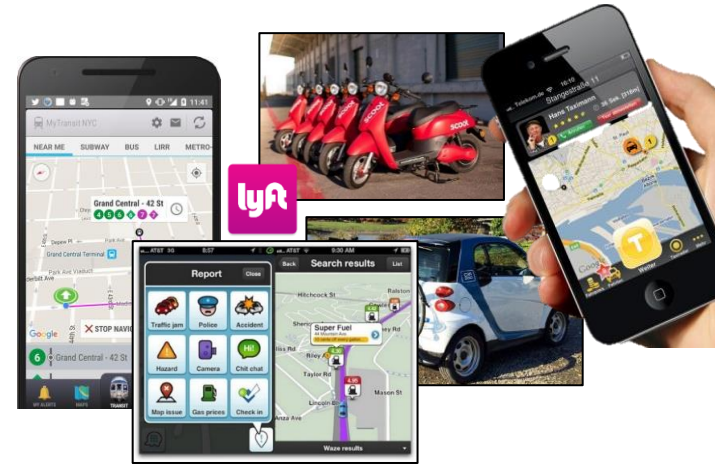


How can they better relate to each other?

# Integrating TDM and Traffic Management

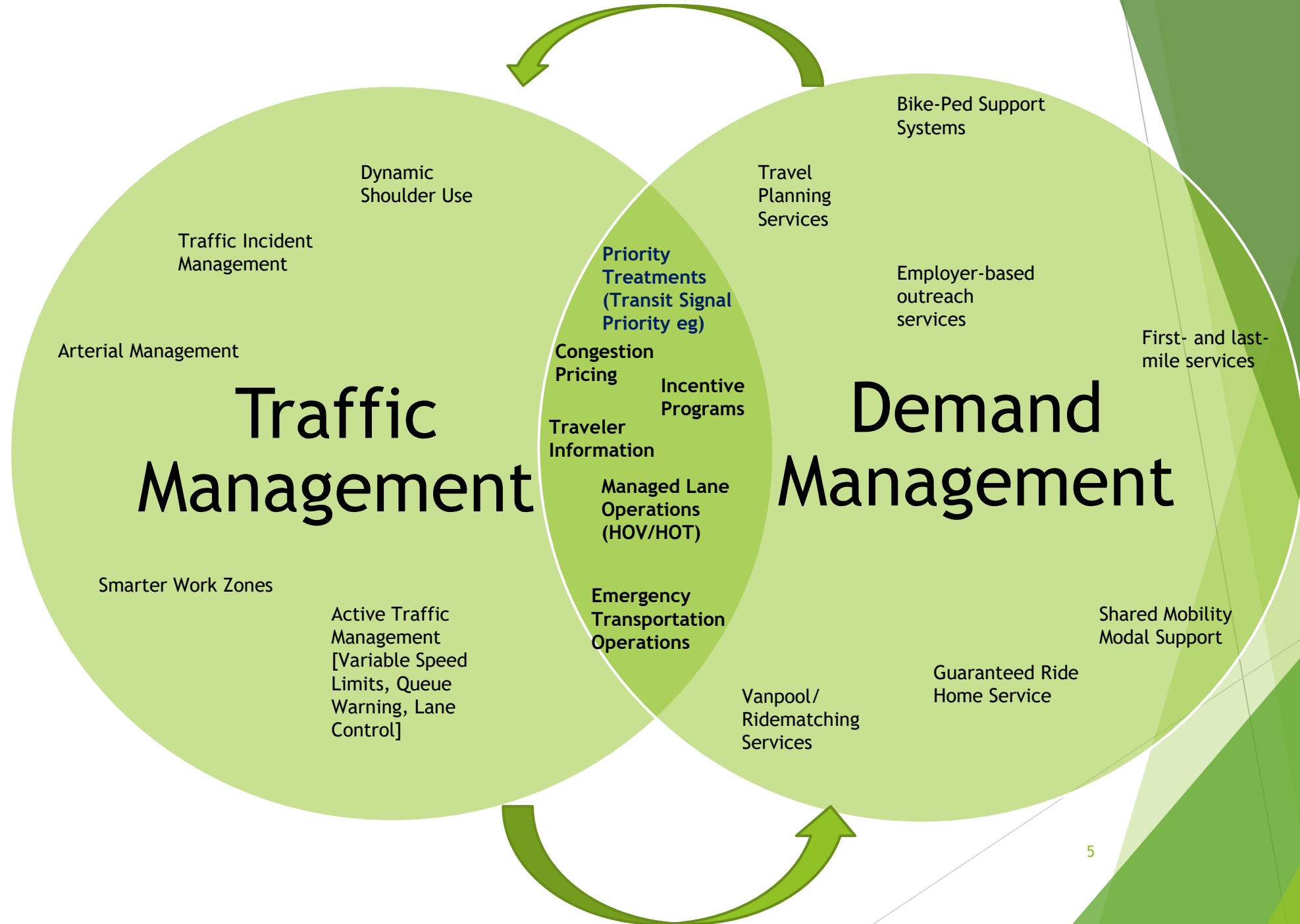
## Travel today...

- Transportation is multi-modal
- All trips are considered
- Travelers expect a seamless trip



By working together, TDM professionals and traffic managers...

- ▶ Create more traveler choices
- ▶ More effectively manage travel



# Leveraging Each Other's Capabilities

## Traffic Management

- Real-time conditions
  - ▶ Data
  - ▶ Cameras
- ▶ Traffic Control and Restrictions
- ▶ Traveler Information



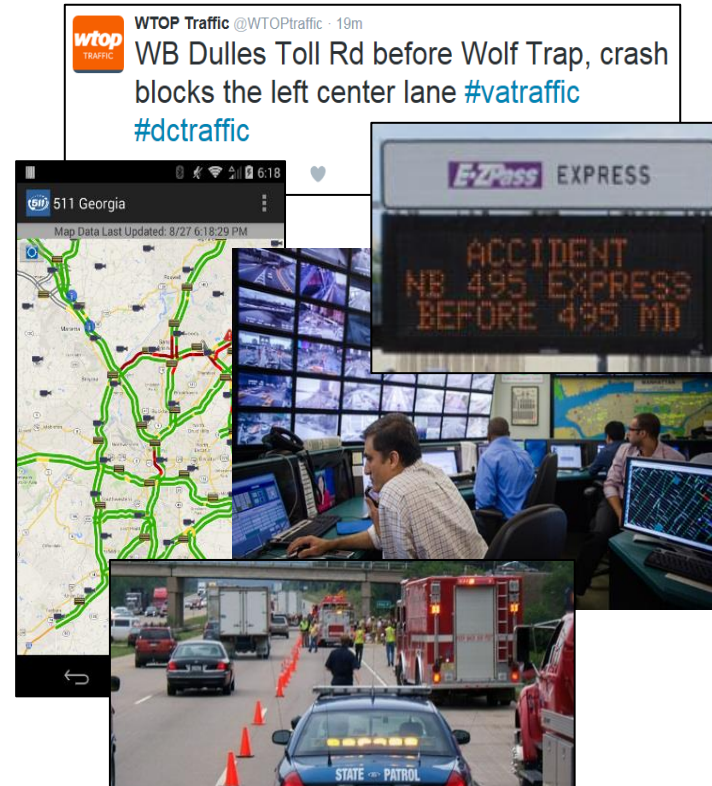
## TDM

- Direct connections to travelers
- Marketing and awareness
- Innovations in understanding travel behavior
- New models of partnership

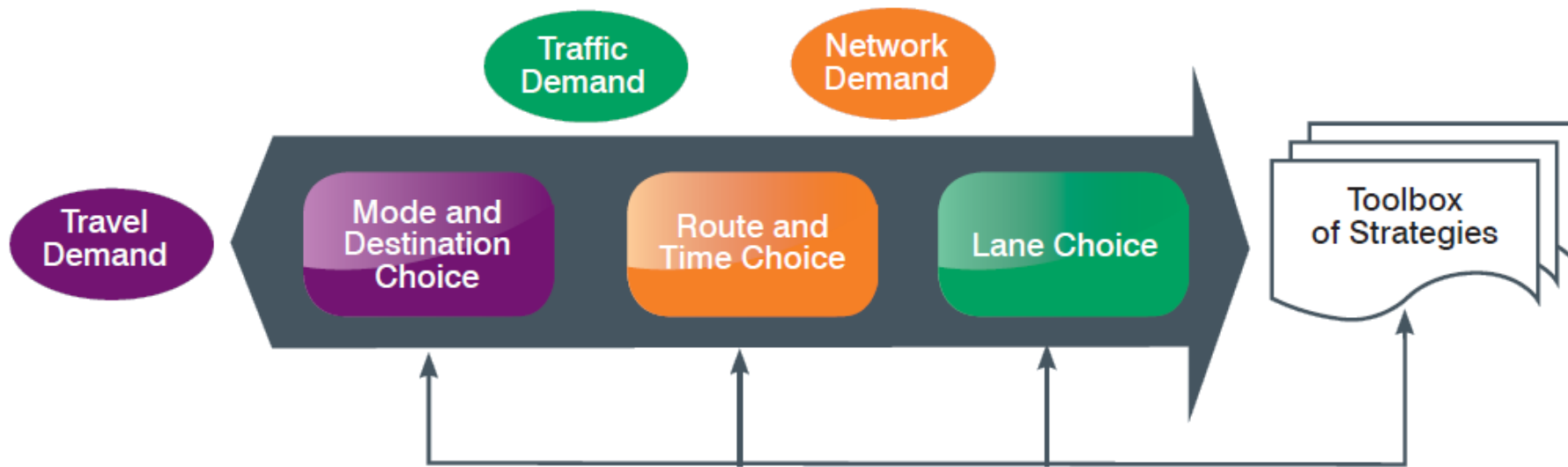


# Collaboration Opportunities

- ▶ **Day to Day Operations**
  - ▶ Better incident management
  - ▶ Customized traveler information
  - ▶ Integrated corridor management
- ▶ **Emergency Management**
  - ▶ Evacuation/Emergencies
  - ▶ Continuity of Service
- ▶ **Active Demand Management**



# Trip Chain Model





# Mode and Destination Choice

## MODE CHOICE

- ▶ In-route mode shift
- ▶ New forms of transit (BRT)
- ▶ Use of ridehailing services
- ▶ Bike/scooter/walking

## DESTINATION CHOICE

- ▶ Pandemic has shown bright light on work/commute habits
- ▶ 20-25% of workforce could do remote work
- ▶ Virtual meeting are “normal”

# In-route mode shift

- ▶ Real time message signs to divert car users onto transit (US101)



# Route and Time Choice

## Route Choice

- ▶ Real-time, comparative travel times
- ▶ Proactive traffic alerts


## Time Choice

- ▶ Staggered/Flex hours
- ▶ Rush hour avoidance
- ▶ Parking pricing

# Incident Management

**511NY Rideshare**  
Published by Suzanne Worzella [?] · 3 hrs ·

NEWS: Hoboken / NJ Transit crash - if your commute or trip has been impacted by the incident, visit our page for alternate travel information: <https://511nyrideshare.org/.../511ny-r.../nj-transit-train-crash> photo via The New York Times



**NJ Transit Train Crash - 511ny.org**  
Rail service is suspended in and out of Hoboken due to a train accident at Hoboken station.  
511NYRIDESHARE.ORG

573 people reached Boost Post

Like Comment Share

Andrea Vera

4 shares

## ALTERNATE COMMUTE INFORMATION

Hoboken / NJ Transit Train Crash

Rail service is suspended in and out of Hoboken due to a train accident at Hoboken station. Travel information will be updated throughout the day, with the most recent information bolded in red.

Updated at 4:05pm

**Rail**

- PATH service TO Hoboken has been restored. Service FROM Hoboken remains suspended until further notice.
- Beginning at approximately 4 p.m. the following service will be in effect:
  - Main, Bergen, Pascoack Valley and Port Jervis lines will operate on a modified weekend schedule originating/terminating in Secaucus. Buses will shuttle customers from Hoboken to Secaucus Junction on a load and go basis. Customers will be directed to this service by ambassadors wearing safety vests.
  - Customers who need to access Secaucus are urged to take trains from New York Penn Station.
  - Morris & Essex Line, Gladstone Branch and Montclair-Boonton Line will be limited service for points west of Montclair State University and west of Dover.
  - Northeast Corridor/North Jersey Coast Line (New York service only), Raritan Valley, MidTOWN DIRECT and Atlantic City rail lines will all operate on normal weekday schedules. Please note: MidTOWN DIRECT service will make additional stops east of Summit.

Metro-North will provide alternate bus service during the evening commute for Pascoack Valley Line and Suffern, Slootberg, Tuxedo & Harriman as follows:

- Take Hudson Line Train Service to Tarrytown Station for connecting bus service to all PVL stations and Suffern, Slootberg, Tuxedo & Harriman stations. Buses will meet trains departing Grand Central Terminal between 3:43 PM and 8:33 PM.

Metro-North will provide alternate bus service during the evening commute for Port Jervis Line (P.J.L) between Harriman and Port Jervis Stations as follows:

- Take Hudson Line Train Service to Beacon Station for connecting bus service to all stations between Harriman and Port Jervis stations. Buses will meet trains departing Grand Central Terminal between 3:48 PM and 8:29 PM.
- Metro-North is honoring all PVL and P.J.L rail tickets until further notice.

**Bus**

- Extra service on NJ TRANSIT Bus Route No. 126 between Hoboken and Port Authority Bus Terminal in New York. All No. 126 service will be departing from regular gates 204/205 from 3 PM to 10 PM.
- Customers may need to use a temporary bus terminal in Hoboken pending the availability of the bus plaza. Customers will be notified where to get the service.
- Coach USA-Shortline has buses that run between Port Jervis and Spring Valley to NYC Port Authority Bus Station.
- Extra TAPPAN ZExpress buses from White Plains and Tarrytown will drop passengers off in Suffern, Spring Valley, Palisade Center, Nyack and the Exit 14 Park and Ride.
- TAPPAN ZExpress buses are cross honoring NJ Transit tickets.
- NJ Transit Bus and private carriers are cross honoring rail tickets and passes

**Light Rail**

- All Hudson Bergen Light Rail service remains suspended into and out of Hoboken.
- 8th Street to Hoboken trains will terminate at Newport Station.
- Tonnelle Avenue to Hoboken trains will terminate at 2nd Street Station.
- Westside Avenue to Tonnelle Avenue trains are not impacted.

**Ferry - NY Waterway**

- NY Waterway is SUSPENDED into/out of Hoboken.
- Ferry is not stopping at Hoboken Terminal but it is making stops at the 14th Street terminal in Hoboken.
- Ferry travels between Hoboken at 14th Street, NJ and West 39th Street in Midtown Manhattan and WTC Area.
- Ticket/pass cross honoring is in effect until 8PM this evening, and between 6AM and 8PM Friday, September 30.



**Transit Resources**

**Match Me in Emergencies**

We understand that sometimes you only need to carpool when your normal commute is disrupted due to an emergency. We make that possible with our "Match Me in Emergencies" option. When you register, simply check the box labeled "I am interested in ridesharing during an emergency event only" and you will ONLY be matched to other users during an emergency event. You will NOT be matched to other users when the emergency event designation has been lifted.

Register Here. It's Free!  
Already Registered? Log in here.

**Tweets by @511NY\_Rideshare**

511NY Rideshare Retweeted  
PATH Train @PATHTrain  
PATH service TO Hoboken Station (33-Hob and WTC-Hob) is restored. Service FROM Hoboken remains suspended until further notice.

511NY Rideshare Retweeted  
Uber New Jersey @Uber\_NJ  
All rides taken from the #Hoboken train station since the accident will also be refunded. [twitter.com/Uber\\_NJ/status...](https://twitter.com/Uber_NJ/status...)

511NY Rideshare Retweeted  
Uber New Jersey @Uber\_NJ  
Tonight from 4-8PM we're offering free uberPOOL rides between Secaucus Jct & the shaded area below in response to the #Hoboken #traincrash

From: 511NY Rideshare ([mailto:511NY\\_Rideshare@mail.vresp.com](mailto:511NY_Rideshare@mail.vresp.com))  
Sent: Thursday, September 29, 2016 2:52 PM  
To: Mongioi, Frank <[Frank.Mongioi@kf.com](mailto:Frank.Mongioi@kf.com)>  
Subject: Hoboken Train Crash

**ALTERNATE COMMUTE INFORMATION**

Due to the recent NJ Transit train crash at the Hoboken station, **rail service is suspended in and out of Hoboken Station**. We have compiled the most up-to-date travel information to help you get to and from work this evening and tomorrow while the suspension is in place.

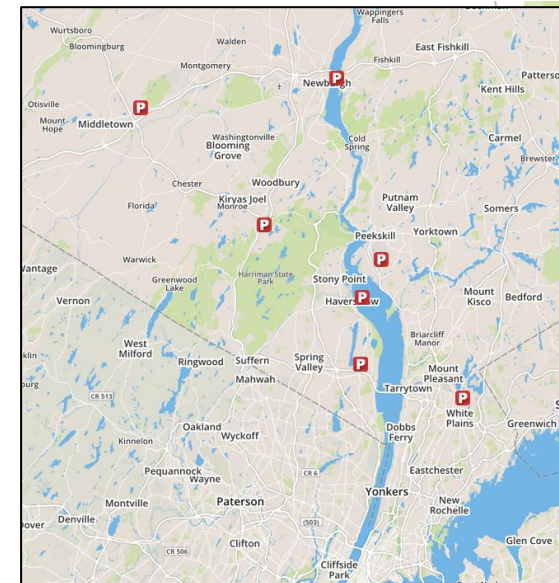
[Alternate Commute Information for Hoboken / NJ Transit Train Crash](#)

Follow us on [Twitter](#) and [Facebook](#) for real-time travel information.

[Click to view this email in a browser](#)

If you no longer wish to receive these emails, please reply to this message with "Unsubscribe" in the subject line or simply click on the following link: [Unsubscribe](#)

## Event-specific P&R lot Map



# PARKING MANAGEMENT

## SFPARK: Managing Parking Demand via Pricing (San Francisco, CA)

- Pilot program as part of a USDOT UPA to “achieve a minimum level of availability so that it was easy to find a parking space most of the time on every block and that garages always have some open spaces available.”
- Demand responsive pricing, not fully dynamic in real-time

### Project Evaluation Findings

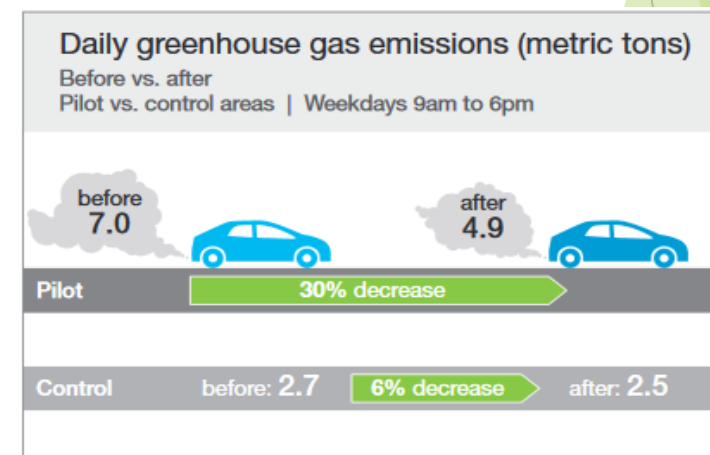
Parking availability improved - target parking occupancy (60-80%) was achieved 30% more often.  
Parking was easier to find - parking search time decreased by 43%.

Double parking reduced by 22%.

Drivers generated 30% less GHG emissions.

As a result of reduced parking search activity, VMT reduced by 30%.

Bus speeds improved by 2.3% in areas that reduced double parking.



# Lane Choice

- ▶ HOV/HOT lanes
- ▶ Bus signal priority
- ▶ Bus only lanes
- ▶ Use of hard shoulder
- ▶ Bus on shoulder



# Day-to-Day Operations

## Bus on Shoulder Example - I-55 in Chicago, IL

### Bus on Shoulder - I-55

- ▶ Expressway travel times were highly unreliable due to recurring congestion
  - ▶ Commuter Bus travel times varied by over 15 minutes in instances
- ▶ Partnership between Pace (public transit and vanpool provider) and Illinois DOT and planned by the Regional Transportation Authority
- ▶ Buses can travel on inside shoulder when travel speeds in main lanes dropped below 35 mph
- ▶ Cost < \$1M
  - ▶ Cheaper and more cost effective to constructing a new bus-only lane or rail line



# What is needed to realize integration?



Trustworthy travel information



New partnerships



Planning for Operations (TSMO)



Better communication



# Can TDM help manage traffic in the Treasure Valley?

**Quick Poll**



# Transportation Demand Management: A Contemporary Approach

USING INFORMATION TECHNOLOGY FOR INCENTIVES

# Behavioral Economics

- ▶ Blending insights from psychology and economics to reveal how hidden forces shape decision making
- ▶ Incentivizing travelers to overcome perceived barriers
- ▶ Incentives have been shown to be very cost effective
- ▶ Technology is enabling the wider use of incentives

What are different strategies to promote travel choices?

- Tailored Messaging
- The Right Incentives
- Specific Information

# What are the messaging strategies?

## Try it again

- Nudge people at opportune moments
- Reframe and promote the opportunity
- Re-frame “try before you buy” incentive messaging
- Target messaging at the negative perceptions of public transportation
- Simplify the payment process instructions

## Make it a Habit

- Leverage default choices
- Evoke personal values and identity in messaging
- Increase salience of messaging
- Help people commit to a plan

## Use it Well (& Often)

- Make the ride social
- Encourage user to rethink and own the commute

# What are the incentives strategies?



Source: <https://healthprize.com/platform/how-behavioral-economics-can-improve-patient-adherence/>

## Gamification

- Leaderboards
- Points & Prizes

Raffle opportunities

“Try before you buy”

“Use it or lose it”

Rewards

Subsidies

# Incentives

- ▶ Financial incentive for each non-SOV trip (often gift card)
- ▶ Mode shift incentives (e.g., 90-day trial)
- ▶ Financial incentive for time and destination choices
- ▶ Gamification (e.g., F5T4)
- ▶ Toll incentives (e.g., LA Metro)



# What are the information strategies?

- ▶ Cover all modes
- ▶ Highlight non-motorized and electric options
- ▶ Real-time information
- ▶ Multi-modal comparison information
- ▶ Payment instructions
- ▶ Commuteride, CityGo and BSU all have info on choices



# Enabling Technology

Cell phone (GPS enabled)

Cell phone

Cell phone

Apps are coming from entrepreneurs

Waze, Uber, Lyft have carpool programs

Proximity tracking; mode determination by speed

# Incentives

## Rush Hour Avoidance - The Hague

- ▶ \$4 per day to not travel on freeway from 7:30-9:30 am
- ▶ Over half avoided this period
- ▶ Dutch have expanded to many facilities

Source: FHWA-PL-11-011

## Atlanta CAC Cash for Commuters

- ▶ \$3 per day up to 90 days
- ▶ 1,800 commuters
- ▶ 1,300 fewer car trips
- ▶ 30,000 fewer car miles
- ▶ 70% continued after 90 days
- ▶ 50% continued after a year

Source: FHWA-HOP-12-035

# Example program

- ▶ Access Program for MIT in Cambridge, MA
  - ▶ 5-pronged approach to reduce parking demand on campus

- ▶ **Preliminary findings:**  
Parking demand reduced by 15%



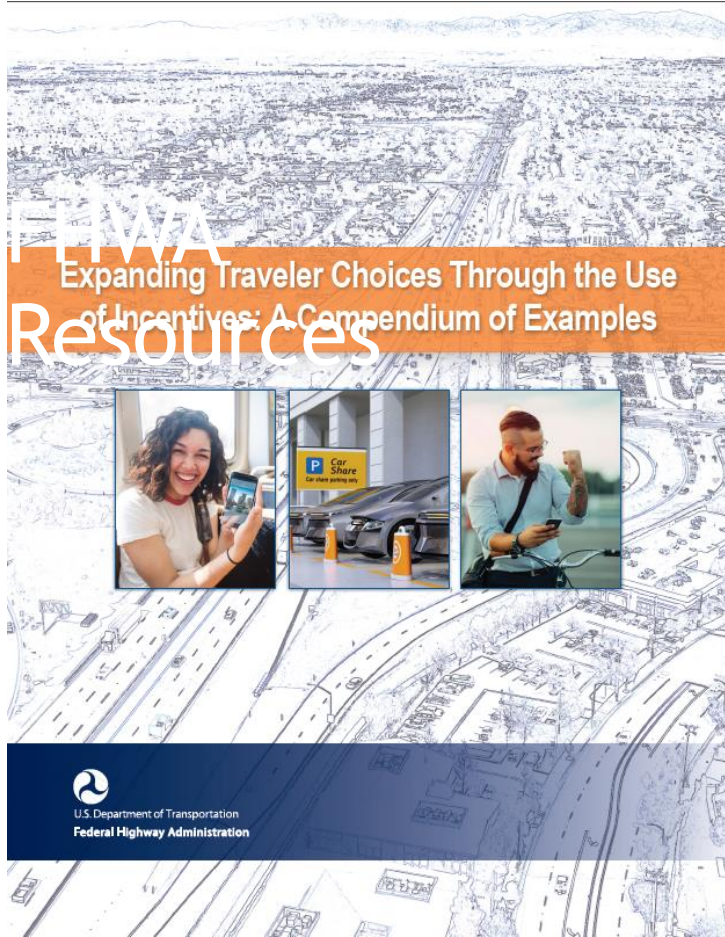
# Parking Incentives

CAPRI (Congestion and Parking Relief Incentive) at Stanford University (April 2012 - September 2014)

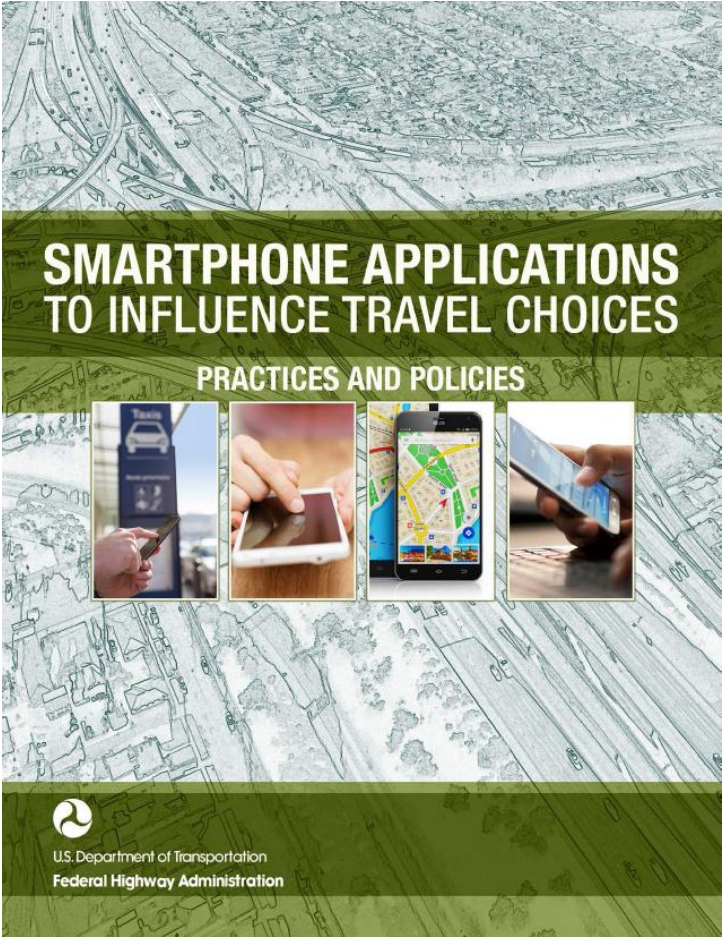
- ▶ Commuter behavior monitored using RFID sensors for automobiles and a smartphone app for walkers and bikers
- ▶ Earn points for “good trips” (off-peak) & redeem points for monetary and in-kind rewards - used gamification
- ▶ Nudged commuters through personalized offers, social influence, and status
- ▶ Study found some users shifted from driving to walking or biking

# Portland Transportation Wallet

<b>2021 TRANSPORTATION WALLET</b> Adult & Honored Citizen transit fare Pay only \$99 and get:	<b>GOLDEN TRANSPORTATION WALLET</b> Low Income transit fare <b>FREE</b>
<ul style="list-style-type: none"><li> <b>TriMet Hop Card</b>  \$200 Central Eastside -or- \$100 Northwest</li><li> <b>Annual Portland Streetcar Pass</b> </li><li> <b>\$99 BIKETOWN credit</b> </li><li> <b>\$30 scooter credit</b> </li><li> <b>\$30 Free2Move car-share credit</b> </li></ul>	<p>The Golden Transportation Wallet comes with this package.</p> <p>← Includes additional discounts with these companies!</p> <ul style="list-style-type: none"><li></li><li></li><li></li><li></li><li></li></ul> <p>Eligibility based on TriMet's Fare Assistance Program (less than double the federal poverty level)</p>
<p><i>for people in the Northwest &amp; Central Eastside Parking Districts</i></p>	



FHWA Report FHWA-HOP-18-071



FHWA Report FHWA-HOP-16-023



What Information and Incentives might work here?

# Transportation Demand Management:

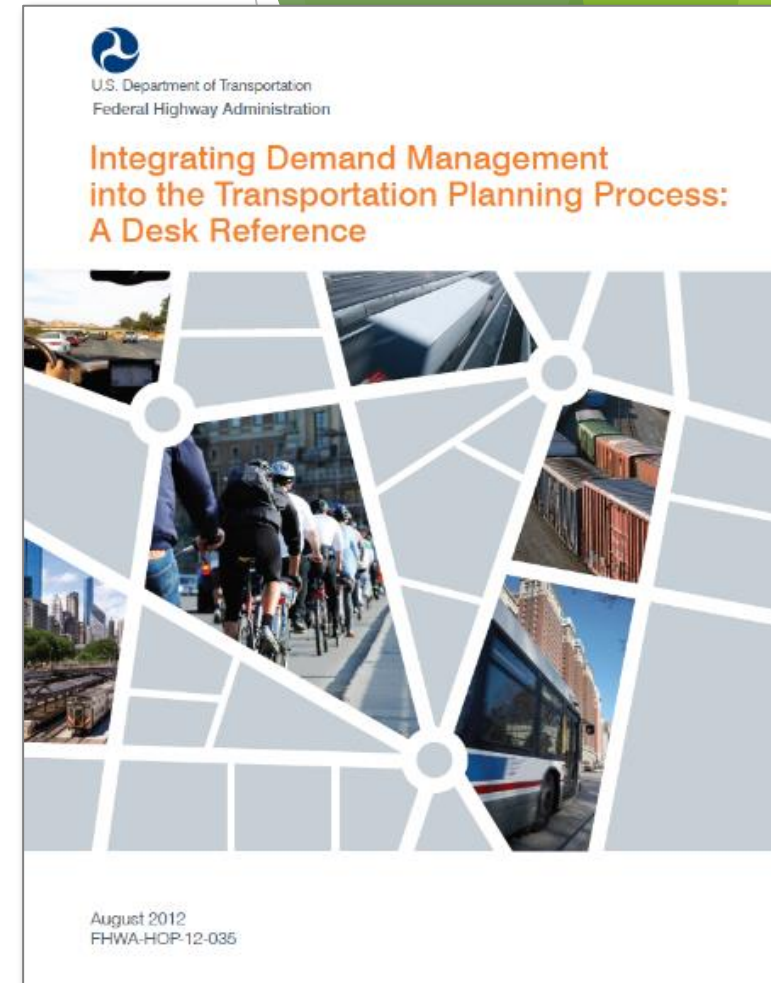
## A Contemporary Approach

COMMUNICATING THE BENEFITS



# First a word about planning

- ▶ Regional transportation plans include sustainability and TDM in goals
- ▶ “Stove-piping” limits integration into operations
- ▶ TDM is about thinking about travel and choices: people not cars
- ▶ TSMO, CMP and RTP all need to sync



FHWA Report FHWA HOP-12-035

# Communicating the Benefits

TDM “checks” a lot of boxes

TDM is low cost as compared to supply solutions

TDM is cost effective

People want choices

Shared economy is widely accepted

Private sector is involved

Benefit-Cost Ratios can be calculated (TRIMMS)

# TDM Effectiveness

- ▶ Worksites offering financial incentives realized a Vehicle Trip Reduction of 2-12% percentage points higher than without (overall 21% VTR vs. 15%) (source: TCRP 2010)
- ▶ TDM is cost effective: study of emission reduction programs showed ridesharing, vanpool, TDM and employer programs be among lowest cost per pound emissions reduced (source: FHWA-HOP-12-035)
- ▶ TDM can help with travel flow: increasing Person Throughput, reducing VMT, reducing delay; smoothing peak shoulders

## **Benefits of TDM**

### **Transportation System Benefits**

- Reduced congestion and resulting time savings
- Multiple options for getting around

### **Social Benefits**

- Reduced dependence on fossil fuels
- Enhanced quality of life in walkable, bikeable communities with many transportation options
- Reduced community fragmentation caused by wide, high-speed roads

### **Environmental Benefits**

- Improved air quality
- Reduced greenhouse gas emissions
- Improved water quality
  - reduced polluting emissions and fluid leaks
  - reduced need for paved surfaces

### **Health and Safety Benefits**

- Fitness benefits of active transportation (biking and walking)
- Health benefits of improved air quality
- Stress reduction

### **Financial Benefits**

- Reduced costs of car ownership and maintenance
- Reduced cost of parking

Source: [commuterpage.com](http://commuterpage.com)

# Benefits to Business



Enhance worker home life (via choices)



Enhanced recruitment and retention



Reduced employee stress



Reduced parking demand and costs



Schedule reliability



Serve environmental and sustainability goals (e.g., LEED)

# CONTACT INFO

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FHWA Resources  
[www.ops.fhwa.dot.gov/publications/publications.htm](http://www.ops.fhwa.dot.gov/publications/publications.htm)



# Transportation System and Demand Management Integration

COMPASS  
December 8, 2021

Caleb Winter  
Senior Transportation Planner



Why and how do we choose TDM?

## **Why?**

- **Land use and transportation**
- **Air quality**
- **Congestion, quality of life, multimodal investments**

## **How?**

- **Implement regional policy adopted in the Regional Transportation Plan (RTP)**
- **Involve stakeholders in strategy**
- **Fund program pieces**
- **Evaluation**





## 2018 RTP Community Policies

- Vibrant Communities
- Shared Prosperity
- Transportation Choices
- Reliability and Efficiency
- Safety and Security
- Healthy Environment
- Healthy People
- Climate Protection
- Equitable Transportation
- Fiscal Stewardship
- Transparency and Accountability

## The strategy planning process



## Stakeholders

### **Regional**

**State DOT, DEQ, MPO, transit**

### **Local**

**cities, counties, community based organizations, transportation management associations, parks & recreation, chambers of commerce, K-12 schools, higher ed schools**

### **Global**

**Academic researchers and consultants**

TDM strategy implementation

## Program funding

### Grant Making

- Inspiring applicants
- Developing criteria
- Scoring
- Negotiation

### Grant Management

- Grant Agreements (contracting)
- **Technical support and partnership**
- Invoice review
- **Evaluation**



## 2018 Regional Travel Options Strategy

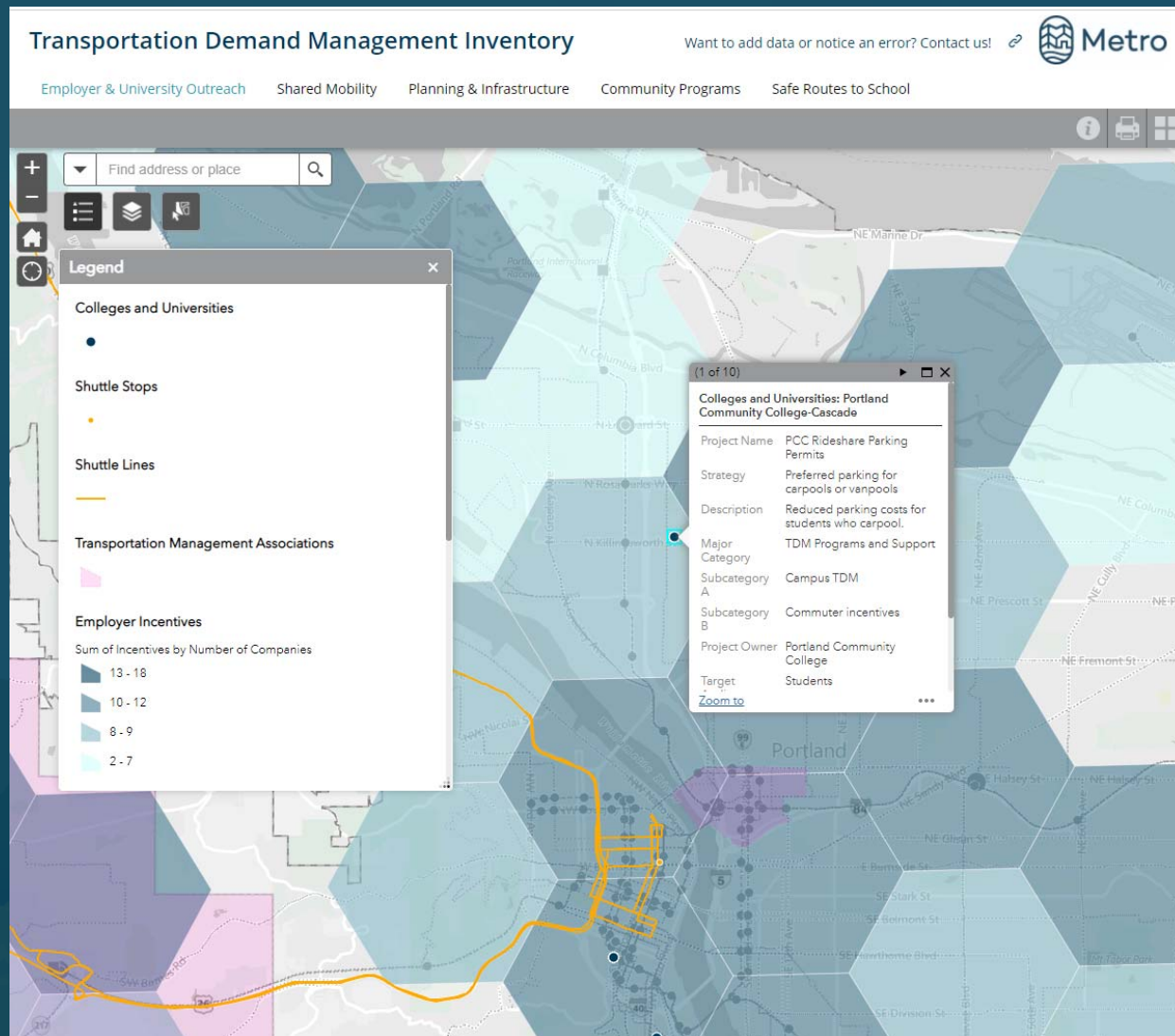
Adopted by Metro Council, May 24, 2018



Inspiring grant applications

## TDM Inventory

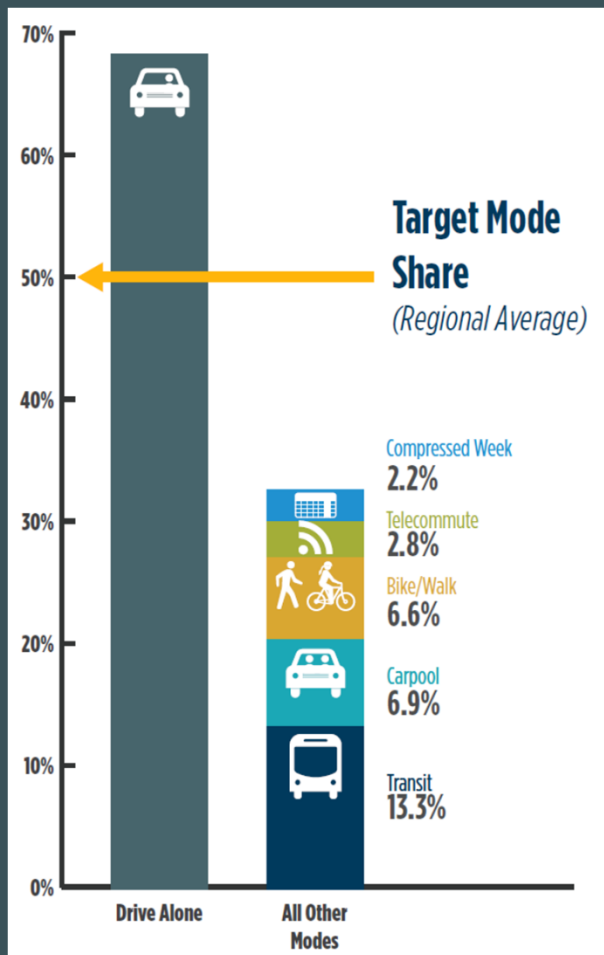
- Employer & University Outreach
- Shared Mobility
- Planning & Infrastructure
- Community Programs
- Safe Routes to School



## TDM activities

- Get There Oregon – ODOT provides statewide carpool matching, trip-tracking service, annual challenge with achievements and incentives (RideAmigos)
- Vanpool – C-Tran, Enterprise
- Cities/Counties/Parks – individualized marketing, open streets, wayfinding, trail counters, visitor TDM
- Community-based organizations – wayfinding, bike maintenance, skills
- TMAs/non-profits – e-bike commuter pilot, protected bike lane pilot
- Transit/College/University – Employee Commute Options (ECO), marketing of a shuttle service and real-time arrivals, staffing bike rentals
- K-12 schools – walking school bus, safety education, maps (not capital)

## Evaluations get results



**10,102,026**  
new walking and  
biking trips



**17,882**  
metric tons of CO2  
reduced or prevented



**3,943,484**  
auto trips reduced  
or prevented



**36,847,660**  
vehicle miles reduced  
or prevented



**\$134,793,893**  
dollars saved

# 2010 TSMO Integration of TDM

## Multimodal Traffic Management



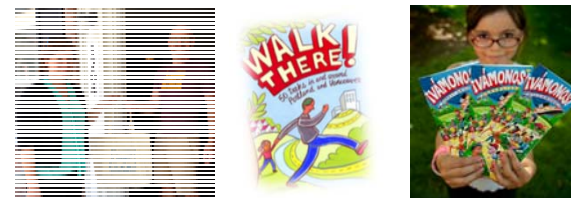
- Traveler Information



## Traffic Incident Management

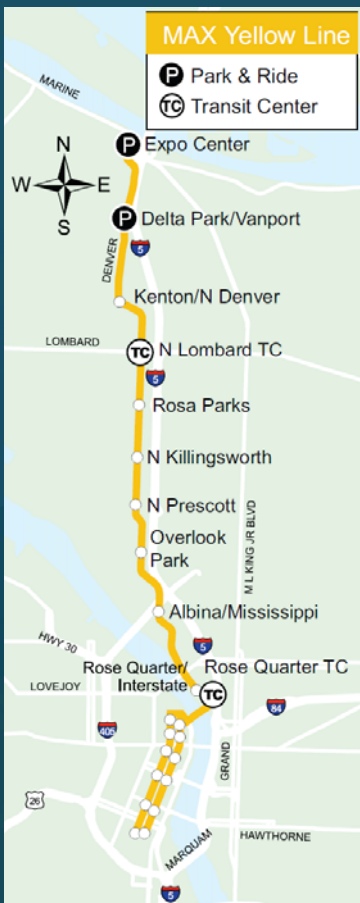


## Transportation Demand Management





# Residential outreach boosts transit ridership beyond the control group



**SMART TRIPS ORDER FORM**

WALK, BIKE, BUS AND MORE. PORTLAND IS A GREAT PLACE FOR SMART TRIPS.

Swapping your car for a walk to a public transit stop, bike ride or walk to a light rail to reduce neighborhood traffic by 10 percent — yes, 10 percent! Not only will you save money at gas pumps, but you will help reduce pollution and increase community and traffic safety. Best of all, participating in an active mode of transportation can benefit your personal health and well-being too.

Order **FREE RESOURCES** below or online at [portlandsmarttrips.org](http://portlandsmarttrips.org).

Tell us where to deliver and we'll see there within three weeks by mail.

Name: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 City:  Portland  Astoria  Clatsop  Clatskanie

Please check as many boxes as you want.

**Portland Neighborhood Maps**

**Neighborhood Bike/Walk Transit Maps**

West  Southeast  
 Northwest/Oakland  Southwest  
 Northeast

**Walking**

A Portland Pedestrian Guide Resources to get you moving in the right direction.

Digital Pedestrian Signage to improve your health.

Pedestrian Safety Brochure

**Biking**

Oregon Cyclist Manual Rules of the road for cyclists.

Portland CityBike Bicycle Map

A Guide to Your Bike Tips, techniques and smart ideas to make your bike safer and more fun-riding.

Family Biking Guide A helpful guide on biking with kids, from programs to biking membership to school.

**Streetcar, Bus, MAX**

Better Regional Service Map

Portland Streetcar System Map

Maximal Distance Transportation Guide For seniors and people with disabilities.

Portland Streetcar Bus for MAX information for people interested in great books. We'll send them to [amazon.com](http://amazon.com). Please give your membership email.

Need a personalized transit trip plan? Just call 503-238-RIDE or go to [trips.org](http://trips.org)

**Car Share and Carpool**

LinkUp Portland Car Share CarShare allows you to rent a car at the time you need it, with no long-term commitment. Discover what's new in the car share world.

RideShare Connect Learn about the ways to use online ride matching, carshare or share a ride to work or school.

**Smart Drives with Conservation Ideas**

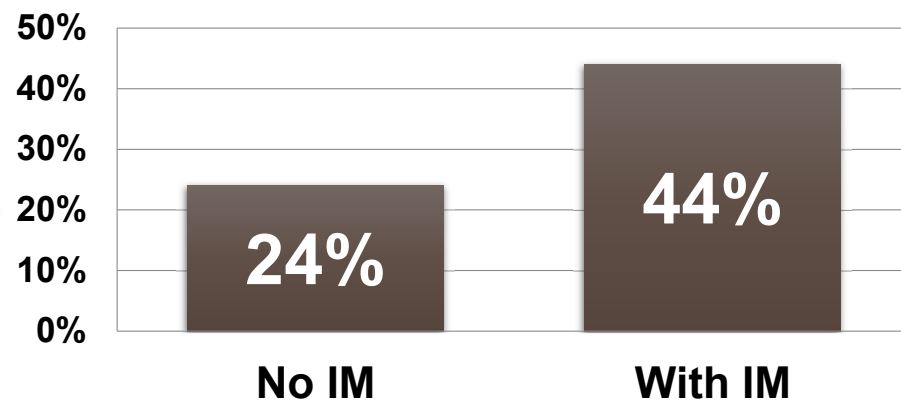
Water Conservation Info and High Efficiency Smartwater

**Pick your FREE reward!**

Walk T-shirt! Receive a t-shirt to wear on the Portland community walk.

Be Safe, Be Smart! Easy-to-read safety, rights and you-while-on-walking, biking and more.

## Interstate MAX Individualized Marketing (IM) 2004 Relative increases in transit trips





Incident response

Weather station

Variable speed limit

Variable message sign

Ramp meter

Bike counter

Transit signal priority

Transit display

Parking availability

Bike sensor

Traffic operations center

In-car navigation

0.5 MILES

Flashing yellow arrow

Pedestrian countdown

Smart park meter

Closed circuit TV camera

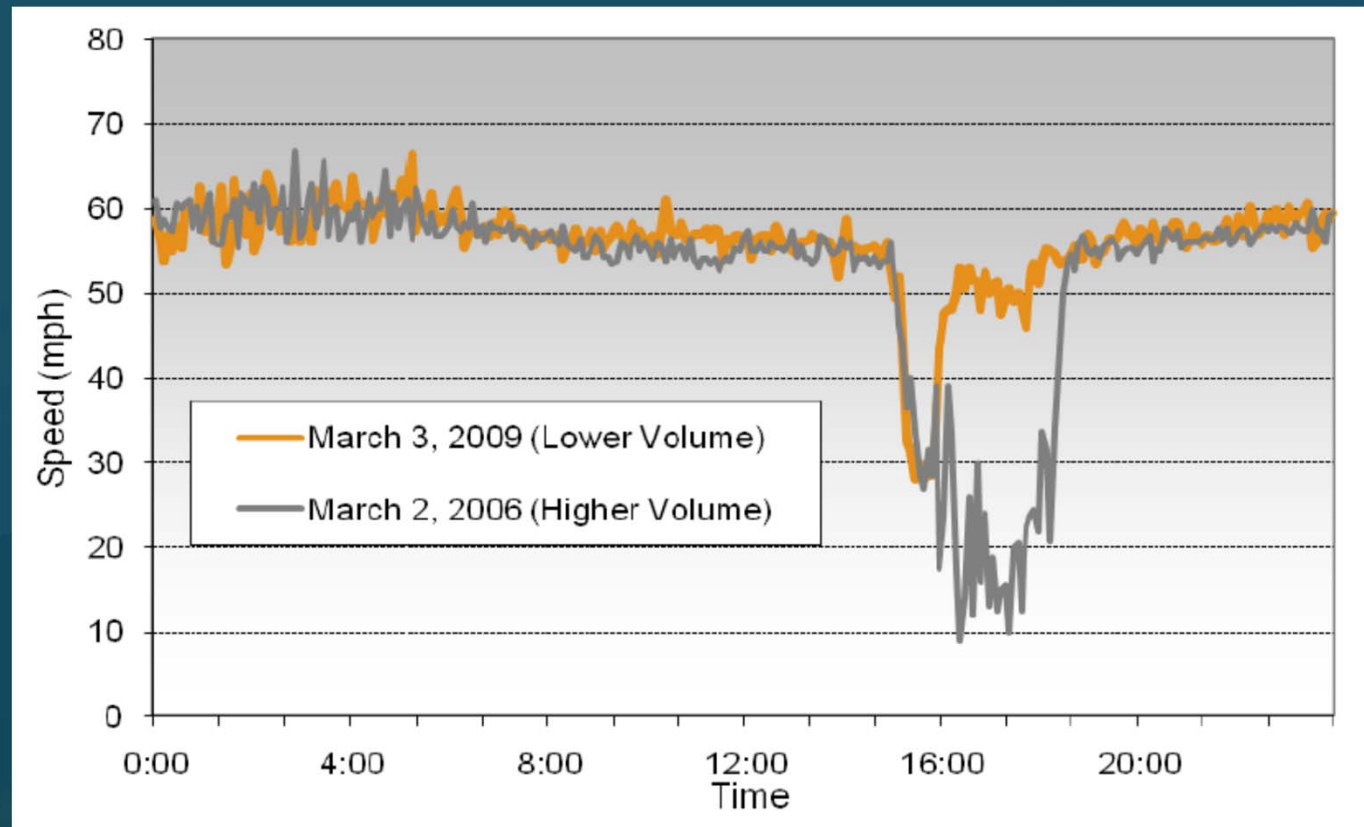
Bike signal

ARRIVALS

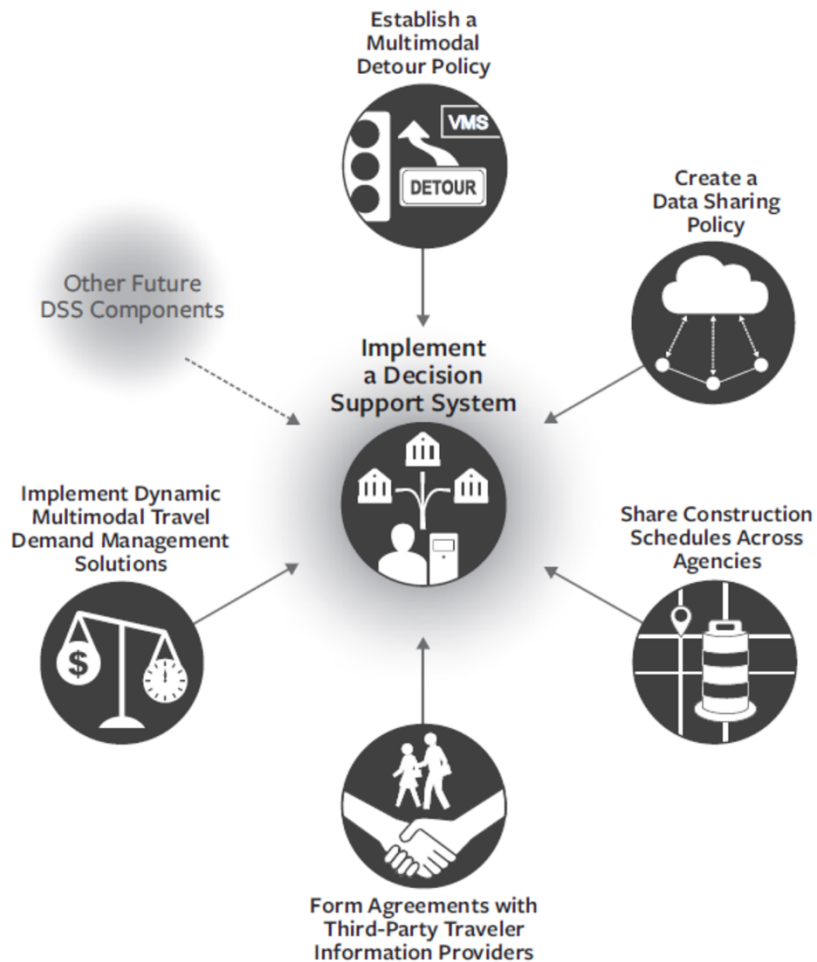
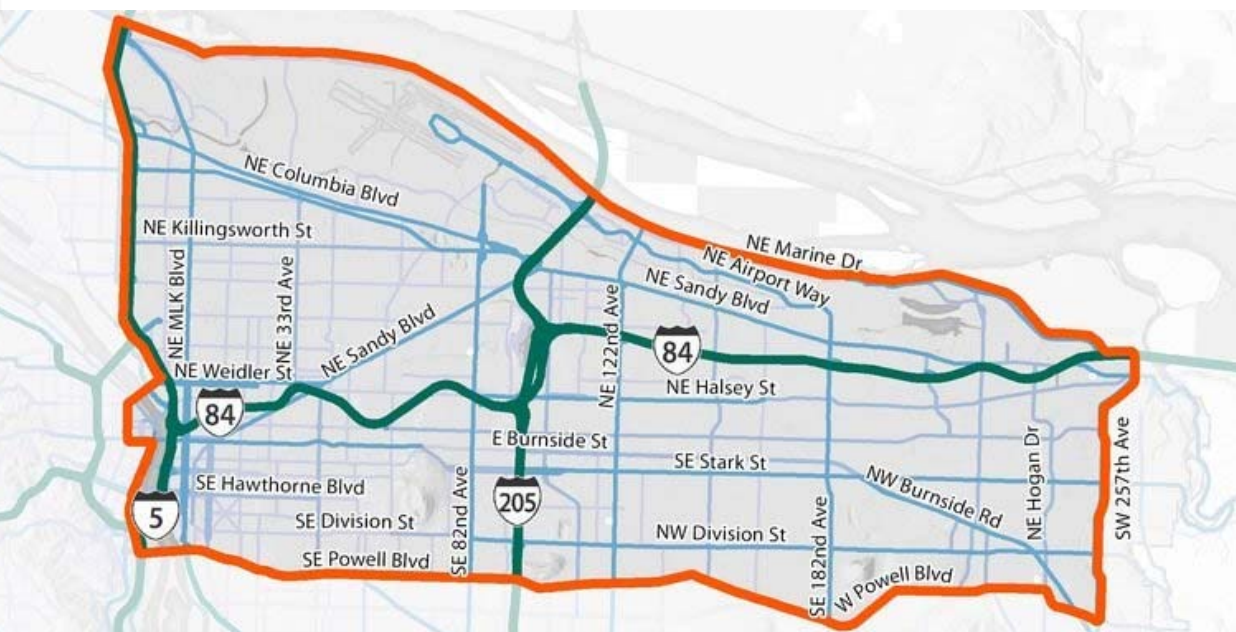
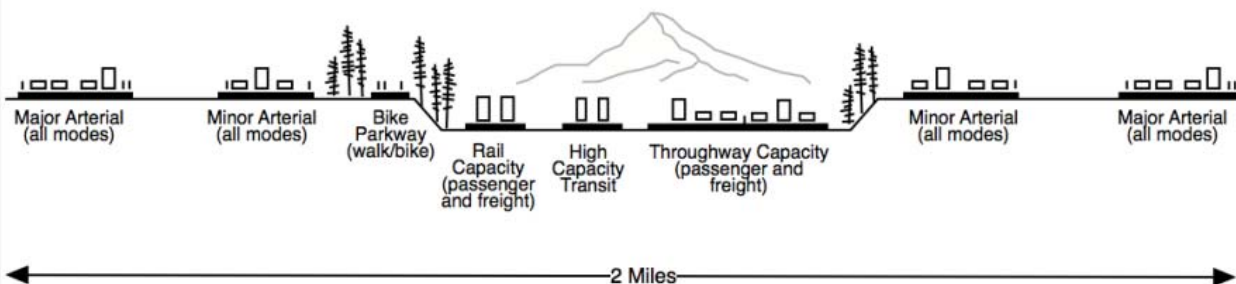
Transit smart app

- Yellow-Expo Rd 5 min
- Green-Ct 12 min
- Yellow-Ergo Cr 17 min
- Green-Clackamas 27 min

What would it take to restore reliability with TDM?



# I-84 Multimodal Integrated Corridor Management (ICM)



# Combining modes to complete one trip

The screenshot displays the TriMet mobile application interface. At the top, the TriMet logo is on the left, and 'Rider News' and 'Menu' are on the right. The main content area is a map of downtown Portland, Oregon, with various transit routes and stops marked. A dark blue overlay panel titled 'Choose Travel Options' is positioned on the left side of the map. This panel includes a 'Take Transit' button at the top, followed by several icons representing different mode combinations: Transit + Bike, Transit + Biketown, Transit + E-Scooter, Park & Ride, and Transit + Uber. Below these are 'Walk Only' and 'Bike Only' options. The 'Travel Preferences' section includes a 'USE' section with buttons for Bus, MAX & Streetcar, WES, and Aerial Tram. It also features dropdown menus for 'MAXIMUM BIKE' (3 miles), 'BICYCLE SPEED' (8 MPH), and 'OPTIMIZE FOR' (Bike-Friendly Trip, Speed, Fewest Transfers, Bike-Friendly Trip, Flat Trip). A 'Save C' button is visible at the bottom of the preferences panel.

# Combining modes to complete one trip

### Your Trip on TriMet

Option 1    Option 2    Option 3

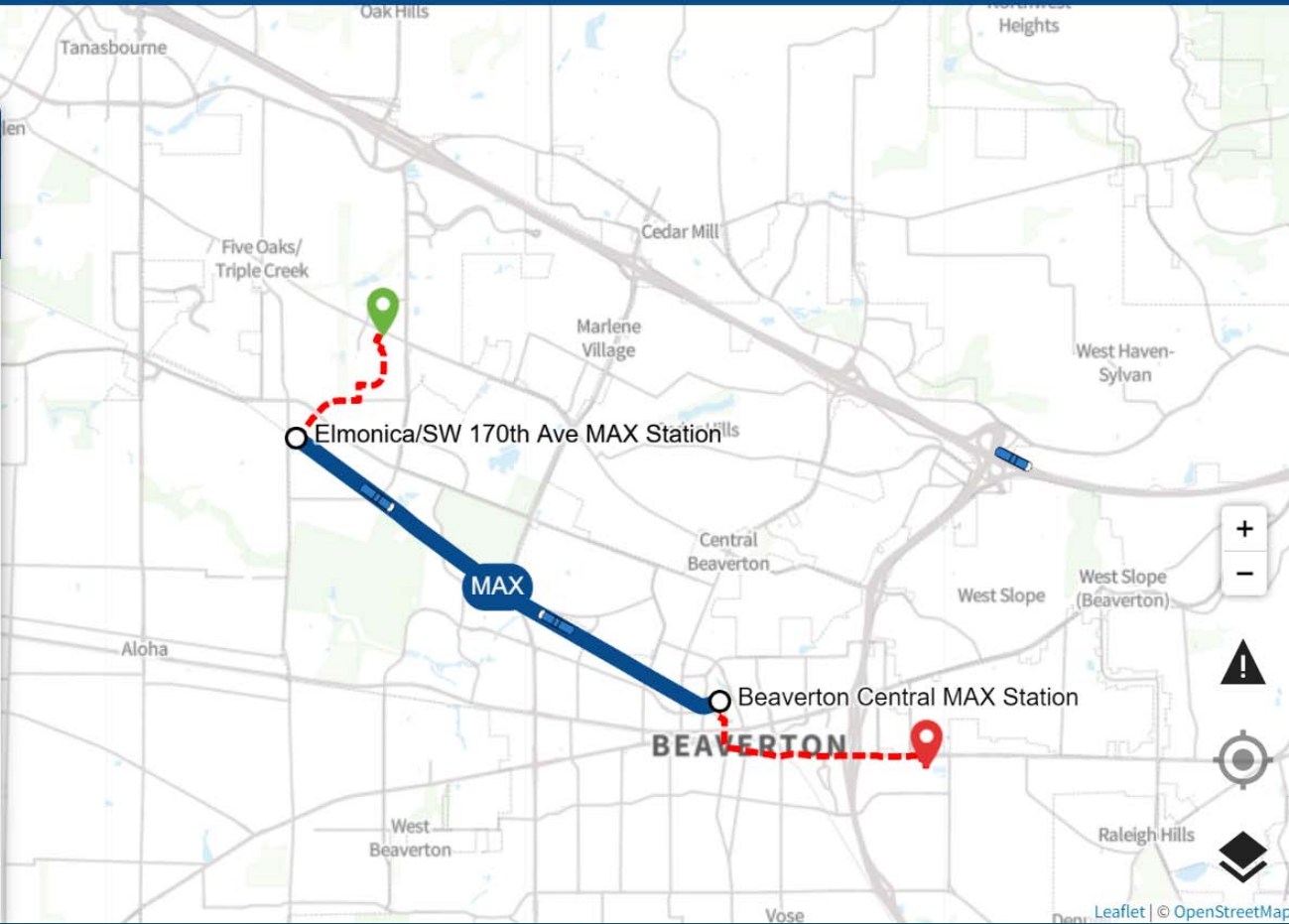
5:41pm–6:14pm, December 07, 2021  
33 min, \$2.50

> >

This trip uses real-time traffic and delay information

5:41PM **Oyatsupan Bakery, Beaverton**  
Bicycle 0.9 miles to path  
7 min

5:48PM **path**  
Walk 80 feet to Elmonica/SW 170th Ave MAX Station  
0 min



Thank you!



Caleb Winter

✉ [Caleb.Winter@oregonmetro.gov](mailto:Caleb.Winter@oregonmetro.gov)



Metro

<https://www.oregonmetro.gov/tsmo>

<https://www.oregonmetro.gov/regional-travel-options-strategic-plan>