What is Dynamic Ridesharing?

Myron Swisher, SAIC

July 28, 2011

"20th Century" Ridesharing

- Traditional TDM (1970s & '80s)
  - Car Pooling, Ride Share Matching, HOV Lanes
  - Static, Permanent, Daily
  - Save time AND $
- Car Pool Lines "Slugging" (1990s)
  - Unofficial – Respond to demand
  - Primarily 3+ HOV
  - Flexible use, static locations

Dynamic Ridesharing

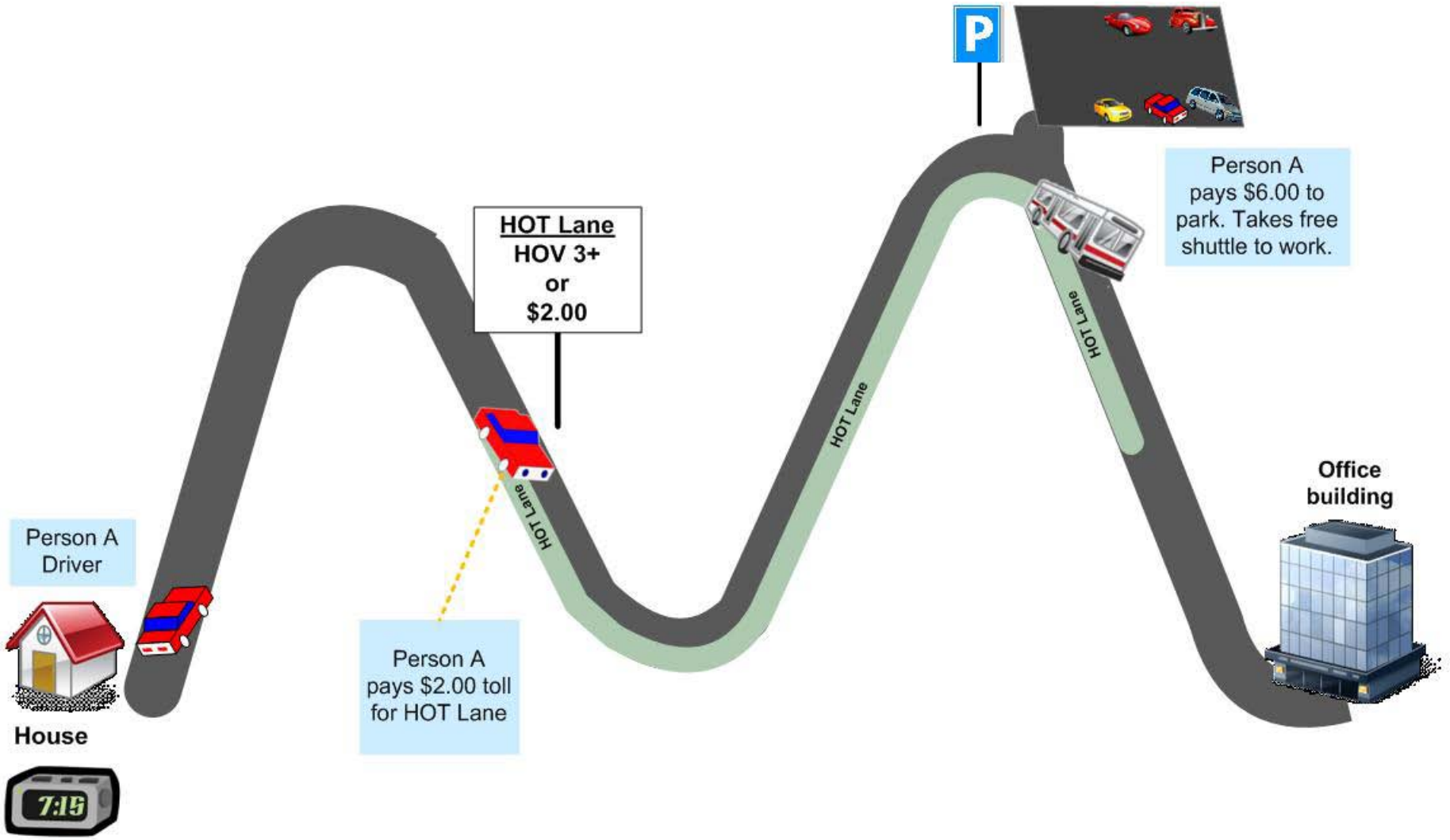
- Social Networking and Smart Phone driven
- Fully on demand & real-time
  - Pick up any where along route
  - Driver utilizes traveler information for real-time decision to car pool
  - Rider connects with driver through smart phone and GPS location

Synergy with Roadway Pricing and Other TDM

Monday Morning

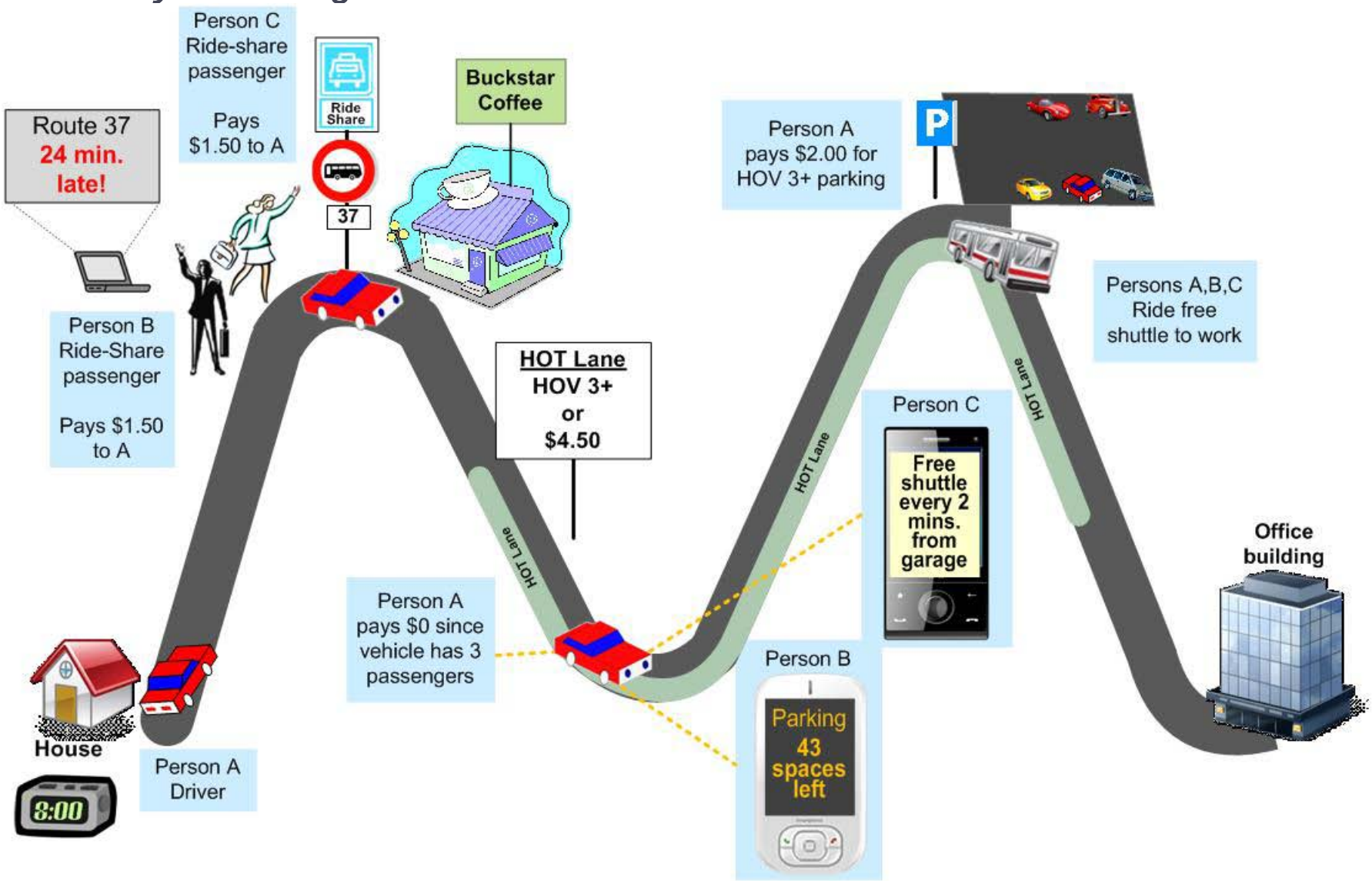
Synergy with Roadway Pricing and Other TDM

Tuesday Morning



Synergy with Roadway Pricing and Other TDM

Wednesday Morning



The Federal Government's Interest in Dynamic Ridesharing

Marc Oliphant, AICP
Department of the Navy
Dynamic Ridesharing & Congestion Pricing Webinar
July 28, 2011

Why is Dynamic Ridesharing Important to the Government?

- Reduces vehicle-miles traveled, leading to:
  - Congestion mitigation
  - Carbon and air-pollutant emissions cuts
  - New infrastructure expenditure reductions
- Potential to provide socially-necessary transportation.
  - Senior citizens, dial-a-ride, college students

Why is Dynamic Ridesharing Important to the Government?

- More efficient use of current infrastructure
  - Numerous possibilities for an increasingly connected world
- Person throughput focus vs. vehicle throughput
  - Filling empty seats that are already making the trips

Photo Credit:
Mark Burris

Government Role

- Federal Congestion Mitigation and Air Quality Improvement (CMAQ) Program funding.
  - Provided to State DOTs & MPOs
- State and local funding
  - Federal Gov often matches

Government Role

- Federal discretionary grant funding
  - Value Pricing Pilot Program (VPPP)
    - 2010: Santa Barbara, CA pilot program funded
    - 2011: 4 dynamic ridesharing applications (of 30 total)
  - Exploratory Advanced Research (EAR)
    - Scan tour of DC, Houston, and San Fran casual carpool lines
    - Focus Groups (upcoming)

Logo Credit: Mark Burris

Government Role

- Federal Discretionary Grant Funding (cont'd)
  - Small Business Innovation Research (SBIR)

    2011 DOT SBIR Phase I Project Funded & Underway

    Specifically Investigating:
    - Automated HOV Reporting Solutions
      - » Hardware (seat sensors)
      - » Software Solution (ridematching software interface)
    - Syncing Ridematching Software w/ In-vehicle Computer

Casual Carpooling in Houston

Mark Burris
Texas A & M University
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Houston, TX

- Slugging occurs at three locations
  - Kingsland and Addicks Park & Ride lots on I-10
  - NW Station Park & Ride lot on US 290
- Occurs mostly between 6:00 AM and 9:00 AM, concentrated during HOV3+ periods
- Changes with HOV occupancy requirements
- Mainly use transit for return trips, a small percentage slug back from Louisiana Street (downtown)


45
North Frwy
59
Eastex Frwy
290
Northwest Frwy
249
State Hwy
FM 1960
N
Northwest Station Park and Ride
Kingsland Park and Ride
Addicks Park and Ride
90
610
10
Katy Frwy
10
East Frwy
225
State Hwy
Beltway 8
Southwest Frwy
59
6
State Hwy
288
State Hwy
45
Gulf Frwy

Northwest Freeway (US 290)

- HOV Lane:
  - SOVs never allowed, Buses always free
  - from 5 am to 6:45 am
    - HOV 2+ Free
  - From 6:45 am to 8:00 am
    - HOV 2 pay $2 toll through QuickRide program
    - HOV 3+ free
  - From 8:00 am to 11 am and 2 pm to 7 pm:
    - HOV 2+ Free

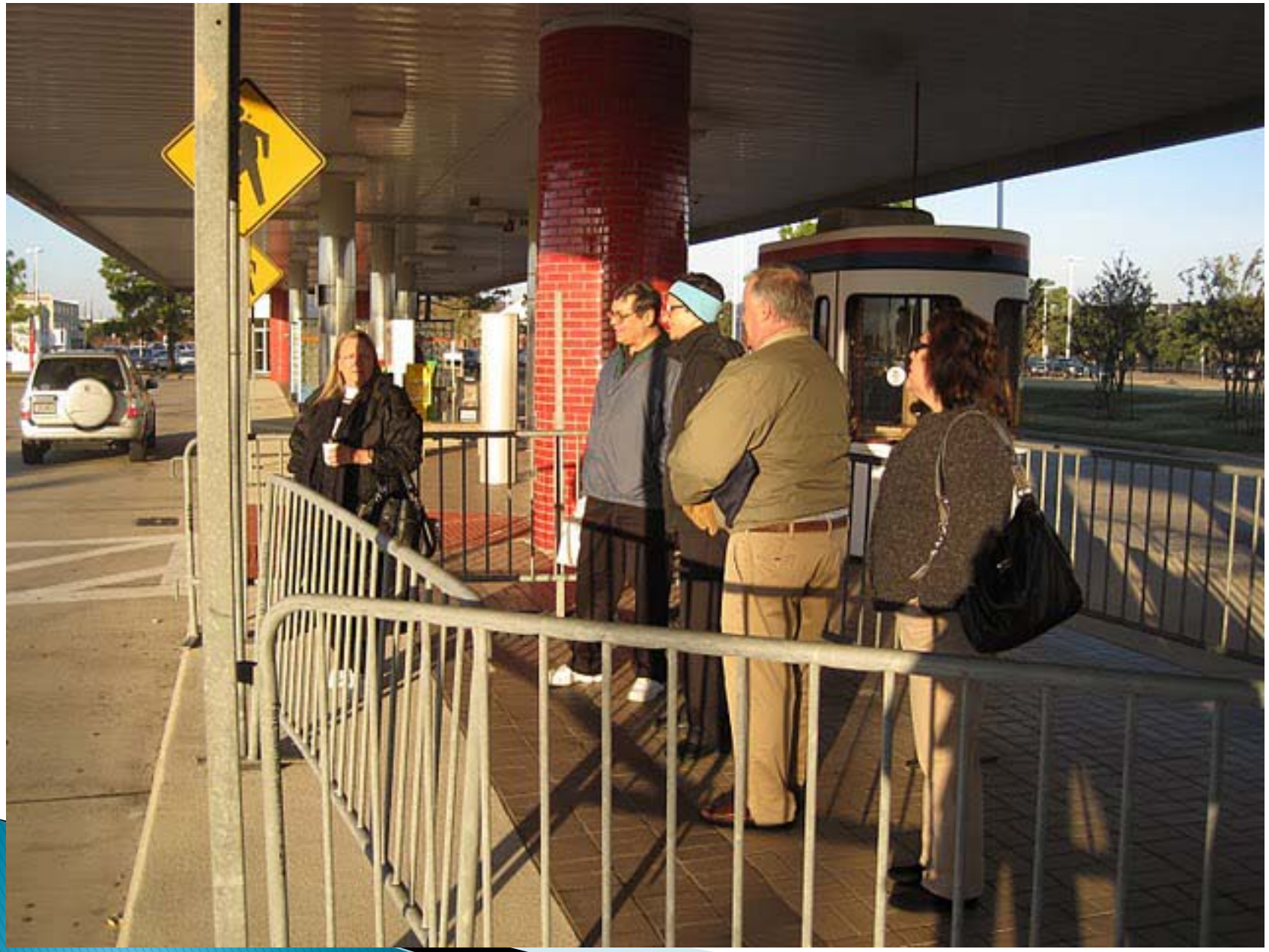
Northwest Freeway (US 290)

Northwest Freeway (US 290)

Katy Freeway (I 10)

- 1 HOV Lane (pre-2009):
  - SOVs never allowed, Buses always free
  - From 6:45 am to 8:00 am and 4 pm to 5 pm
    - HOV 2 pay $2 toll through QuickRide program
    - HOV 3+ free
  - Other times:
    - HOV 2+ Free
- 4 Managed Lanes (2009 – present)
  - SOVs pay a toll all times, HOVs pay in off-peak
  - Buses always free

Katy – Kingsland P&R




NO
PARKING
NO
BOARDING

Houston – The Trip Back

Characteristics (2003 Survey)

	Travelers (n=1032)	Traditional HOV on the HOV lane (n=331)	Casual Carpool Passengers 4+ times/wk (n=149)	Transit Riders (n=290)
Trip Purpose				
Commute[AB]	85.0%	79.8%	96.0%	88.9%
Work (non-commute)	9.0%	5.8%	4.0%	7.3%
Other	6.0%	14.4%	0.0%	3.8%
Trips per Week	9.85	9.91	9.67	9.20
Sex[A]				
Male	60.9%	49.7%	50.7%	45.8%
Female	39.1%	50.3%	49.3%	54.2%
Number of Vehicles[A]	2.42	2.39	2.22	2.19

[A] Significant ($p \leq 0.05$) difference when comparing all four modes
[B] Significant ($p \leq 0.05$) difference when comparing casual carpooling and transit

Casual Carpool Passenger Characteristics (*n* = 208, all slugs)

Familiarity With Current Carpool Companions	
Never traveled with before	65.3%
Traveled with once or twice before	28.1%
Travel with frequently	6.6%
Frequency of Casual Carpool Use	
Everyday	52.0%
3 to 4 days per week	24.0%
1 to 2 days per week	19.9%
Less than once per week	4.1%
First time	0.0%
Mode Used for Evening Return Trip	
Casual carpool	12.8%
Bus	66.3%
regular carpool with family or friends	5.1%
Drive alone	0.0%
Other	15.8%

Slug Counts

Date	Kingsland*	Addicks*	Northwest Station
June 2009*	70 Ended just before 9, mostly 2 slugs	30 Ended around 8:30, mix of 1 and 2 slugs.	203 Ended just after 9, 2 slugs during QuickRide, 1 otherwise
October 2008*[A]	122 Ended just before 9, mostly 2 slugs	76 Ended around 8:45, mostly 1 slug.	208 Ended just after 9, 2 slugs during QuickRide, 1 otherwise
November 2003	161	203	214
June 2003	130	219	135

[A] Katy single HOV lane still (partially) operational but under transition to Managed Lanes
* Katy Managed Lanes (HOV 2+ Free) began November 2008
* Katy Managed Lanes Allowed SOVs for a toll beginning April 2009

Washington State Department of Transportation - SR 520 Carpool Pilot Project

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Secretary of Transportation

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Washington State Department of Transportation

FHWA
Congestion Pricing Webinar
July 28, 2011

Public Transportation Related Experience

Rideshare Program Manager, WSDOT (2009- Present)

Manager, Research Transportation Programs - University of Illinois/Urban Transportation Center, Chicago (2001-2008)

Department Manager, Vanpool Services – Pace Arlington Heights, IL (1990-2001)

ADA Compliance Manager - Pace, Arlington Heights, IL (1989-1991)
Special Projects Manager - Pace, Arlington Heights, IL (1985-1989)

Senior Project Manager, Paratransit Services - Regional Transportation Authority (RTA) Chicago, IL (1980-1985)

Overview of WSDOT Pilot Project

- Identified in 2009 state transportation budget ($400K)
  - Develop a pilot carpool project - SR 520 corridor
  - Enables carpooling without pre-arrangement
  - Allows for transfer of rider credits between participants
  - Membership system
  - Pre- screening to ensure participant safety

Project Purpose and Objective

- Design and Implement a limited scale carpool pilot
  - On an accelerated schedule
  - Examine its effectiveness in reducing vehicle trips and vehicle miles traveled (VMT)
  - Evaluate the costs and benefits
- Target audience
  - Commuters who drive alone on SR 520

WSDOT Pilot Project Goals

- Design project that is achievable within time period
- Test the viability and feasibility of this type of project with and without tolling on the SR 520 corridor
- Ensure the safety and security of project participants
- Reduce vehicle trips and VMT
- Report project results and lessons learned
- Recommend future implementation possibilities

Pilot Project Challenges

- Satisfying legislative intent and ensuring:
  - Pilot project participants' safety
  - Minimizing the state's potential exposure to liability and risk
  - Recruiting a significant pool of participants
  - Approving 250 drivers and 750 riders

Pilot Technology Overview

- Mobile phone application employed for drivers
- Drivers use GPS-enabled mobile smart phones
  - Verification of each ride
  - Capture trip – travel time, location and distance
- Mirco-payment capabilities
  - Between driver and rider
  - Based on miles traveled
- Technology provides
  - Verifiable and auditable trip trail
  - SOV trip reductions

Pilot Technology Overview (cont)

- Pick-up/ drop off locations identified
- Security features built into vendor application
  - * Auto generated PIN# rider shows driver
  - * Description of driver's vehicle
  - * Screen icon shows individual has passed pre-screening requirements
  - * Trip rating system
  - * Driver and rider rating system

SR 520 Overview

- SR 520 bridge tolling/Good to Go! marketing
- Smarter highways traffic management technology
- RideshareOnline.com upgrades
- King County Metro transit enhancements
- Communications & public outreach
- Vanpool promotion
- Employer-based commute trip reduction programs

Vendor / Evaluation and Advisory Committee Concerns

Required pre-screening criteria requirements

- Limit the potential pool of driver candidates
- Difficult to attract 250 drivers
- Deter some individuals from applying to participate
- Turn away some individuals

Pre-Screening Criteria / Requirements

- Driver candidates
  - DOL driving record abstract review
  - ($300 K) per accident minimum liability insurance coverage
  - Provide social security number (riders too)
  - Criminal background check (riders too)
  - Certify that to the best of their knowledge – followed prescribed vehicle manufacturer required maintenance schedule

Key Timeline & Activities

- Oct 2010 - Contract executed
- Nov 2010 - Vendor initiates beta testing and project benchmark stage
- Dec 2010 - Benchmark stage completed
- Jan 2011 - Formal launch and media campaign
- Feb 2011 - Process to convert initial sign-ups to approved pilot users commences

Timelines and Activities (cont)

- March 2011 – Corridor strategy development begins
- April 2011 - Expanded recruitment and driver 1.0 app on Windows Phone 7
- May 2011
  - Evaluation activities
    - Exit surveys
    - Focus groups
  - Project wind-down / close-out
  - Transition from WSDOT funded to AVEGO funded pilot

Registrants and Participant Approval Process

- 962 individuals signed-up to participate
  - 842 regular SR 520 commuters
  - 35 % Microsoft employees
- 279 individuals provided their SSN
- Fully approved
  - 89 riders
  - 9 drivers

What Potential Participants Said

- Positive
  - Opportunity to save time (58%)
  - Opportunity to save $$ (42%)
    - Instead of driving solo
    - Impending tolls
  - Concept of real-time ridesharing was favorable
- Negative
  - Did not want to provide SS # (49%) especially to a 3rd party

Potential Benefits / Opportunities

- Additional tool in the TDM toolbox
- Additional option for individuals to use in conjunction with or as a complement to transit
- Alternative to driving solo to park-n-rides/rail stations
- Can lead to more efficient use of current infrastructure

Governments Role Moving Forward

- Financial investment (?)
- Obstacles
- Publicize/market it along with other commute trip option tools
- Bring vendors to table with already established partners

Contact Info

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(360) 705-7346

REAL-TIME RIDESHARING

SONOMA | MARIN | CONTRA COSTA | 2011-12

SCTA
sonoma county transportation authority

RCPA
regional climate protection authority

Brant Arthur
brant@climateprotection.org

CLIMATE PROTECTION CAMPAIGN

Our Team:

METROPOLITAN TRANSPORTATION COMMISSION

SCTA
sonoma county transportation authority

CONTRA COSTA transportation authority

TAM
Transportation Authority of Marin

CLIMATE PROTECTION CAMPAIGN

Photo by Ssshupe on Flickr

Our Approach:

As the Climate Protection Campaign:

1. Pricing is one of the most effective methods for change
2. Must line up policy, regulations and incentives

In this pilot:

1. Seat pricing instead of lane pricing
2. Affinity groups key to a successful launch

Photo by Rustyparts on Flickr

CLIMATE PROTECTION CAMPAIGN

Timeline:

July/Aug. ’11	Software RFP released
Sept./Oct. ’11	Sign contract with software vendor
Nov. ‘11	Initial testing
Jan./Feb. ‘12	Launch pilot
Feb. ’13	Transition

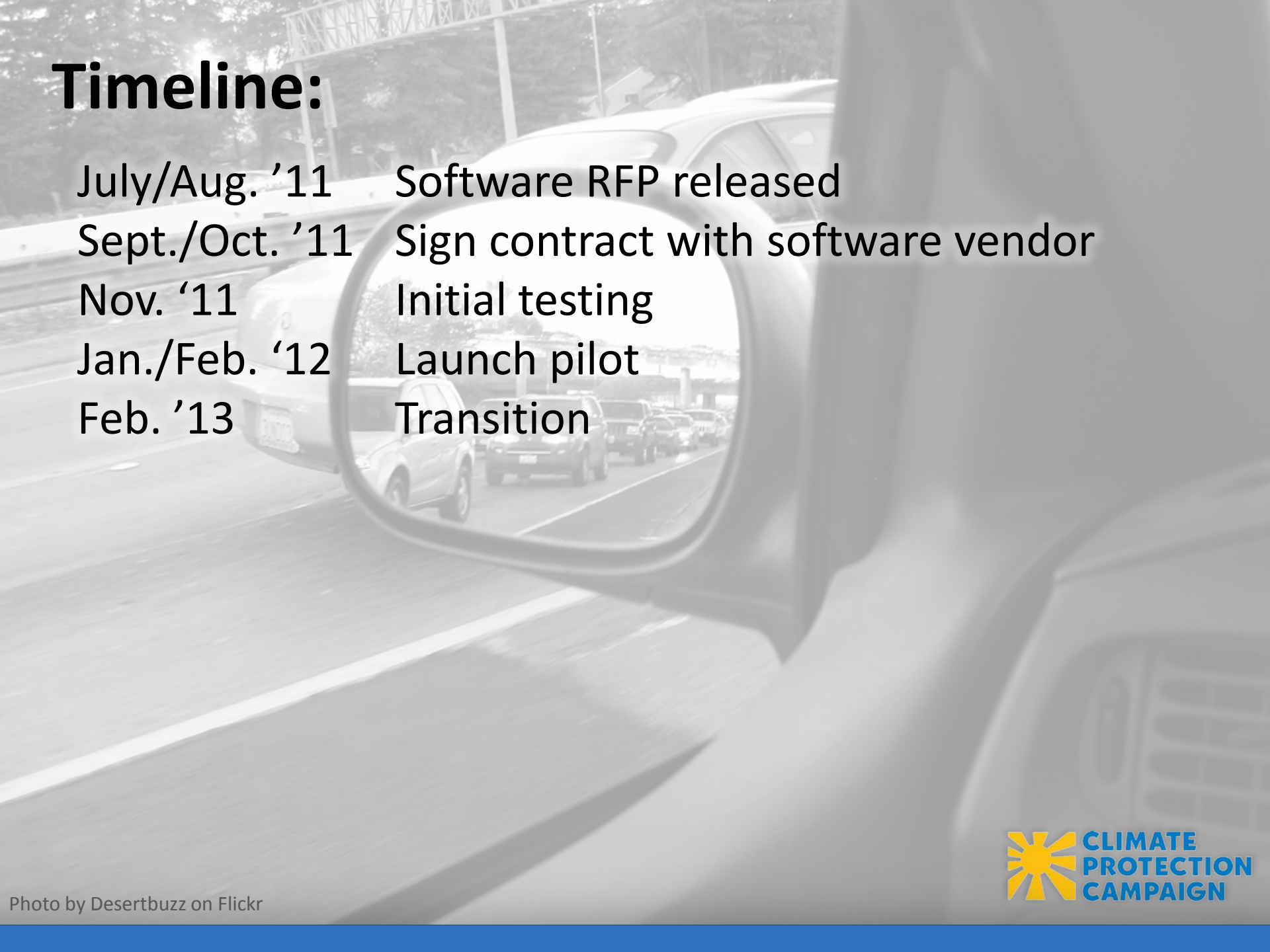

Photo by Desertbuzz on Flickr

CLIMATE PROTECTION CAMPAIGN

Survey:

Age: 78.5% of 18-24 year old willing to try; 39.5% of 56 and older

Income: 75% of participants earning up to $25k; 33% of those earning $100K more

Distance: 79% of those commuting over an hour vs. 53% with commutes under 15 minutes

CLIMATE PROTECTION CAMPAIGN

Photo by WSDOT on Flickr

Focus Groups:

Observations:

1. Price: Wide variability on what a “fair” price would be, but apparent consensus on avoiding negotiating
2. Technology: Commuters had no problem with smartphones, while students had concerns about costs and lifestyle changes
3. Schedule: Commuters more likely to have family concerns while students have less predictable schedules

Photo by Darren on Flickr

CLIMATE PROTECTION CAMPAIGN

Software RFP:

Important Features:
Focus on iterative design and outreach
Ability for the system to charge riders
Include transit matches

Dates:
Submit Proposals: August 23, 2011
Interview Dates: September 13–14, 2011
More info: www.sctainfo.org/rfp.htm

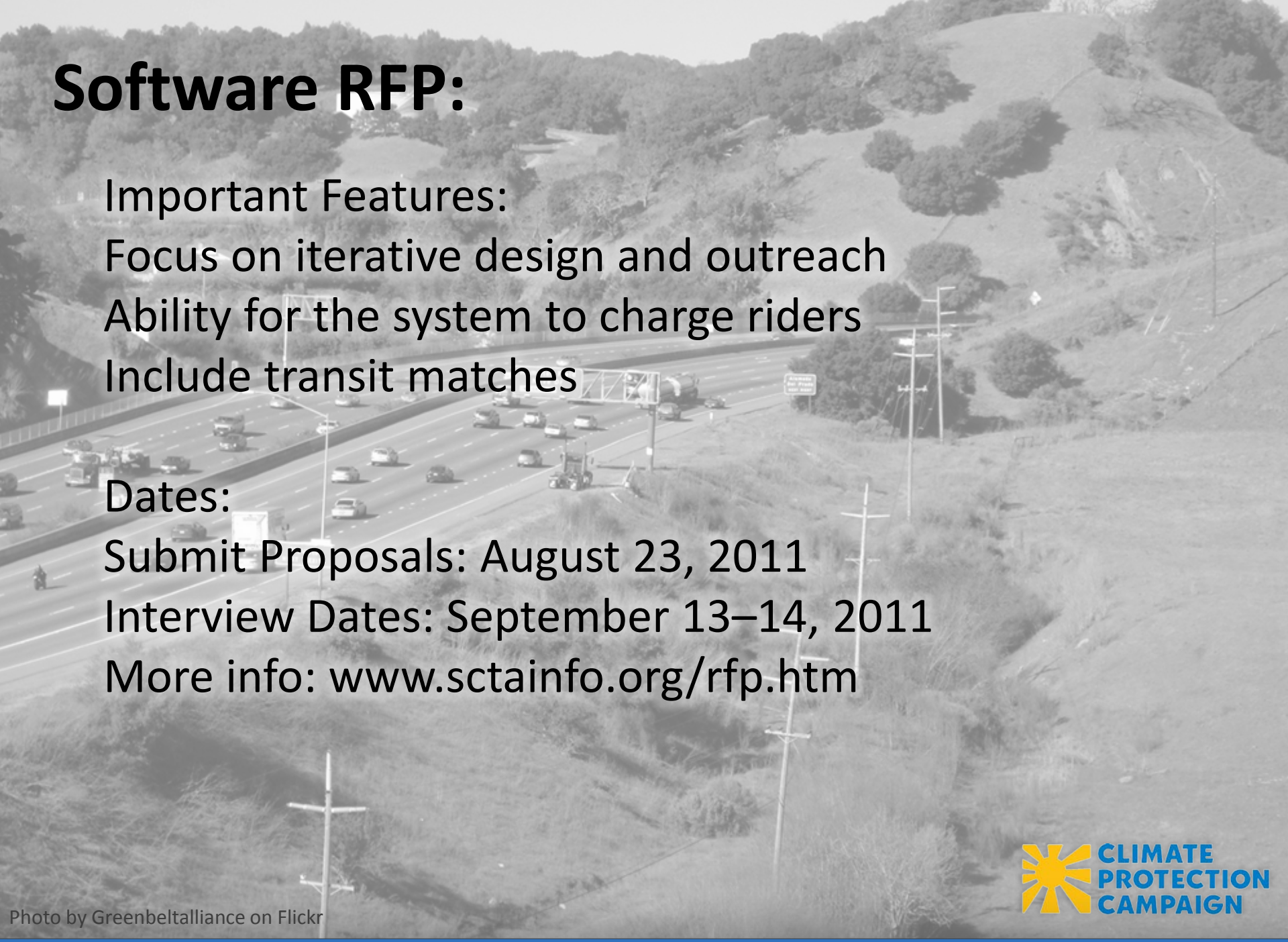

Photo by Greenbeltalliance on Flickr

CLIMATE PROTECTION CAMPAIGN

Questions?

http://climateprotection.org/real-time

brant@climateprotection.org

CLIMATE PROTECTION CAMPAIGN