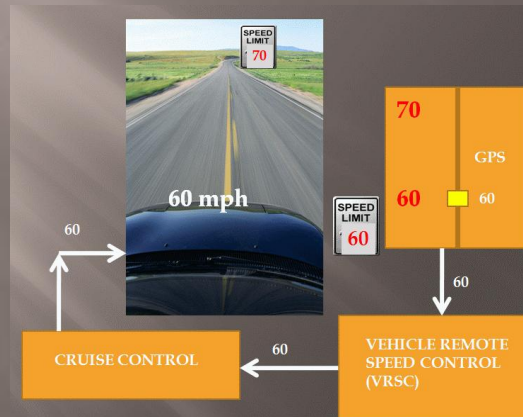


TRAFFIC SPEED MANAGEMENT SERVICE (TSMS)

A service for setting the speed of vehicles to their location speed limits based on speeds set by a traffic speed management system used for optimizing vehicle fuel economy and vehicle transit time

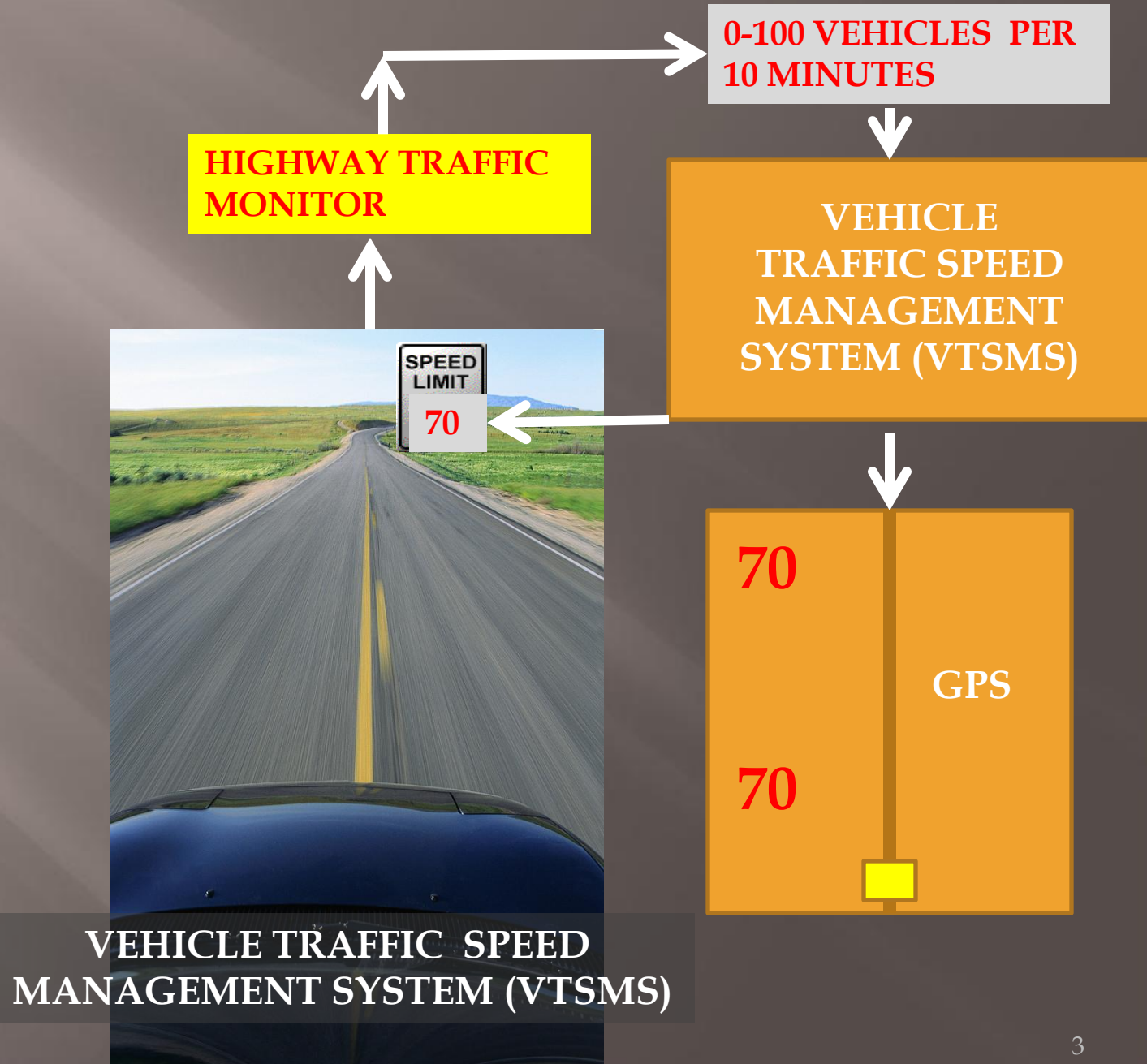
March 20th 2012
MCC INNOvations, Inc

VEHICLE TRAFFIC SPEED MANAGEMENT SYSTEM (VTSMS)



VEHICLE REMOTE SPEED CONTROL SYSTEM

VEHICLE SAFETY MANAGEMENT SYSTEM



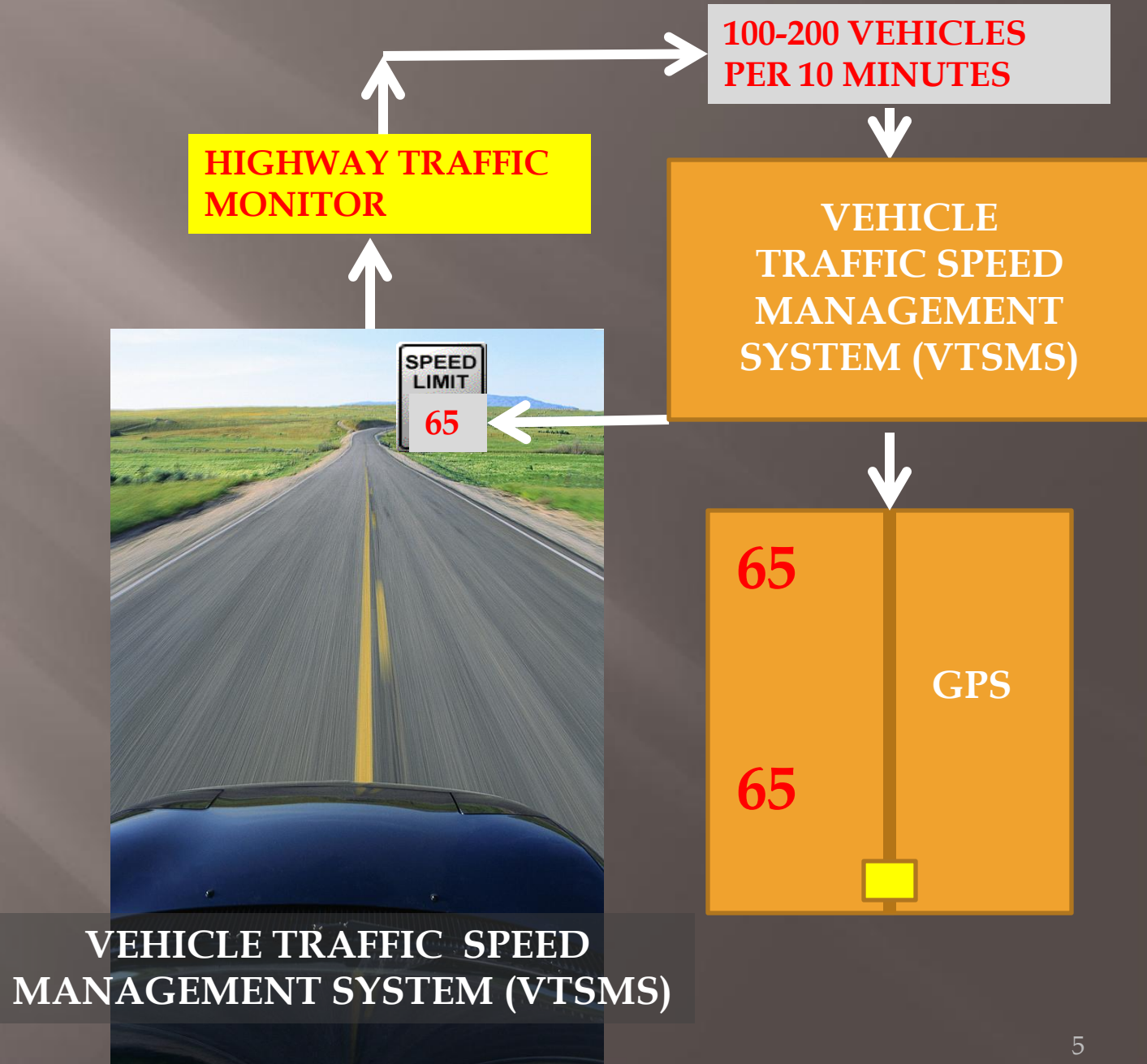


TSMS CONTROLS FAST MOVING TRAFFIC INTO SLOW MOVING TRAFFIC ON I10 IN TUCSON. CONDITIONS SHOW SLOW TRAFFIC BUILD UP ON SOUTHBOUND I10 AT W INA RD. TSMS INITIATES CONTROL FROM 11 MILES NORTH AT W MARANA THROUGH 5-MILE CONGESTION TO CAMINO DEL OESTE ESTATES

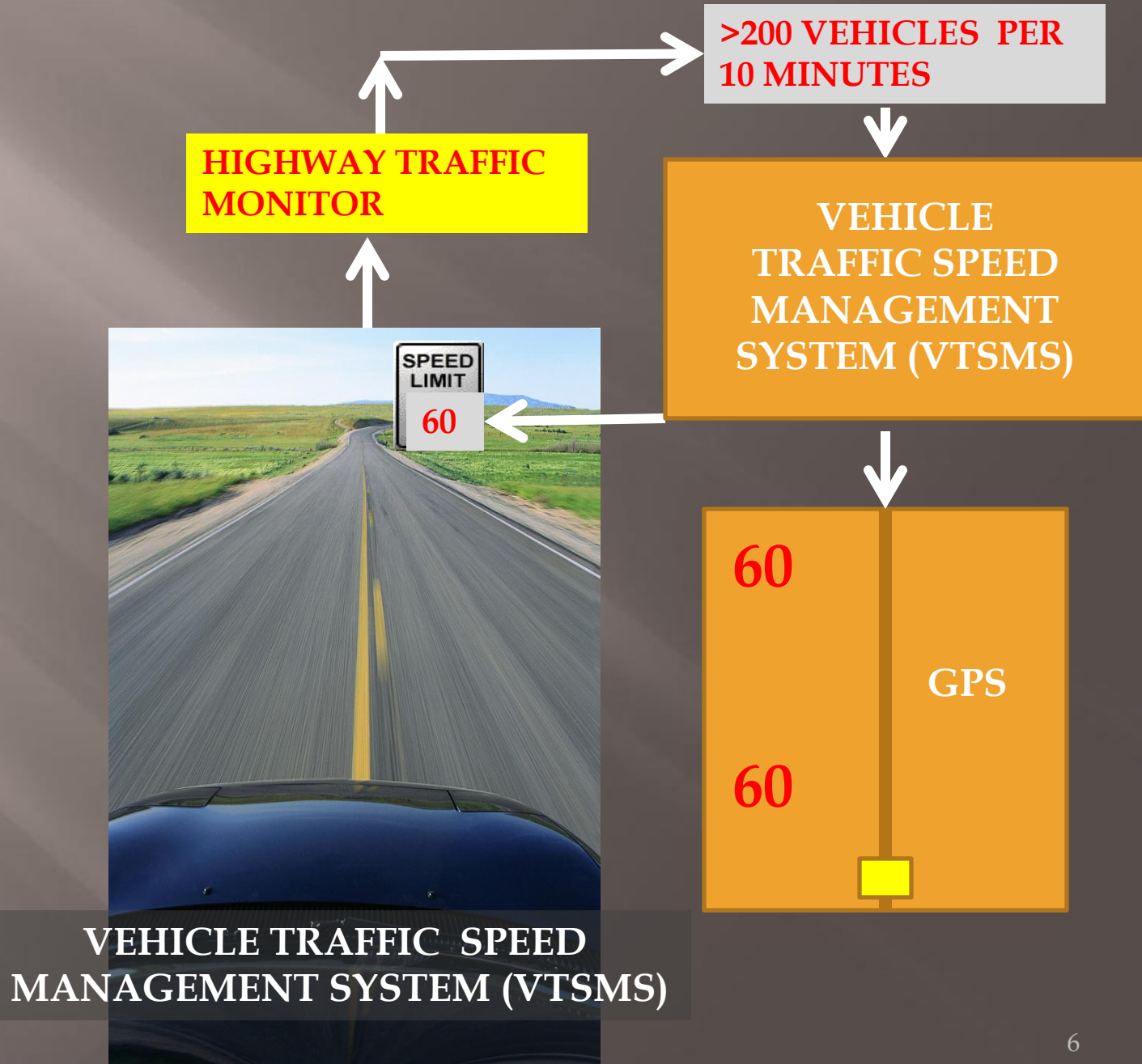
Live traffic change

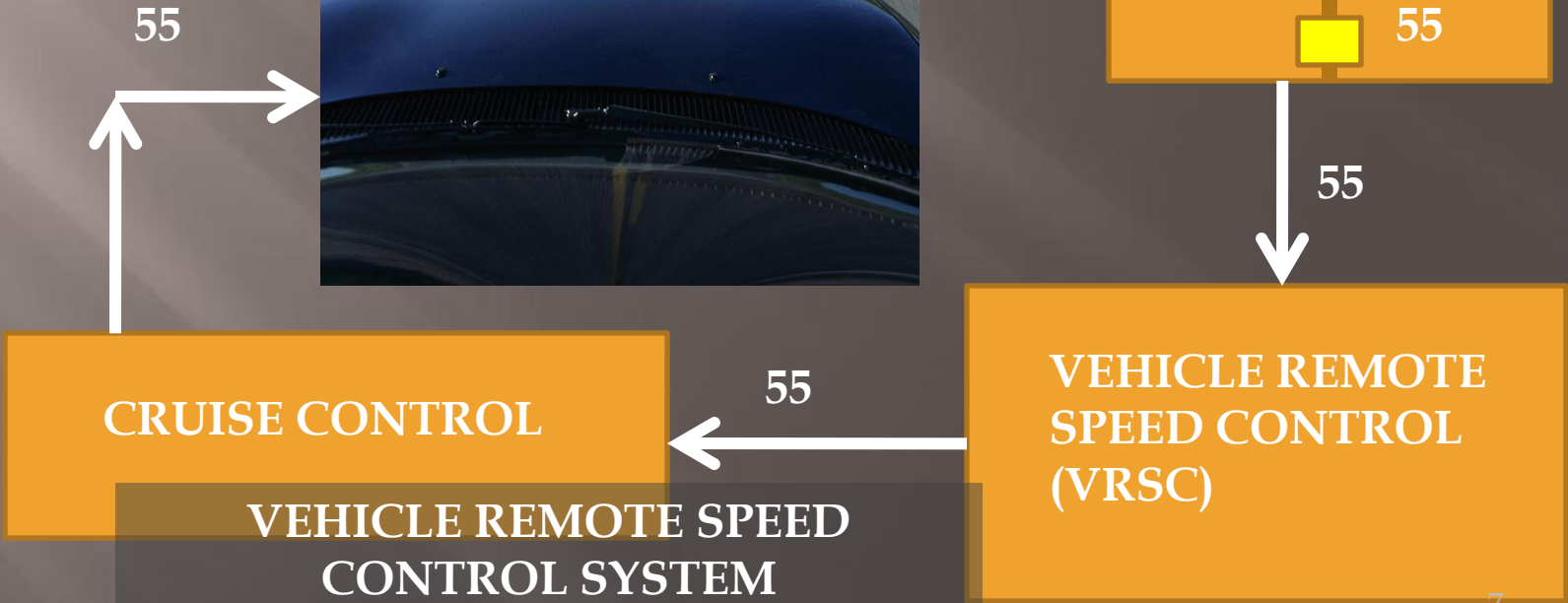
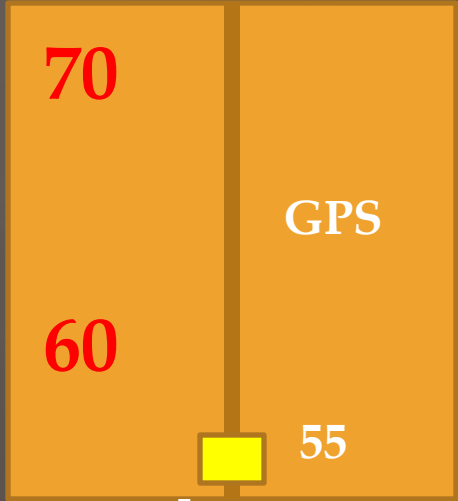


2 mi
2 km



VEHICLE TRAFFIC SPEED MANAGEMENT SYSTEM (VTSMS)

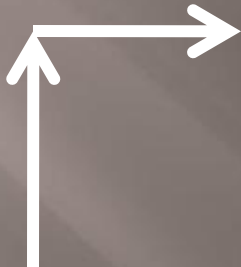






55 mph

55

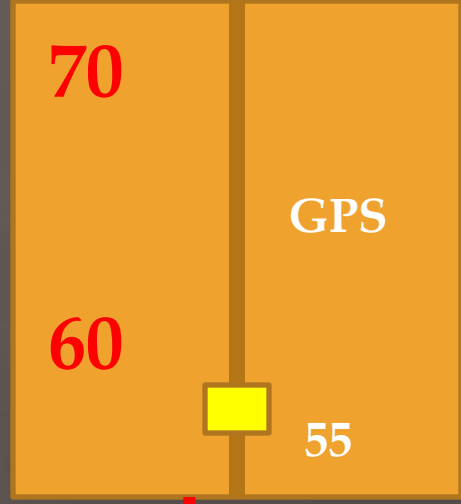


CRUISE CONTROL

55



VEHICLE REMOTE SPEED CONTROL SYSTEM



70

GPS

60

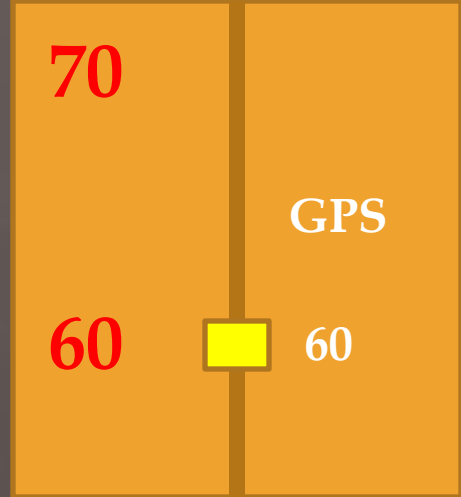
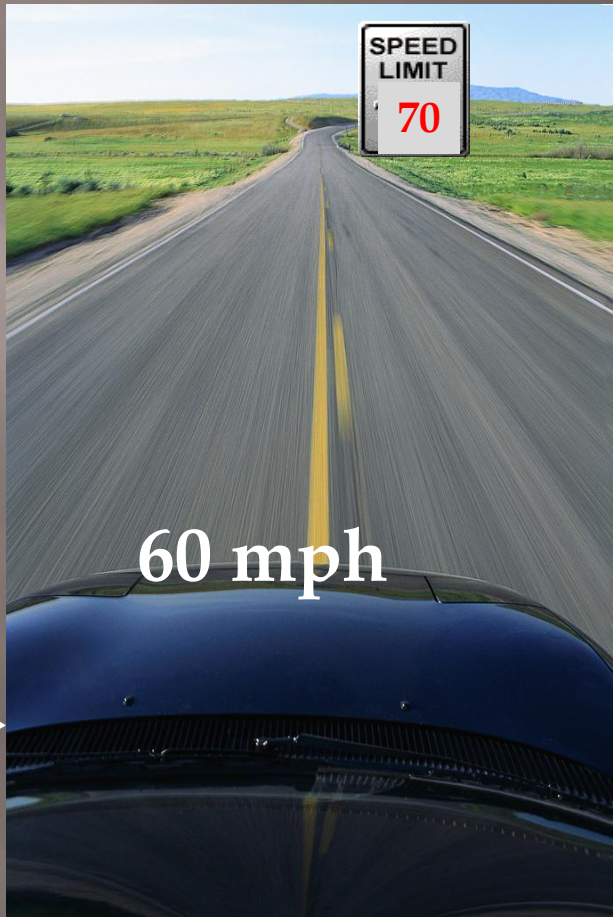
55

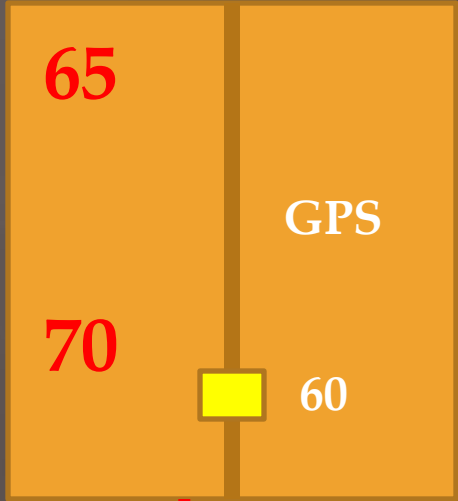
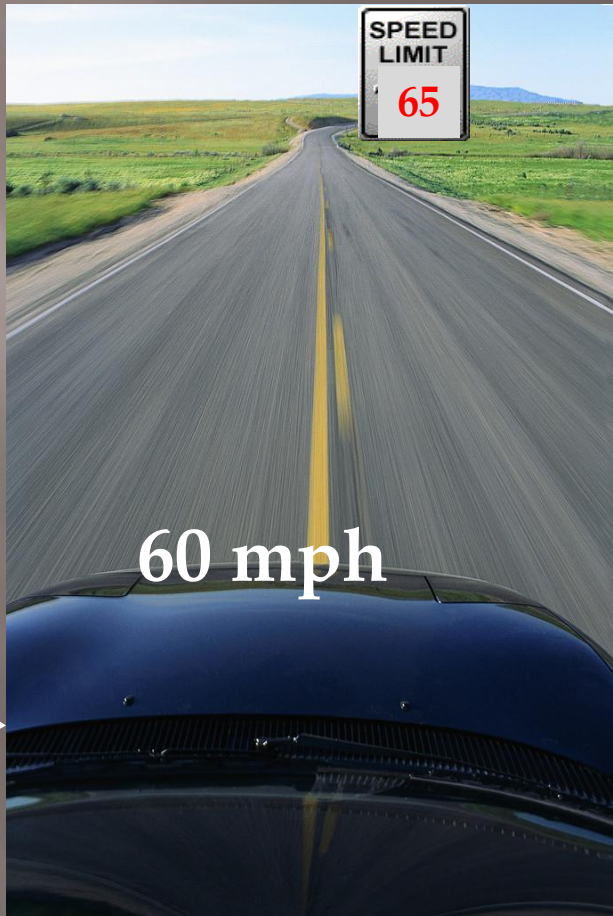


60



VEHICLE REMOTE SPEED CONTROL (VRSC)

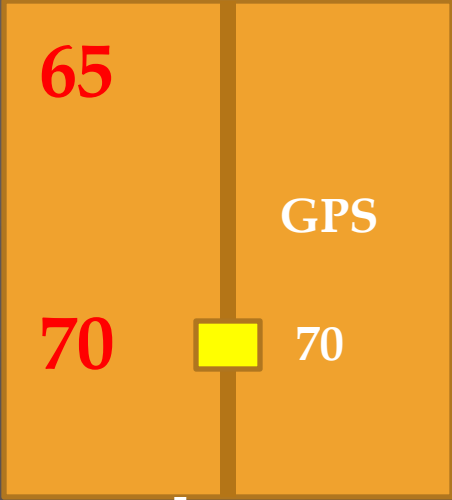




70



VEHICLE REMOTE SPEED CONTROL SYSTEM



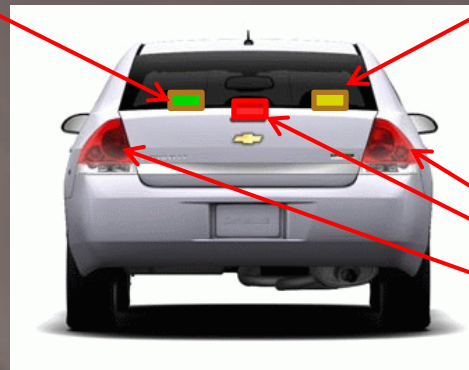
VEHICLE SAFETY MANAGEMENT SYSTEM (VSMS)



VSMS PROXIMITY SENSOR
AND MAINTAIN
DISTANCE BRAKING

VRSC
ENABLED
LIGHT

VSMS
PROXIMITY
ENABLED
LIGHT



VSMS PROXIMITY
ENGAGED BRAKE
LIGHT ON

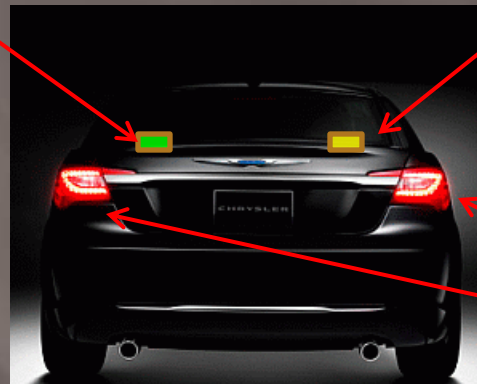
VEHICLE SAFETY MANAGEMENT SYSTEM (VSMS)



VSMS PROXIMITY SENSOR
AND MAINTAIN
DISTANCE BRAKING

VRSC
ENABLED
LIGHT

VSMS
PROXIMITY
ENABLED
LIGHT



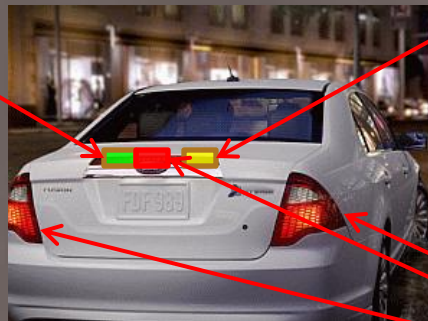
VSMS PROXIMITY
ENGAGED BRAKE
LIGHT ON

VEHICLE SAFETY MANAGEMENT SYSTEM (VSMS)



VSMS PROXIMITY SENSOR
AND MAINTAIN
DISTANCE BRAKING

VRSC
ENABLED
LIGHT



VSMS
PROXIMITY
ENABLED
LIGHT

VSMS PROXIMITY
ENGAGED BRAKE
LIGHT ON

VEHICLE SAFETY MANAGEMENT SYSTEM (VSMS)



VSMS PROXIMITY SENSOR AND MAINTAIN DISTANCE BRAKING

VRSC ENABLED LIGHT

VSMS PROXIMITY ENABLED LIGHT



VSMS PROXIMITY ENGAGED BRAKE LIGHT ON

COMMUTE DRIVING TIME 24MINUTES
COMMUTE DRIVING SPEED 40 MPH
TRAFFIC CONGESTION AND RELIABILITY



NON-CONGESTED TRAFFIC: 70 MPH
PERIOD: 30%
ADDITIVE: 21 MPH
24.9 MPG



CONGESTED TRAFFIC: 27 MPH
PERIOD: 70%
ADDITIVE: 18.9 MPH
28 MPG



TSMS MANAGEMENT
AVERAGE SPEED: 39.9 MPH
29.5 MPG

TSMS FUEL SAVINGS : 9 %

FUEL EFFICIENCY vs. SPEED

COMMUTE DRIVING TIME 24MINUTES
COMMUTE DRIVING SPEED 40 MPH
TRAFFIC CONGESTION AND RELIABILITY



NON-CONGESTED TRAFFIC: 70 MPH
PERIOD: 30%
ADDITIVE: 21 MPH
24.9 MPG



CONGESTED TRAFFIC: 27 MPH
PERIOD: 70%
ADDITIVE: 18.9 MPH
28 MPG

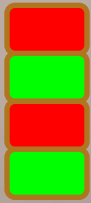
TSMS IN CITY "BUNCHING" SPEED MANAGEMENT



TSMS SPACING FOR TRANSITING TRAFFIC LIGHTS

TSMS SPEED MANAGEMENT ALLOWS FUEL ECONOMY OF SLOW & FAST DRIVING TO EXCEED START & STOP DRIVING FUEL EFFICIENCY
vs. SPEED

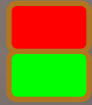
SEQUENCE
TIMING



SEQUENCE
TIMING



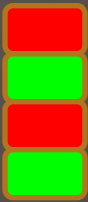
SEQUENCE
TIMING



SEQUENCE
TIMING



TRAFFIC
LIGHT



LOCALIZED
GPS TRAFFIC
LIGHT TIMING
BROADCAST



>30<40 MPH

6 MILE

0 MIN STOP & GO



>15<30 MPH

1.5 MILE

0 MIN STOP & GO



>10<20 MPH

1.0 MILE

0 MIN STOP & GO

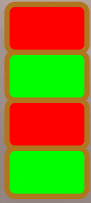


>5<10 MPH

0.5 MILE

0 MIN STOP & GO

SEQUENCE
TIMING



SEQUENCE
TIMING



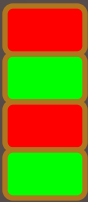
SEQUENCE
TIMING



SEQUENCE
TIMING



TRAFFIC
LIGHT



LOCALIZED
GPS TRAFFIC
LIGHT TIMING
BROADCAST



45 MPH

6 MILE

1 MIN STOP & GO



45 MPH

1.5 MILE

1 MIN STOP & GO



45 MPH

1.0 MILE

1:40 MIN STOP & GO

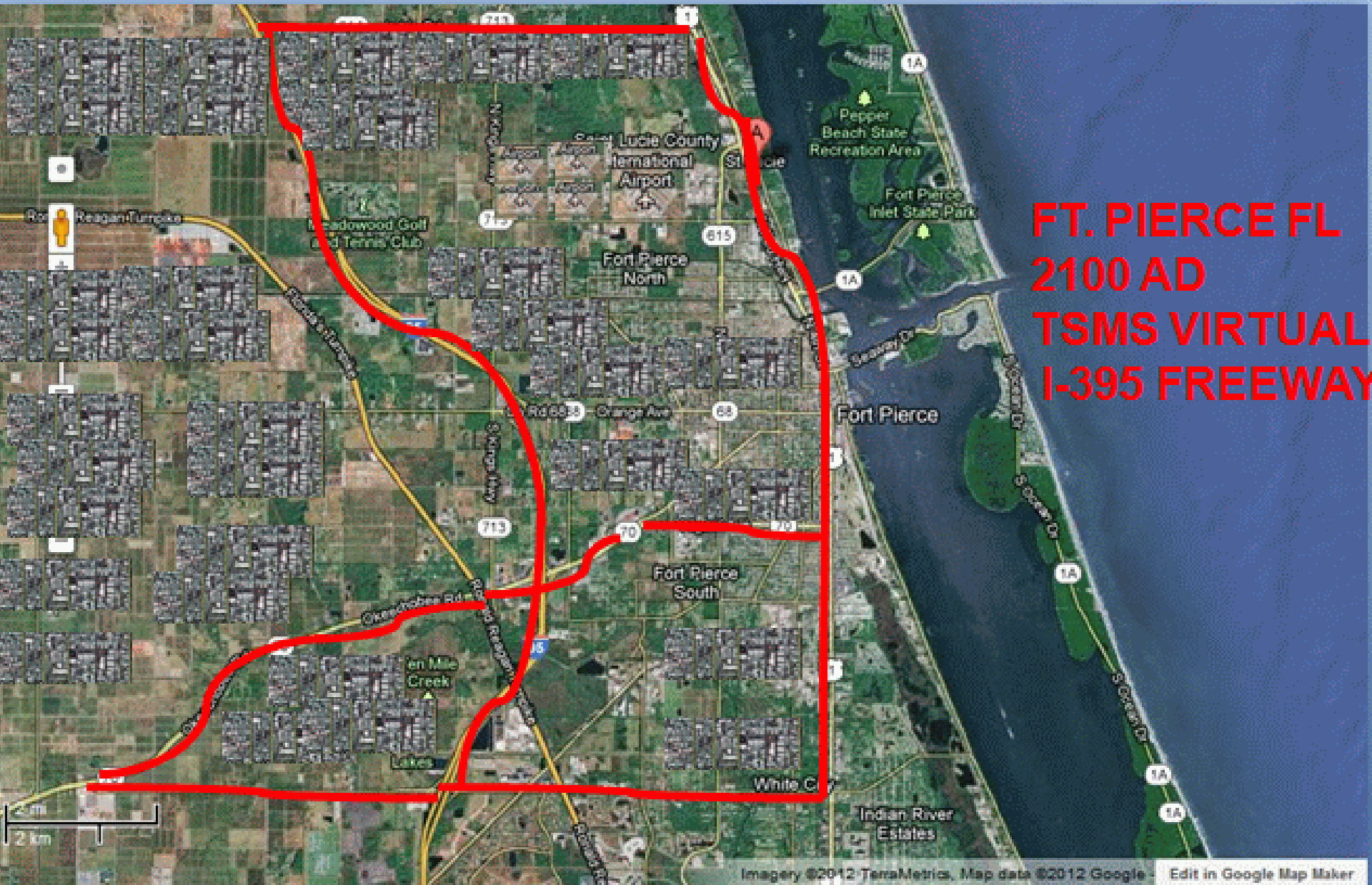


45 MPH

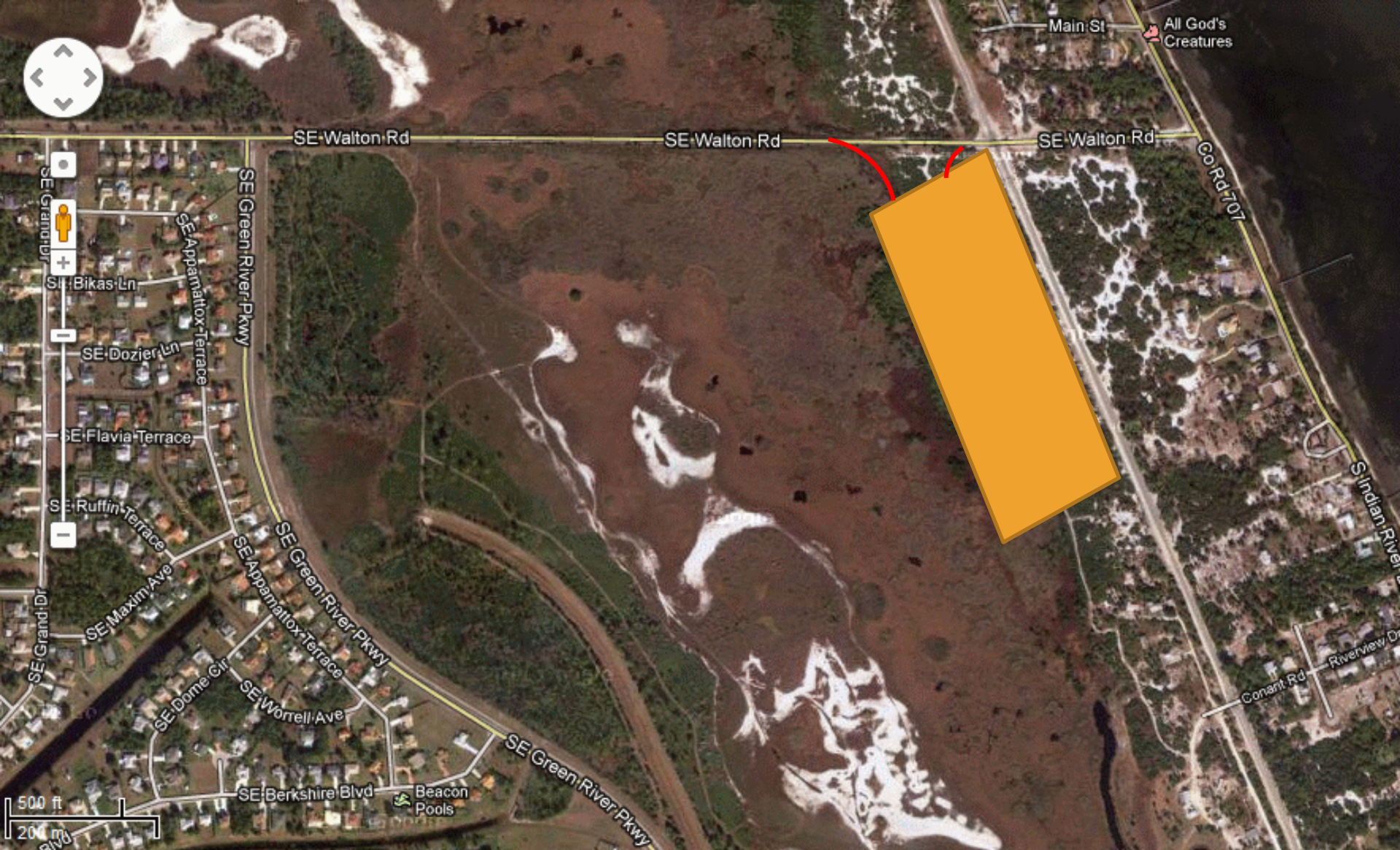
0.5 MILE

2:20 MIN STOP & GO

TSMS VIRTUAL-FREEWAY (TSMS-VF) FOR OPTIMIZATION OF VEHICLE
TRANSIT TIMES & FUEL ECONOMY THROUGH STREET TRAFFIC NETWORKS



FT. PIERCE FL
2100 AD
TSMS VIRTUAL
I-395 FREEWAY



Imagery ©2012 DigitalGlobe, GeoEye, The Florida Department of Environmental Protection, U.S. Geological Survey, Map data ©2012 Google - Edit in Google Map Maker

- 1) 1 BILLION BARRELS OF OIL SAVED IF ALL US DRIVERS DRIVE AT 55 MPH HIGHWAY SPEED
- 2) 125 MILLION BARRELS OF OIL SAVED IF 50% OF US DRIVERS HIGHWAY DRIVING IS DONE FOR 1/4th OF DRIVING TIME AT 55 MPH
- 3) 64 MSA METROPOLITAN AREA REPRESENTS OVER 50% OF US POPULATION
- 4) TSMS REGULATING TRAFFIC SPEED DURING RUSH HOURS IN 64 MSAs REACHES MORE THAN QUARTER US HIGHWAY DRIVERS FOR MORE THAN HALF THEIR TOTAL DRIVING TIME (1/8th) (>12.5% US DRIVING)
- 5) USE OF TSMS IN ABOVE RUSH HOUR TRAFFIC CONDITIONS PROJECTED TO SAVE 100 MILLION BARRELS OF OIL ANNUALLY (1/10th OF 1 BILLION)
- 6) ONE WAY COMMUTE 30-MILES RADIUS OR 60-MILE MSA RANGE
- 7) AVERAGE TOTAL NUMBER OF ENTRANCE-EXITS: 60 (BOTH WAYS)
- 8) AVERAGE TOTAL SPEED INDICATORS 60
- 9) AVERAGE COST PER SPEED INDICATOR: \$5,000
- 10) TOTAL TSMS MSA SPEED INDICATOR COSTS: \$300,000
- 11) AVERAGE COST PER TRAFFIC SENSOR: \$5,000
- 12) TOTAL TSMS COSTS: \$1,500,000 (NEED 120 SENSORS FOR ON/OFF RAMPS)
- 13) TOTAL AVERAGE COST OF 64 MSA TSMS : \$96,000,000
- 14) ESTIMATED COST OF 64 MSAs TSMS AND CENTRAL : \$150 MILLION
- 15) TSMS MSA ANNUAL OPERATIONAL COST: \$1.6 MILLION
- 16) SAVINGS OF 100 MILLION BARRELS AT \$3.50 PER GALLON: \$19.2 BILLION
- 17) DRIVERS PER GALLON TAX COSTS: 0.208 CENTS (@ 500 GALLONS A YEAR)

RANK	CBSA CODES	NATIONAL GEOGRAPHIC ADVERTISING AREA	2007
1	35620	New York-White Plains-Wayne, NY-NJ	11,607,843
2	31100	Los Angeles-Long Beach-Glendale, CA	9,878,554
3	16980	Chicago-Naperville-Joliet, IL	7,952,540
4	26420	Houston-Sugar Land-Baytown, TX	5,628,101
5	12060	Atlanta-Sandy Springs-Marietta, GA	5,278,904
6	38060	Phoenix-Mesa-Scottsdale, AZ	4,179,427
7	47900	Washington-Arlington-Alexandria, DC-VA-MD-WV	4,151,047
8	19100	Dallas-Plano-Irving, TX	4,111,529
9	40140	Riverside-San Bernardino-Ontario, CA	4,081,371
10	37980	Philadelphia, PA	3,887,694
11	33460	Minneapolis-St. Paul-Bloomington, MN-WI	3,208,212
12	31100	Santa Ana-Anaheim-Irvine, CA	2,997,033
13	41740	San Diego-Carlsbad-San Marcos, CA	2,974,859
14	41180	St. Louis, MO-IL	2,803,707
15	35620	Nassau-Suffolk, NY	2,759,762
16	45300	Tampa-St. Petersburg-Clearwater, FL	2,723,949

RANK	CBSA CODES	NATIONAL GEOGRAPHIC ADVERTISING AREA	2007
17	12580	Baltimore-Towson, MD	2,668,056
18	42660	Seattle-Bellevue-Everett, WA	2,536,182
19	41860	Oakland-Fremont-Hayward, CA	2,483,842
20	19820	Warren-Troy-Farmington Hills, MI	2,482,491
21	19740	Denver-Aurora, CO /1	2,464,866
22	33100	Miami-Miami Beach-Kendall, FL	2,387,170
23	38300	Pittsburgh, PA	2,355,712
24	35620	Edison, NJ	2,319,704
25	38900	Portland-Vancouver-Beaverton, OR-WA	2,175,113
26	17140	Cincinnati-Middletown, OH-KY-IN	2,133,678
27	35620	Newark-Union, NJ-PA	2,128,679
28	17460	Cleveland-Elyria-Mentor, OH	2,096,471
29	40900	Sacramento--Arden-Arcade--Roseville, CA	2,091,120
30	19100	Fort Worth-Arlington, TX	2,033,508
31	36740	Orlando-Kissimmee, FL	2,032,496
32	41700	San Antonio, TX	1,990,675

RANK	CBSA CODES	NATIONAL GEOGRAPHIC ADVERTISING AREA	2007
33	28140	Kansas City, MO-KS	1,985,429
34	19820	Detroit-Livonia-Dearborn, MI	1,985,101
35	14460	Boston-Quincy, MA	1,858,216
36	29820	Las Vegas-Paradise, NV	1,836,333
37	41940	San Jose-Sunnyvale-Santa Clara, CA	1,803,643
38	33100	Fort Lauderdale-Pompano Beach-Deerfield Beach, FL	1,759,591
39	18140	Columbus, OH	1,754,337
40	41860	San Francisco-San Mateo-Redwood City, CA	1,720,056
41	26900	Indianapolis-Carmel, IN	1,695,037
42	47260	Virginia Beach-Norfolk-Newport News, VA-NC	1,658,754
43	16740	Charlotte-Gastonia-Concord, NC-SC	1,651,568
44	39300	Providence-New Bedford-Fall River, RI-MA	1,600,856
45	12420	Austin-Round Rock, TX	1,598,161
46	33340	Milwaukee-Waukesha-West Allis, WI	1,544,398
47	34980	Nashville-Davidson--Murfreesboro--Franklin, TN	1,521,437
48	14460	Cambridge-Newton-Framingham, MA	1,473,416

RANK	CBSA CODES	NATIONAL GEOGRAPHIC ADVERTISING AREA	2007
49	27260	Jacksonville, FL	1,300,823
50	32820	Memphis, TN-MS-AR	1,280,533
51	33100	West Palm Beach-Boca Raton-Boynton Beach, FL	1,266,451
52	37980	Camden, NJ	1,246,339
53	31140	Louisville/Jefferson County, KY-IN	1,233,735
54	40060	Richmond, VA	1,212,977
55	36420	Oklahoma City, OK	1,192,989
56	25540	Hartford-West Hartford-East Hartford, CT	1,189,113
57	47900	Bethesda-Gaithersburg-Frederick, MD	1,155,518
58	15380	Buffalo-Niagara Falls, NY	1,128,183
59	13820	Birmingham-Hoover, AL	1,108,210
60	41620	Salt Lake City, UT	1,099,973
61	39580	Raleigh-Cary, NC	1,047,629
62	40380	Rochester, NY	1,030,495
63	35380	New Orleans-Metairie-Kenner, LA	1,030,363
64	46060	Tucson, AZ	967,089

AIRCRAFT TRAFFIC SPEED MANAGEMENT SYSTEM (ATSMS) AIR TRANSPORTATION PROJECTED SAVINGS OF 100 MILLION GALLONS OF JET FUEL AS ATSMS IS INTEGRATED INTO FAA ATC SYSTEM THROUGH INSTALLATION OF GPS MANAGED AIR SPEED LIMITS. SPEEDS SET TO VARY WITH AIRCRAFT TYPES AND COORDINATED REDUCTION OF AIRCRAFTS TRANSIT QUEUEING TIMES OF AIRCRAFT AIRPORT ARRIVALS.



SCHEDULED: 3:00PM
 ATSMS: 3:12PM
 TOUCHDOWN: 3:12PM
 3 HOUR RANGE
 SPEED REDUCED: 6.66%



SCHEDULED: 3:00PM
 ATSMS: 3:008M
 TOUCHDOWN: 3:09PM
 1.5 HOUR RANGE
 SPEED REDUCED: 9%



SCHEDULED: 3:00PM
 ATSMS: 3:00PM
 TOUCHDOWN: 3:00PM



SCHEDULED: 3:00PM
 ATSMS: 3:04PM
 TOUCHDOWN: 3:04PM
 1 HOUR RANGE
 SPEED REDUCED: 6.66%

NOTE IF ATSMS ARRIVAL DELAYS SIGNIFICANLTY REDUCE AIRCRAFT SPEED PERFORMANCE, AIRCRAFT MAY BE MOVED FORWARD IN QUEUE OR ATSMS MAY SUGGEST POSTPONING INCOMING DEPARTURE TO LATER TIME



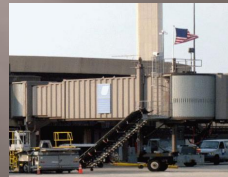
AIRCRAFT
HOLDING CACHE



ARRIVALS TAXIING



OPEN
DEPARTURE GATE



OPEN
ARRIVAL GATE



DEPARTURES
TAXIING



ASSIGNED
DEPARTURE GATE



ASSIGNED
ARRIVAL GATE



LANDINGS
TAKEOFFS

ATSMS INTEGRATED TRAFFIC MANAGEMENT FROM IN-FLIGHT
THRU LANDING & TAKEOFF, & AIRCRAFT HOLDING CACHE

REFERENCE

1. TRAFFIC CONGESTION AND RELIABILITY
2. FUEL EFFICIENCY vs. SPEED