2008

BEST PRACTICES

UC/CSU/CCC Sustainability Conference

Cal Poly San Luis Obispo, 2008

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PROJECT GREENLIGHT

University of California, Irvine

Transportation Demand Management

Presenters:

Michael Davis, Transportation Coordinator

Antoinette Saenz, Transportation Coordinator

PROJECT DESCRIPTION

Project Greenlight–focuses on intra-campus emission reductions **=** (3-year timeline)

GOAL:

- Reduce traffic congestion
- Reduce GHG emissions

PROCESS

4 INITIATIVES

- Commuter Parking Restrictions
- Increased Shuttle Service
- Optimized Signal Timing
- Coordinated Transit Signal Priority

PROCESS

COMMUTER PARKING RESTRICTIONS

- SURVEYS = showed commuter students driving from lot to lot rather than utilizing shuttles/walking
- POLICY = restricted freshmen/sophomore to park in one quad on campus 7am-5pm
- ZONE PARKING = 1,460 stalls in 3 outlying lots made available

Freshmen restriction began Fall 2005
Sophomores-Fall 2006
Juniors -2008

COMMUTER ZONE PARKING RESULTS

2007/2008 Zone Parking Results

Zone Permits Sold	1700
Zone Permits Used Daily (AVG)	1300
Trips Saved per Day per Commuter (AVG)	2.2
Trips Saved per Month	62,920
Trips Saved per Academic Year	**566,280**
Average Distance per trip	1 mile
GHG Savings (assumes 20 mpg; 19.4 lbs GHG /gal)	**289 Tons**

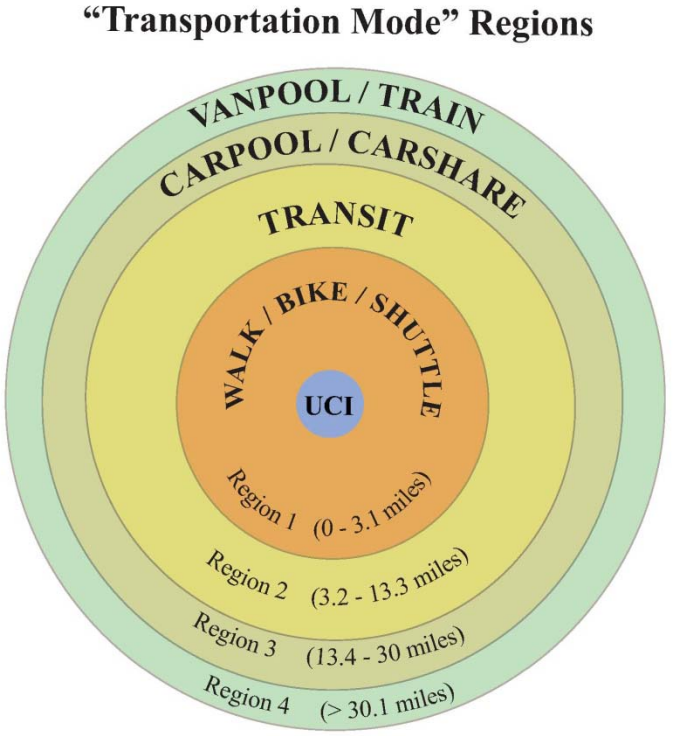
PROCESS

INCREASED SHUTTLE SERVICE

Associated Students of UC Irvine
campus shuttle system expanded service to Newport Beach

Potential: 551 employees and 414 students

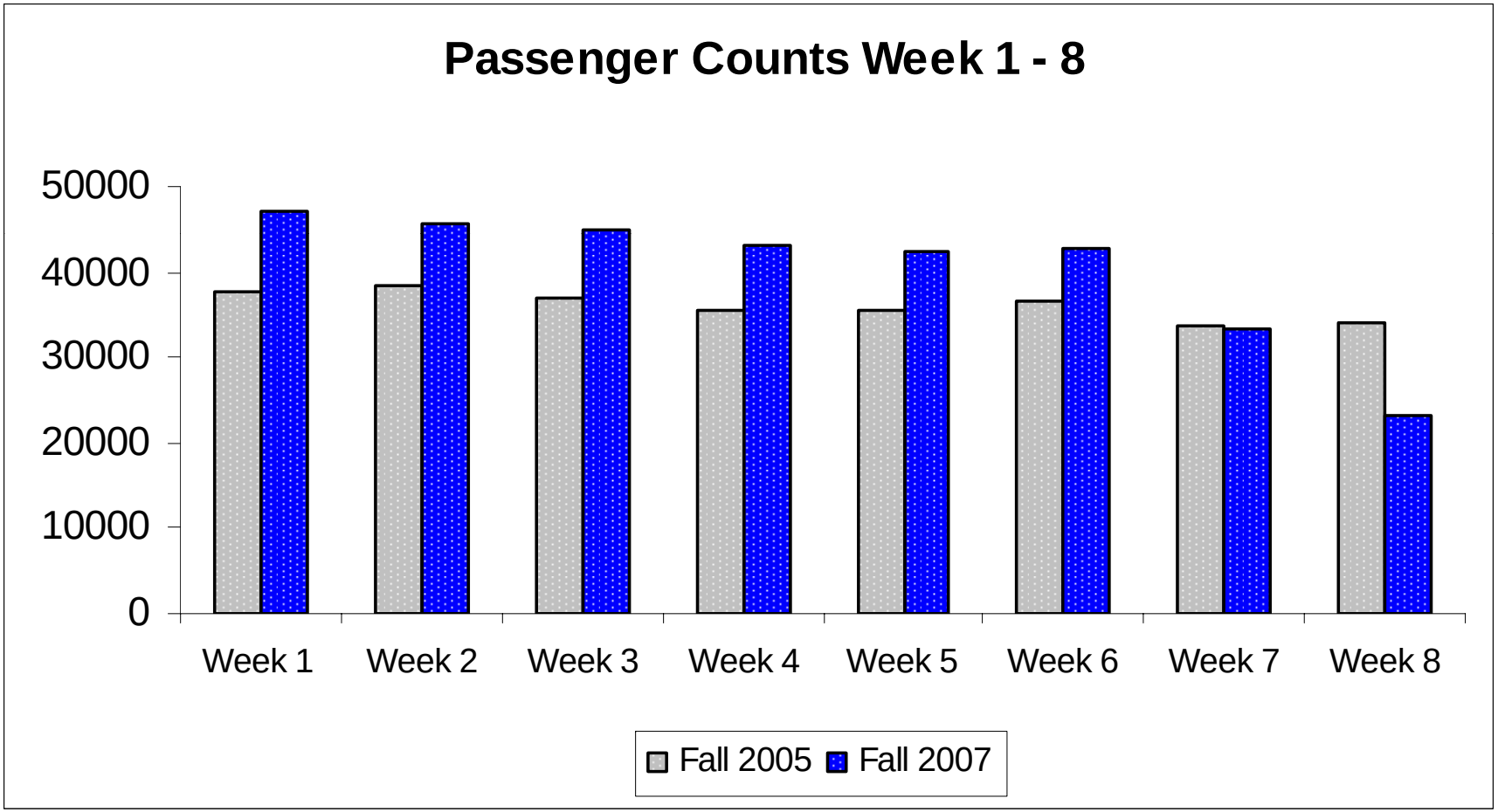
Marketing campaign to in-coming students re: parking restrictions & shuttle options



$$\frac{39.67\,\%}{30.52\,\%} - \frac{16.24\,\%}{9.91\,\%} - \frac{26.86\,\%}{1.54\,\%} - \frac{17.23\,\%}{1.44\,\%} = \frac{\text{UCI Pop. \%}}{\text{TDM \%}}$$

INCREASED SHUTTLE SERVICE RESULTS

The shuttle system increased passenger volume 23% over the last two years



PROCESS

OPTIMIZED SIGNAL TIMING

- 8 traffic signals
  2 in process & 5 more coming
- Cordon counts/volume studies
  conducted at signaled intersections
- Analysis showed 7 intersections
  would benefit from new timing

East Peltason & Pereira

PM PEAK HOUR: **MWF**

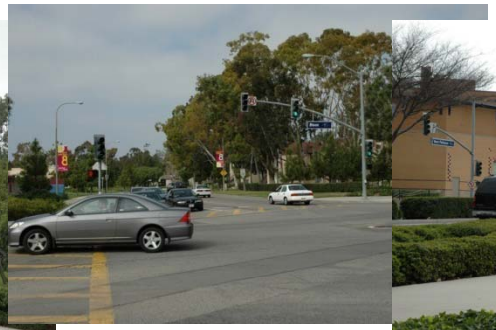
ASSUMED CYCLE LENGTH: 100 SECONDS
CYCLES PER HOUR: 36.0

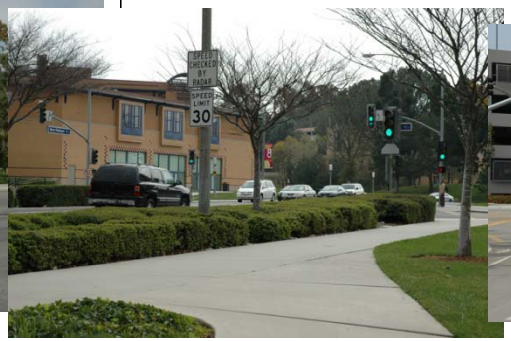
	PHASE NO.	STREET NAME AND TURNING MOVEME	VEHICLES PER HOUR	NO. OF LANES	VEH. PER LANE (VPL)	VPL PER CYCLE	0.95 CONFD.*	REQ. GRN. VEH.	REQ. GRN. PED	"MAX SPLITS"
2	nb to Campus d	nb thru + r	644	2.0	322	9	31.4	30		30
5	nb left	nb left	55	1.0	55	2	12.0	11		11
6	sb to Gab	sb thru + r	373	2.0	187	5	21.6	20		20
1	sb left	sb left	76	1.0	76	2	12.0	11		11
4	eb	eb	340	1.0	340	9	31.4	30		30
3	wb	wb	280	1.0	280	8	28.9	27		~~27~~ 17
					####	####	#DIV/0!	###		
					####	####	#DIV/0!	###		
							TOTAL GREEN			129
							TOTAL YELLOW			10
							TOTAL ALL RED			4
							MAX POSSIBLE CYCLE LENGTH			143

AM PEAK HOUR: **MWF**

ASSUMED CYCLE LENGTH: 100 SECONDS
CYCLES PER HOUR: 36.0

	PHASE NO.	STREET NAME AND TURNING MOVEME	VEHICLES PER HOUR	NO. OF LANES	VEH. PER LANE (VPL)	VPL PER CYCLE	0.95 CONFD.*	REQ. GRN. VEH.	REQ. GRN. PED.	"MAX SPLITS"
2	nb to Campus d	nb thru + r	333	2.0	167	5	21.6	20		20
5	nb left	nb left	145	1.0	145	4	18.6	17		17
6	sb to Gab	sb thru + r	591	2.0	296	8	28.9	27		27
1	sb left	sb left	76	1.0	76	2	12.0	10		10
4	eb	eb	94	1.0	94	3	15.3	14		14
3	wb	wb	232	1.0	232	6	23.9	22		~~22~~ 24
					####	####	#DIV/0!	###		
					####	####	#DIV/0!	###		
							TOTAL GREEN			110
							TOTAL YELLOW			10
							TOTAL ALL RED			4
							MAX POSSIBLE CYCLE LENGTH			124

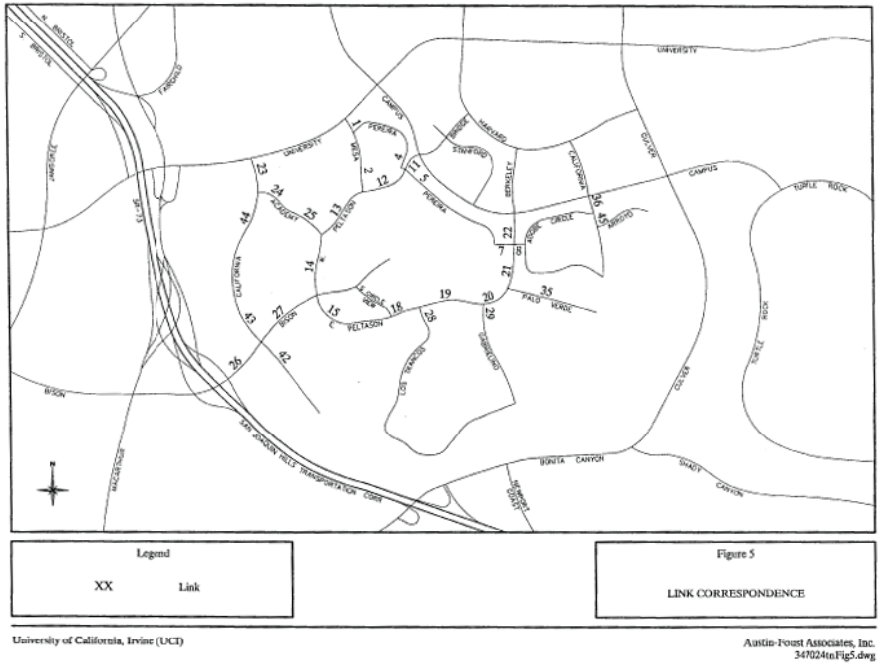




PROCESS

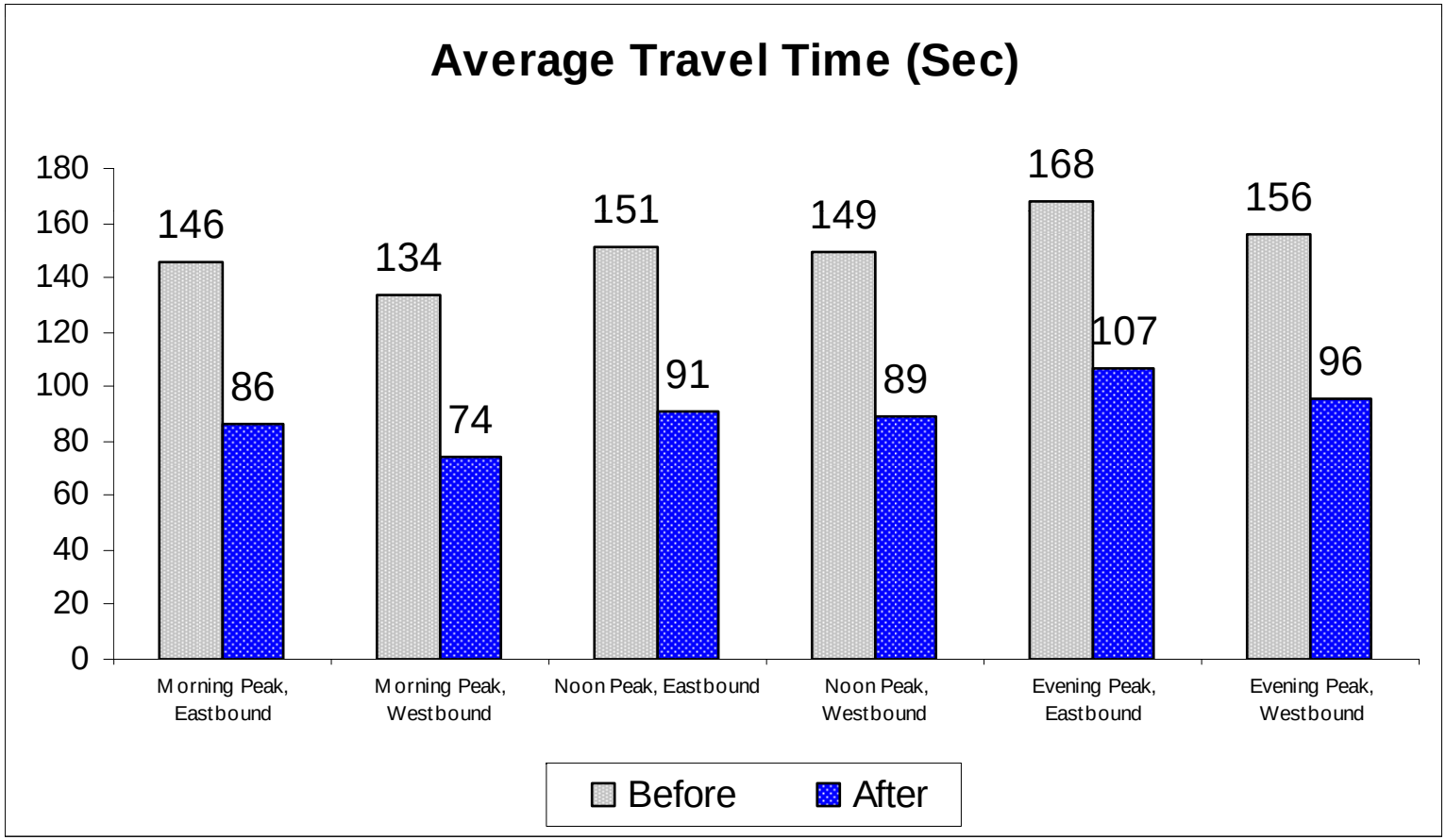
OPTIMIZED SIGNAL TIMING

Parking & Transportation Services worked with an outside vendor to optimize the signals at the cost of $25,000 per signal.

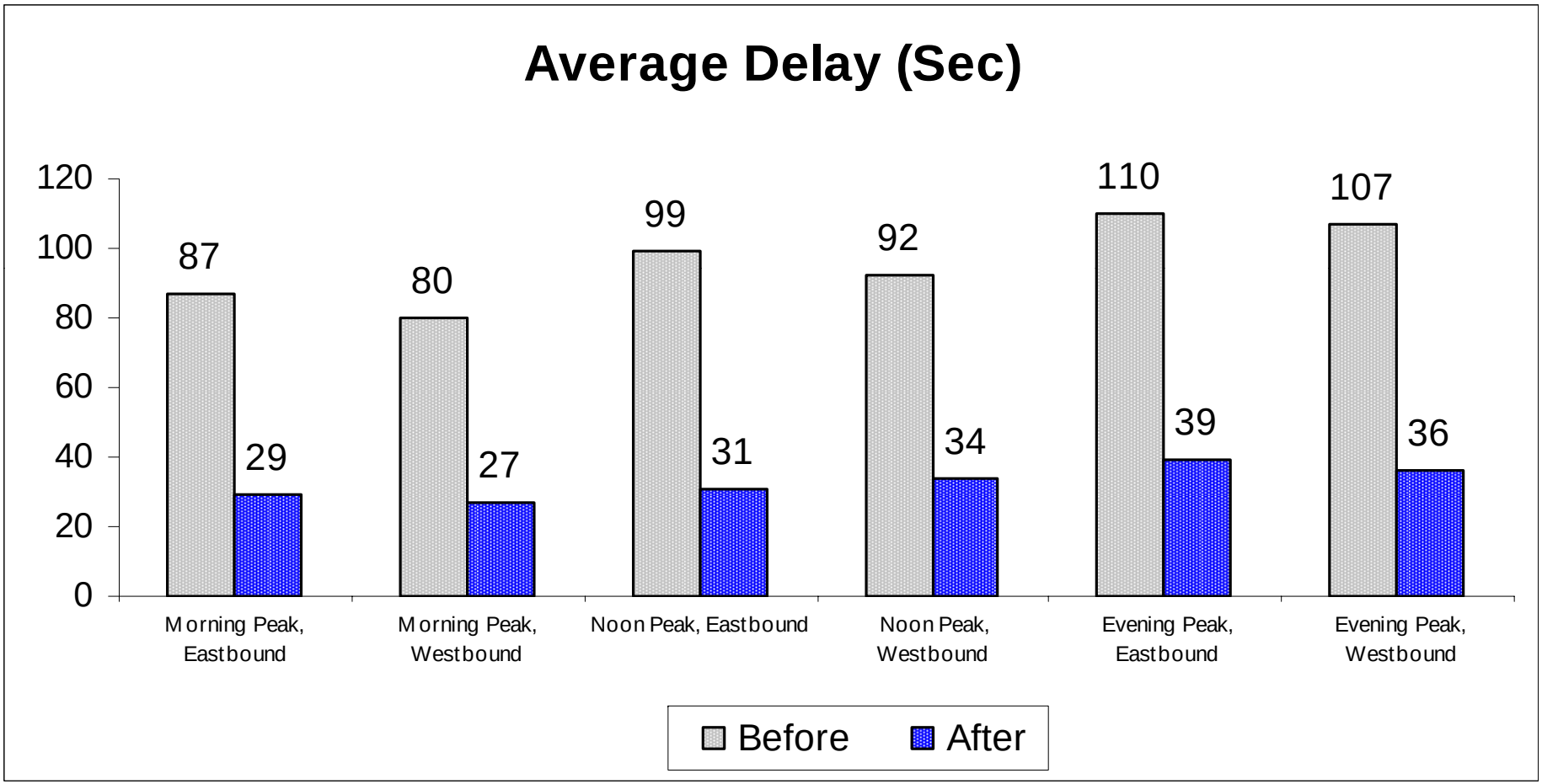


OPTIMIZED SIGNAL TIMING RESULTS

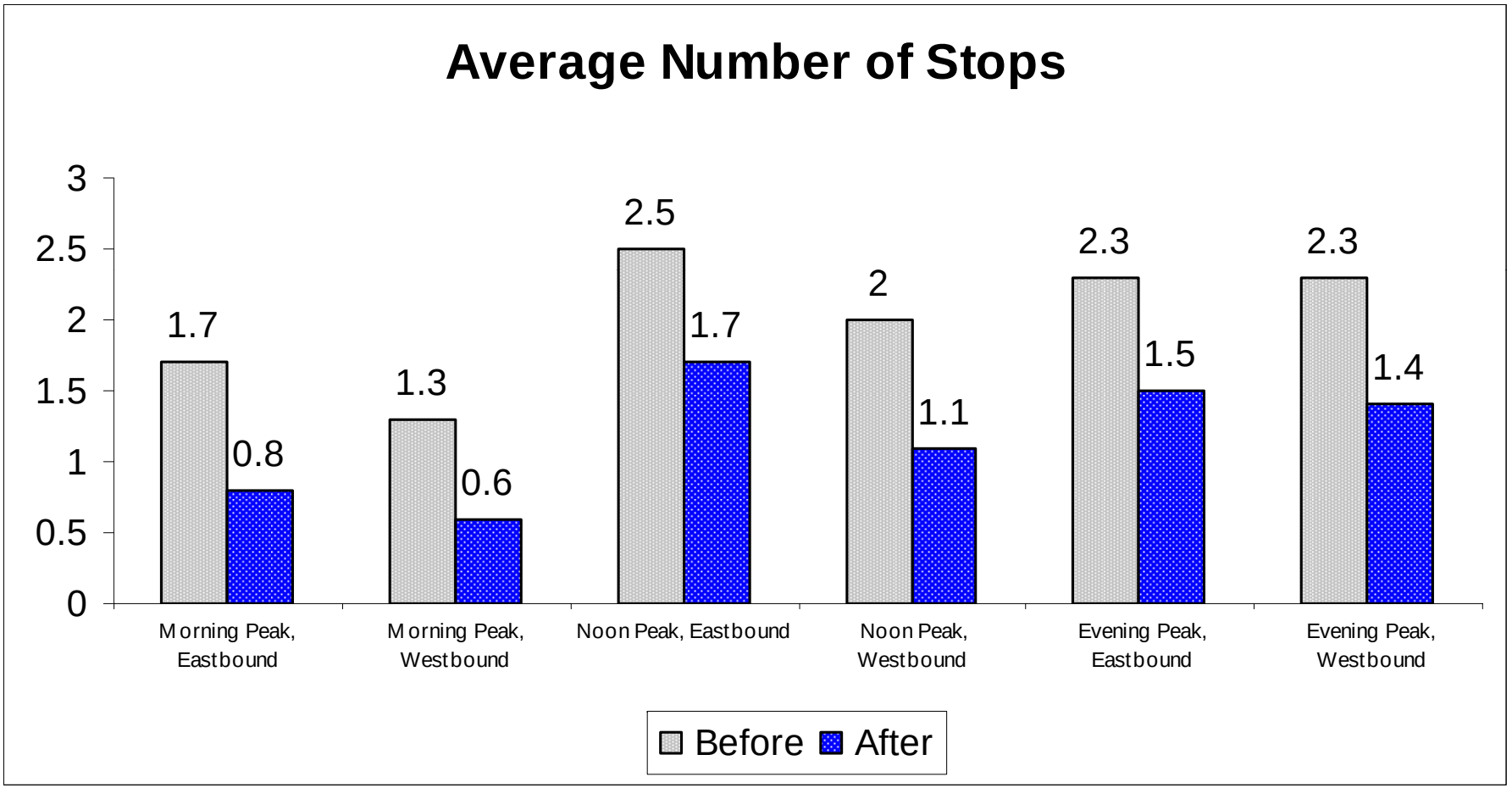
Signal plans to match specific traffic patterns at various points throughout the day were created, reducing travel time, delays, and numbers of stops.



OPTIMIZED SIGNAL TIMING RESULTS



OPTIMIZED SIGNAL TIMING RESULTS



OPTIMIZED SIGNAL TIMING RESULTS

Performance Measures	Daily Benefits	Annual Benefits
Travel time	980 mins	4312 hrs
Fuel consumption	176.4 gal	46,569.6 gal
Time and fuel costs*	$818.00	$216,031
Pollutant emissions	235lbs/CO_2	32.7 Tons GHG

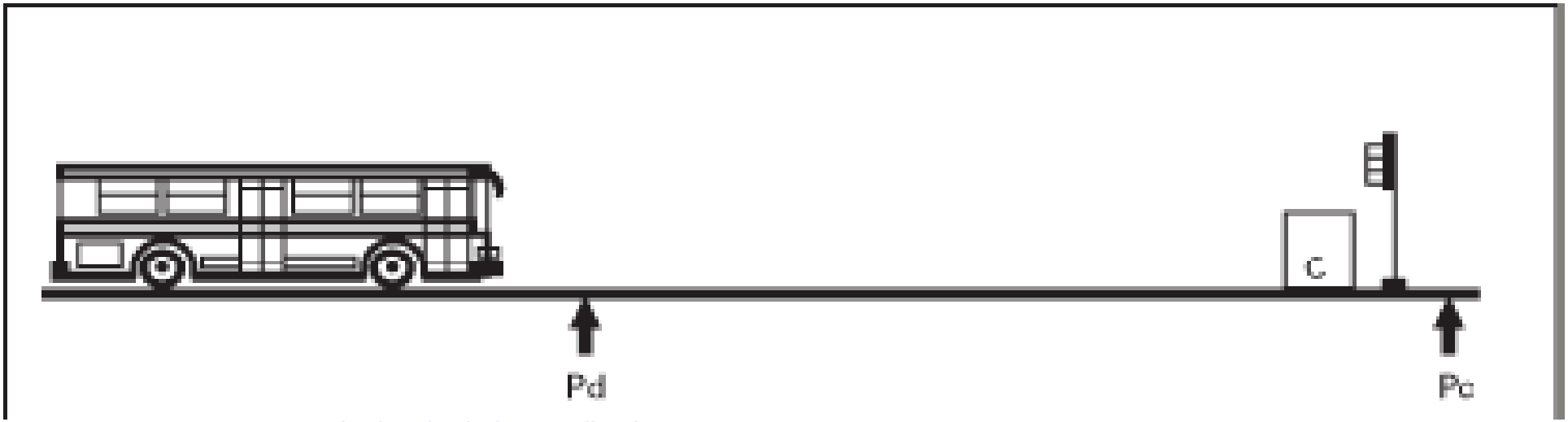
* Fuel $3.25/gallon 0.015gal/min

PROCESS

COORDINATED TRANSIT SIGNAL PRIORITY

Transit Signal Priority allows campus shuttles to request a green light as they approach a signal in order to stay on schedule.

TRANSIT PRIORITY AT SIGNAL – Simplified Representation*



*Taken from *Transit Signal Priority Handbook* – www.itsa.org/itsa/files/pdf/TSPHandbook2005.pdf

COORDINATED TRANSIT SIGNAL PRIORITY RESULTS

Cost:

- $7000 signal + $1500 bus
  - 21 shuttle buses
- Completed 2008/2009

Results:

•15% reduction in shuttle scheduling delays

•increased rider confidence

•boost shuttle ridership by an additional 5% to 10%.
(8000 people a day/1.56 million annual passengers per year).

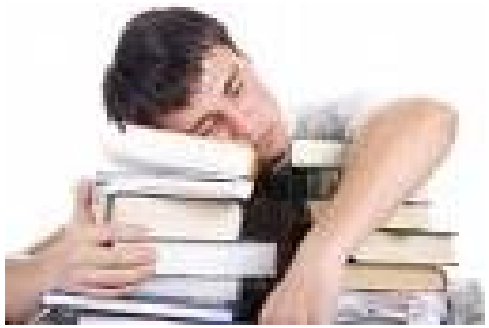
BARRIERS & LESSONS LEARNED

BARRIERS –

- Funding
- Resources: Signal Timing Expertise

LESSONS LEARNED –

- Consider ALL contributions to traffic congestion and emissions – even intra-campus issues
- Work with other departments or your Associated Students to come up with solutions
- Seek outside vendors and review best practice outside the industry



ACCOMPLISHMENTS

- Project Greenlight will reduce approximately
  - 330 tons of GHG per year.

TEAM

- Ron Fleming, Associate Director
  UC Irvine Parking & Transportation Services

- Tim Rudek, Director of Shuttle Services
  Associated Students,
  University of California, Irvine

- Republic Intelligent Transportation Services (ITS) -

CONTACT INFORMATION / RESOURCES

- Ron Fleming, Associate Director, UC Irvine Parking & Transportation Services
  - 949.824.2695, rmflemin@uci.edu
- Michael Davis, Transportation Coordinator, UC Irvine Parking & Transportation Services
  - 949.824.5060, msdavis@uci.edu
- Antoinette Saenz, Transportation Coordinator, UC Irvine Parking & Transportation Services
  - 949.824.7620, saenza@uci.edu
- Republic Intelligent Transportation Services
  1266 N. La Loma Circle
  Anaheim, CA 92806
  Phone: 714-630-2100
  www.republicelectric.com/home
- Transit Signal Priority Handbook – www.itsa.org/itsa/files/pdf/TSPHandbook2005.pdf

QUESTIONS?

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