UNHEALTHY COMMUTES

The extent of the problem
Causes and effects
What can be done about it?
Unhealthy Commutes—Congestion, air pollution and accidents

- Riverside/San Bernardino ranked #1
- Los Angeles #3
- San Francisco #17
- New York City #19
Causes of Unhealthy Commutes

- Traffic congestion (the overriding cause)
- Driving stress
- Motor vehicle generated smog
- Accidents
Traffic Congestion—
How bad is it?

• #1 L.A./Long Beach/OC: 72 hours
• #2 San Francisco/Oakland: 60 hours
• #12 Riverside/San Bernardino: 49 hours
Traffic Congestion—
How bad is it?

- 10.8 million drivers in SoCal
- Busiest freeway interchanges in SoCal
- 3.4 million Americans have commutes > 90 minutes one way
- Approximately 3.3 million drive >50 mi. one way
- 4.2 million leave before 6:00 a.m.
Why the emphasis on COMMUTE

• AVO is lowest for the commute
• Longest trip in any given day involve the trip to work
• Most severe congestion occurs during peak rush hour
• The work trip is easier to control
July 2007 CommuteSmart study

- 77.2%: drive alone
- 12.3%: carpool to work
- 6.6%: bus or train to work
- 0.6%: walk to work
- 0.6%: ride in a vanpool
- 0.5%: bicycle
- 0.2%: ride a motorcycle
The hazards of commuting

Why traffic congestion is so deleterious to our health
Driving stress

Raymond Novaco, Ph.D.
Richard Stokols, Ph.D.
Causes of stress

- Trip attributes
- Physical impedances
- Psychological stimuli: cues for aggression
- Fatigue
Trip attributes that cause stress

- **Length**: 18 miles
- **Interchanges**
- **Freeways**
- **Lane changes**
- **Environment**:
  - **temp**: > 90 degrees
  - **sound**: > 78db (heavy fwy. traffic is 90 dB at 50’)
  - **CO**: > 35 ppm (120 ppm on average fwy.)
Effects of commuting stress—Physical

- Increased blood pressure
- Accelerated heart rate
- Arrhythmias
- Increased illness
- Heart attack
- Cumulative
Psychological effects

- reduced tolerance to frustration
- short-term memory loss
- illness-related absences
- negative mood
- reduced productivity
- increased disability claims
- decreased job satisfaction
Additional findings

- Commuting satisfaction statistically linked to job change
- Consequences transfer from one domain to another
Ways to reduce commuting stress

- Leave early
- Take a break before starting out
- Snack
- Pleasing environment
- Calm the ears
- Muscle contraction/relaxation
- Carpooling
Zen driving
K.T. Berger

- Drop destination
- Quit looking at watch
- Acknowledge transgressions
- Deep breathing
- Reset ETA if a Sigalert
Road Rage—the most perilous result of driving stress

• #1 spot

• CHP figures for 2002:
  • Brandishing: 38
  • Ramming: 215
  • Shooting: 16

• 1975 Utah Study: 12% male, 18% female
If planning a trip on a SoCal freeway, please prepare according to the following schedule:

- **Mondays**: side arms only, 357 Magnum OK
- **Tuesdays**: Men’s large caliber rifles, (scoped 30-0-6)
- **Wednesdays**: Lady’s Shotgun Day, 10, 12, 20 gauge
- **Thursdays**: automatic weapons, AK-47, Uzzi's welcome
- **Fridays**: Men & Women’s Open. Competition for prizes
- **Saturdays**: Saturday night specials, what else? (Raven 25 cal.)(S&W 38)
- **Sundays**: off day (for gun cleaning)
Causes of road rage
Raymond Novaco, Ph.D.

• Stress
• Marketing
• Model names.
• Armored shell.
• Anonymity
• Fast getaway
How to avoid being a victim

• Don’t offend
  • Never drive slow in the fast lane
  • Always signal
  • Never tailgate or honk your horn

• Don’t engage
  • Don’t make eye contact
  • Never pull over

• Adjust your attitude
Air Pollution—
Second danger of commuting

• Ozone (NOx + VOCs)
• Particulate matter (PM10 and PM5)
• NOx
• Carbon Monoxide
The harmful effects of mobile-source air pollution

- 90% of cancer-causing air pollution comes from cars
- Children suffer 10-15% loss in lung function
- PM10 can increase risk of MI & ASO
- Benzene linked to acute myelogenous leukemia
- CO implicated in 37% increase in CHF S/S
Ways to reduce smog’s effects on your health

• Minimize time stuck in traffic
• Don’t follow trucks (18X exposure)
• Keep distance when filling tank
• 1-800-CUT-SMOG to check on alerts
Ways to reduce smog generation

• Avoid traffic jams
• Use your air-conditioner sparingly
• Drive at a steady speed
• Slow down
• Combine trips
• Carpool
Accidents—
The third danger of traffic

• 38.3% more likely to crash L.A. than in the average American city

• In the United States: 1:88 chance of dying by car accident

• 43,000 deaths per year in U.S.
Risk factors for accidents

• Day of the week: Saturday; then Friday

• Time of day: afternoon rush hour

• Fatal: several times higher at night

• Driving solo: 7.5% less with passenger
Distraction Factors
California crashes in 2005, CHP figures

• Cell phone: 1098 crashes
• Radio/CD: 892
• Children: 421
• Eating: 344
• Reading: 208
How to avoid accidents

• Never let your defenses down
• Don't always demand the right of way
• Stay observant
• Avoid driving when excessively tired, or irritated
• Keep your car in shape
Lessening the impact of a crash

- Avoid “head-on” impact
- Reduce your speed as much as possible
- Given a choice, swerve to the right
- For right-angle crash, try to receive impact behind the rear wheels
Other hazards of long commutes

• Hearing loss: > 90 dB (heavily-traveled freeway measures 90 dB at 50 feet)

• Aging skin: UV-A rays penetrate glass, occur in early morning and late afternoon.
How to beat traffic congestion

The root of most commuting health hazards
Goal: reduce exposure to commuting hazards

- Trip preparation
- Save time on freeways
- Save time on surface streets
- Alternate routes
- Decipher radio traffic reports
- Using “technology”
Why beating traffic falls upon the individual

- No new freeways
- Rail helps only a little
- Technology only goes so far
- We have to do it ourselves
Trip preparation

• Look up the destination on a map
  • 10% timesaving
  • Important for major road closures
  • Look for parallel boulevards
  • Note: 53% of commuters never vary
Look up destination on the Internet

- Mapping sites, as rated by *PC World*
  - Microsoft Live Search: 95
  - Ask City 93:  (http://city.ask.com/city)
  - Yahoo Maps: 89
  - Google: 83
  - Map Quest: 80
More trip preparation pointers:

• Check road construction
• Check the sports page.
• Listen/view traffic report before you start.
• Adjust time of departure PRN
Saving time on the freeway

• Getting on the freeway: Note ramp meter

• Continuously monitor traffic conditions

• Stay observant: Smith Driving System
More freeway pointers:

• In heavy traffic, stay in the slow lane

• Get in the slow lane when traffic slows unexpectedly

• Stay to the right when the lanes get tight.

• Resist the need to speed
Miscellaneous pointers

• Bi-directional rush hour
• For every hour add extra 15 min.
• Congested suburbs
• No "free time”
• Saturdays busy
• Use cellphone less (2 mph)
• Live east
Saving time on surface streets

- Picking the correct lane
  - Four-lane roads: #1
  - Six lane: middle lane
- Stay observant
- Time the lights
  - Restraint
  - Signalization: best for all
Timing strategies
Sam (Gridlock Sam) Schwarz—author of NY Shortcuts

- **Simultaneous**: No *bueno*
- **Reversed Progression**: bail immediately
- **Alternating**: 50:50 split. Make the first green
- **Progressive**: Best-case scenario of timing.
Additional signal-timing pointers

- **Problem on the freeway:** Use parallel streets if corridor control employed
- **Special events:** avoid crossing paths to event
- **Bad timing:** “Get outta town!”
Mastering Alternate Routes

Better “route cognition” can reduce trip duration by as much as 10%
Alternate route considerations

- Preference for freeway alternates vs. surface street alternates, 1.4:1
- Only 4% of pavement is freeway
- Surface streets more predictable
Recurring congestion:
The "same old, same old"

- Downstream bottlenecks
- Decreasing lanes or lane width
- Visibility issues
- Population centers
Incident congestion

• Unexpected events:
  • Accidents
  • Debris
  • Spills
  • Anything unique
Deciding *when* to take an alternate

- Recurring congestion: freeway
- Incident: surface street
- Take cues from traffic reporter
- If same alternate recommended for > 30 minutes, use different street
- Major events: take alternate route
Who diverts?

- Motorist profile:
  - Income level?
  - Sex?
  - Radio listeners?
  - Trip distance?
Where to get back on the freeway

• Add at least one onramp
• No news: stay close
• Never bob on and off
• If > 30 minutes: get far away
Finding Good Alternate Routes

• Shortest distance
• Avoid on-ramp streets
• Cross freeways at “no-ramp” streets
• Parallel freeways at a distance.
• Avoid commercial districts.
Finding good alternates, continued:

- Railroad tracks
- Industrial areas
- One-way streets
- “Zig-zag” streets
- Traffic circles
- Major streets (70/30 split on timing)
Making the most of traffic reports

70% of drivers access radio for traffic info
Important pointers:

• Constantly monitor traffic reports
• Consider time and location
• Center divider
• Airborne vs. studio
Understanding traffic terminology

• **Sigalert**: One lane closed for > 30 minutes

• **Traffic Advisory**: PREDICTED situations

• **Traffic Alert**: UNEXPECTED
More traffic reporting terms

• Proprietary Alerts: like Sigalert
• Traffic Break: momentary
• Round Robin: ongoing
• Amber Alerts: emergency only
Predicting delay is an inexact science

- Might be shorter or longer
- The "invisible" accident scene
- 1:3 ratio
- 10-97 vs. 10-98
- Bogus calls
- Inexperienced reporters
Taking Advantage of the Information Superhighway

ATIS = Technology
Benefits of using technology

• Reduced "lateness" risk: from 8-22% down to 3-8%
• Reduced trip duration
• Knowledge is the antidote to fear
Pre-Trip

• Commercial Internet sites
  • most any newspaper or radio Website
  • http://traffic.tann.net
  • www.Sigalert.com
  • www.Traffic.com (“Fastest Drive Now”)
  • www.BeatTheTraffic.com
  • www.TrafficGauge.com
More pre-trip ATIS:

• Public Internet sites
  • http://cad.chp.ca.gov
  • www.dot.ca.gov/traffic
  • LA/Vent: www.dot.ca.gov/dist07/traffic/index.php
  • OC:  www.dot.ca.gov/dist12/D12_tmc/webmap/d12map.html
  • IE:  www.dot.ca.gov/dist8/tmc/webmap.htm
  • LA City: trafficinfo.lacity.org
GPS devices with real-time accident data input by subscription

- Magellen RoadMate 2000 Series
- Garmin Nuvi 660
- TomTom GO 920 T
- Pioneer AVIC-N4
- DASH Expres (connects with other users for real-time traffic info)
More ATIS information while driving...

- Traffic Gauge
- Satellite Radio: XM has NavTraffic™
- (800) 427-ROAD (free)
- (888) 922-5482, UCSD (free)
- 5-1-1
Alternative modes for beating traffic congestion
(TDM = ridesharing)
During 1984 Olympics: 16% decrease in accidents, 20% decrease in ozone, and 30% decrease in congestion.
Mandatory Ridesharing?

- AQMD Rule 2202—employers in SCAQMD with > 250 employees

- The goal is to reduce air pollution.
Advantages of ridesharing

• **Shortened duration of travel.** HOV lanes save 1 min. per mile.
• **HOV lanes enable a more predictable commute time**
• **Saves up to $3000 per year**
• **Flexibility**
• **More free time during the commute**
More advantages to ridesharing...

• **Less stress:** lower BP and better mental acuity
• **Safety:** with a passenger, driver's risk of death decreases by 7.5%.(NHTSA)
• **Not full time**
• **Employer-provided perks:** if ETC on sight
• **Immune to transit strikes:** if carpooling
Even more advantages to ridesharing..

- **Tax breaks**
  - $115 from employer each month ($1380 yr.)
    IRS tax free.
  - Does not show up on W-2 form

- California allows at least $105 per month tax free
- Guaranteed ride home
End of the road

Questions?
HOV Lanes—Exceptions to the 2-Person Minimum

- Motorcycles
- All-electric vehicles
- All-natural gas (methane)
- Hybrid vehicles: Honda Civic, Honda Insight, and Toyota Prius. (85K vs. 135K, $4000)(sunset)
- The Antelope Valley Freeway: 1 Person OK during non-peak hours (i.e. other than 5-9 a.m. and 4-7 p.m.) (temporary)
- El Monte Busway: 3-person minimum
Exiting and entering HOV lanes

- You can never cross in or out of a carpool lane unless there is a broken white line.

- $341 fine (violations only about 1-2%) (except for the 22).

- Note: SR-22, first in Southern California that permits continuous access
Riding the rails to work

- **Metro Rail** (L.A. County only) (run by METRO). Red, Blue, Green, and Gold Line

- **Metrolink** (six counties) SCRRA.

- **Amtrak** Also double-decker in style
When to Take Transit

• Live in suburbs; must get to CBD, iffy parking—take the train.
• Trips of < 10 miles—take the bus
• Freeway gets shutdown—take the train.
• Attending an event in CBD—take transit
Cost considerations:
Average cost: 56.2 cents per mile, $8431 per year

- Transit cheaper than second car
- If you pay > $10 a day to park, then transit saves
- Monthly passes yield tremendous savings

- **Reminder:** time spent in transit is not entirely wasted
Dodging traffic tickets

• Prevention
  • Don’t attract undue attention: probable cause
  • Don’t break traffic laws: #1: Speeding
    #2: Unsafe lane changes
  • Radar detectors
  • Red light detectors. COBRA, PhantomAlert
Extra signs posted beneath a stop sign in Oak Lawn Village, Illinois

• STOP!
  • right there, Pilgrim
  • in the name of love
  • —not an optional choice
  • even when no one is looking
  • or we'll hunt you down
Pull over!
What to do when caught

• Stay in car, keep hands on the wheel
• Be polite and courteous
• No fibbing
What NOT to say to a police officer:

• I can't reach my license unless you hold my beer.
• Sorry, Officer. I didn't realize my radar detector wasn't plugged in.
• Gee, that's terrific! The last officer only gave me a warning, too.
• You're not gonna check the trunk, are you?
• Are you sure I was the one speeding; your eyes look a little *glazed* over?
• Aren't you the guy from the Village People?
After the Fact—Helpful Books on Fighting Tickets

- *Fight Your Ticket in California, Attorney David Brown*
- *California Vehicle Code*
- *Manual on Uniform Traffic Control Devices for Streets and Highways*
- *Traffic Manual*
How to get "unlost"

Do real men ask for directions?
Basic Definitions—
Federal Interstates

- If last number even: highway runs E & W
- If last digit odd: runs N & S
- Interstates with three digits
  - If first number even: beltway (210, 215, and 605)
  - If first odd: direct (110 and 710)
How Freeways are Named?

• L.A. freeway system started as spokes radiating from the L.A. Civic Center.
How exits are named and numbered

• Number signifies distance, in miles
• Starts at Mexican border or the Pacific
• Not sequential
How exits are named and numbered, continued...

• **W to E highways**: exit nearest the coast is #1. On I-10: Intake Blvd. in Blythe is #243

• **S to N highways**: On I-5 San Ysidro exit is #1, northernmost before Oregon is #796

• **Multiple exits positioned < 1 mile**: letters
Steps to getting "unlost"

- Map
- Compass
- Get good directions
- Take corrective action immediately
- Be observant
- If lost, drive to the nearest intersection.
- Orient map
- Use distance scale
Technology to the rescue

- **OEM navigation systems**: On-Star™ (GM), Hughes Telematics (Chrysler)
- **Text-enabled cell phone**: AAA Mobile®, Microsoft's Ford Sync, Garmin Mobile XT, Google “My Location”
- **Cell phone**: Dial Directions™ (347) 328-4667
Portable GPS devices

- $700, Garmin Nuvi 660: 83
- $500 TomTom Go 910: 75
- $550 Garmin StreetPilot c580: 75
- $400 TomTom One: 73*
- $250 Magellans Roadmate 2000: 70*
- $300 Garmin StreetPilot C330: 69*
- $600 Cobra NavOne 4500: 62
- $700 Lowrance IWay 600c: 58
- $350 Rand McNally GPS Navigator: 55