

Vehicle Ratios and Law Enforcement



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Today's Discussion

- Take-Home Vehicle Considerations
- Cost-Benefit Considerations
- Vehicle Equivalency Data
- Articulating Needs
- Two Case Studies From Correctional Environment (Time Permitting)
 - Variety of vehicles and analytical techniques



Today's Discussion, Cont'd.

- Rather than provide a single answer or “one size fits all”, will discuss several approaches and strategies.
- Panel format will lead to variety of issues.
- You will need to develop your own numbers for your specific situation though.



Remember

- No two situations are the same
- There are differences in local:
 - Operating environments
 - Community financial conditions
 - Maintenance capabilities and resources
 - Existing fleet age and condition
 - Local police policies and practices



Law Enforcement Fleets

- Are a substantial capital investment and major operating expense.
 - Typically, it is the 2nd largest expenditure item next to personnel costs.
- Major factor in morale and efficiency of officers.
- Affect public image of local law enforcement.
- Like all passenger vehicles, there is a emotional factor involved in their assignment and use.



Origins of Take Home Vehicles

- State and county law enforcement officers patrolling predominately rural areas
 - Responded from home to incidents,
 - Instead of reporting for duty to headquarters
- Concept expanded to municipal fleets
- Justified on:
 - Increased visibility and availability of officers
 - Deterrent to criminal activity
 - Further justification by codifying off-duty responsibilities



More Recently

- Programs come under auditor scrutiny
 - Concerned that
 - Take home-vehicles becomes perk
 - Practice may lead to over-sizing of the fleet
 - Actual need versus title need
 - Frequency of call outs
 - Appropriateness of expensive SUVs
 - Written policies & specifications for patrol & support
 - Cost-benefit tests
 - Practices of other jurisdictions



Arguments For

- Improved morale
- Enhanced image
- Greater accountability and responsibility
- Lower operating and accident costs
- Increased police visibility (“Billboard effect”)
- Increased ability to rapidly deploy officers in emergency situations



Arguments Against

- Can lead to over-sizing of fleet.
- Higher capital expenditures.
- Can be misused, unless properly managed.
- Can result in providing take-home vehicles to police staff that do not need them.
- Most officers may not be residents of community.
- Are the benefits of crime deterrence real and measurable?



Cost-Benefit Analysis

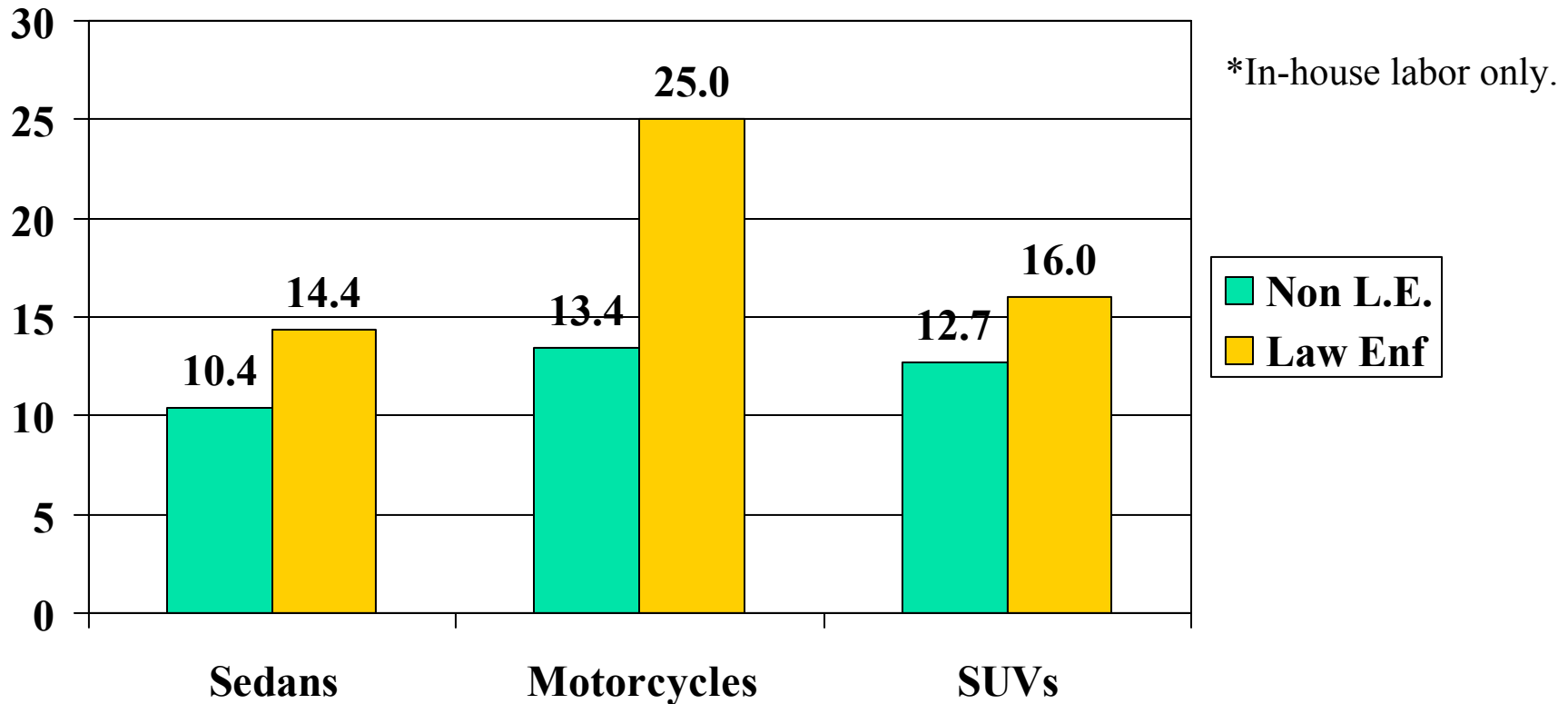
- A life cycle approach over several cycles
- New programs: Startup of increasing fleet size
- Existing programs: Reduction in fleet size
- Compare take-home vs. non take home costs:
 - Fleet replacement frequency
 - Operating costs (fuel, M&R and accident repair)
 - Vehicle resale values
 - Intangibles



No Easy Answers

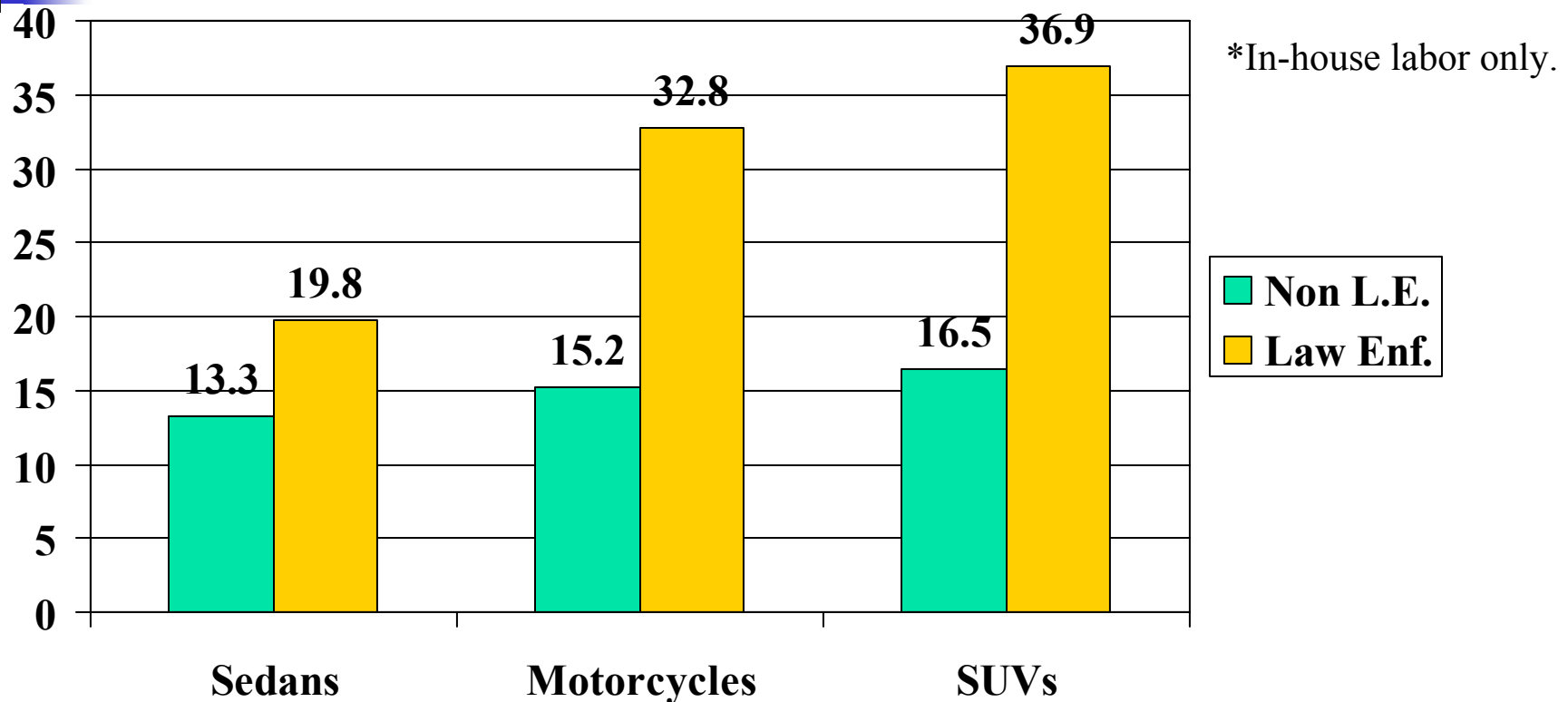
- Depends on:
 - Program finances
 - Local political and community objectives
 - Operational needs of the department
 - Citizen perceptions of safety
 - Morale effects
 - Alternative uses of funds that would be needed to fund program

Median M&R Hours* per Year



Chatham analysis of NAFA Vehicle Equivalency Data.

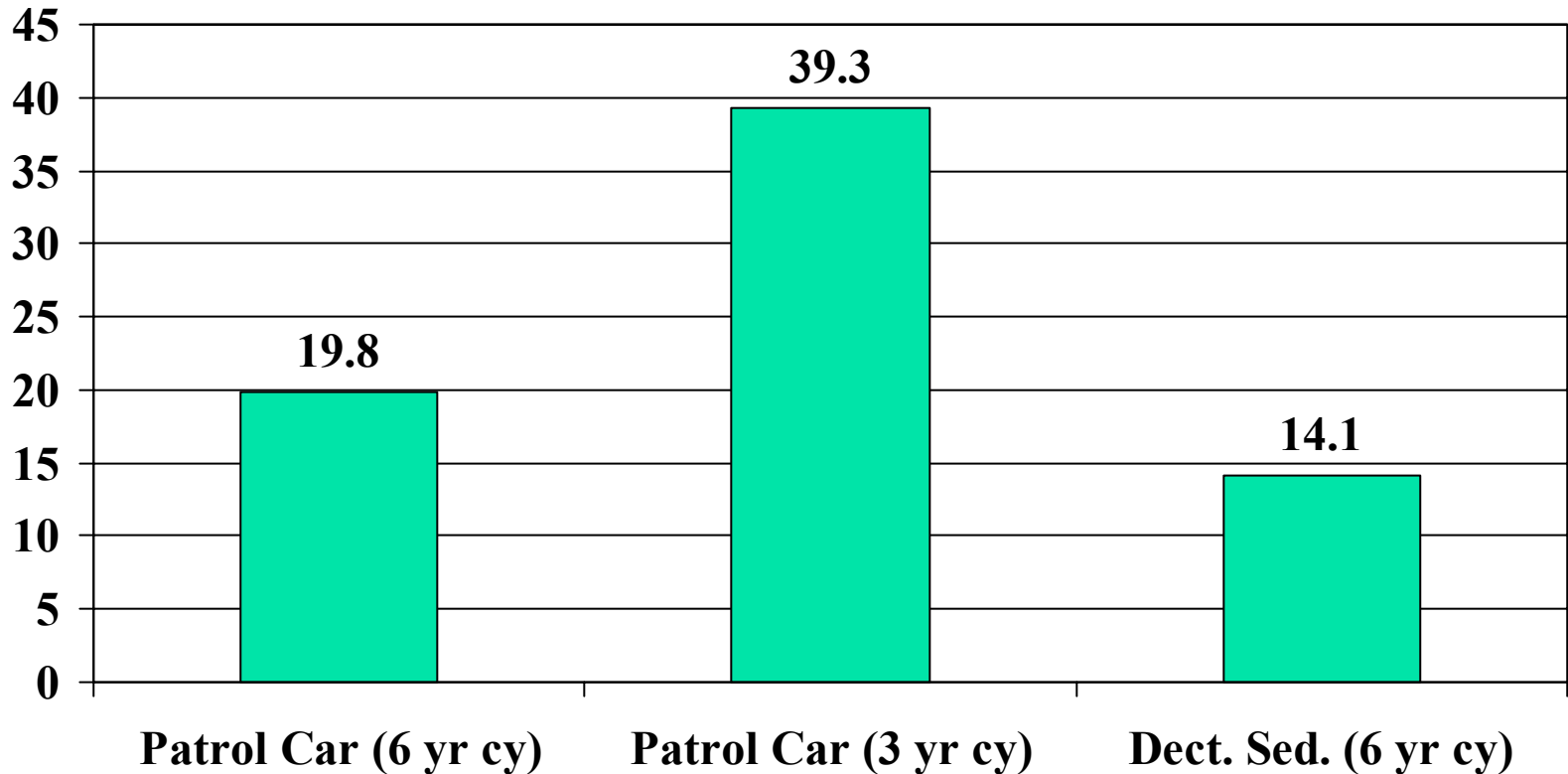
Average M&R Hours per Year



Chatham analysis of NAFA Vehicle Equivalency Data.

Average Annual M&R Hours* By Replacement Cycle

*Includes both in-house and outside labor.



Source Chatham analysis of major City fleet.



Articulation Checklist

- A comprehensive, strategic approach to fleet management
 - Written policies & procedures for vehicle management
- Clear planning for replacement of critical service-related assets
- Exploration of alternative funding strategies for vehicle replacement
- Up-to-date, accurate inventory on all vehicles and capital equipment



Checklist, Cont'd.

- Updated information tracking system to:
 - Monitor vehicle costs and usage
 - Manage the fleet
 - Ensure preventive maintenance compliance
 - Facilitate the rotation of passenger vehicles in order to smooth out utilization rates
- Evaluate assigning vehicles to on-call personnel who reside a substantial distance from the City



City Correctional Study

- Background

- Court order to improve transportation of inmates

- Statistics:

- 21,000 average daily population (ADP)
- Inmates: 45,000 trips/yr.
- Visitors: 40,000 trips/yr.
- Staff transportation: 110,000 trips/yr.

- Objectives:

- Establish optimal fleet baseline
- Tool to forecast future fleet size and mix

- Used input/output model approach



Input

- ADP
- Staff size
- Number, type and location of:
 - Correctional facilities
 - Hospital prison wards
 - Court pens
 - Annex facilities
- Trip generation rates
 - Court deliveries
 - Transfers
 - Visitors
 - Employee route trips
- Vehicle Standards
 - ADP, Facilities, Staff
 - Fixed requirement



Calibration

- Volume to capacity analysis
- Queuing analysis (arrivals, service rates and waiting times)
- Frequency distribution (emergency vehicle needs)
- Vehicle demand survey
- Standard ratios
- Bus capacities
- Bus utilization rates (inmates per trip)
- Peak period and season factors
- Court delivery requirements
- Scheduling factors
- Queuing factors
- Spare vehicle ratios



Output: Fleet Size and Mix

- Inmate transportation
 - Court deliveries
 - Inter-jurisdiction transfers
 - Other
- Employee route buses
- Visitor Buses
- Correctional facility fleets
- Other commands needs
- Special purpose equipment
- Spare and back-up units



State Correctional Study

- Background
 - 69 facilities, 70,000 convicted felons
 - 200,000 transfers of inmates
- Objectives
 - Optimize transportation route, schedules and vehicle mix
 - Optimize vehicle acquisition and maintenance resources
 - Develop fleet size requirements methodologies
 - Evaluation of organization and delivery alternatives



Data Analysis

- Origin-destination network flows
- Travel times and distances
- Transfer volumes
- Routes
- PC based GIS system
- Corridor optimization
- Analysis of vehicle and staff utilization data
- Life cycle trip cost models
- Economic analysis



Recommendations

- Operational Changes
 - Trip consolidations
 - Short postponement/holdover of trips
 - Bus crews meeting mid way
 - Leasing vehicles instead of chartering or owning them
- View on a system wide basis
- Forecast trip needs in advance
- Add performance measurements
- Use best practices from other states