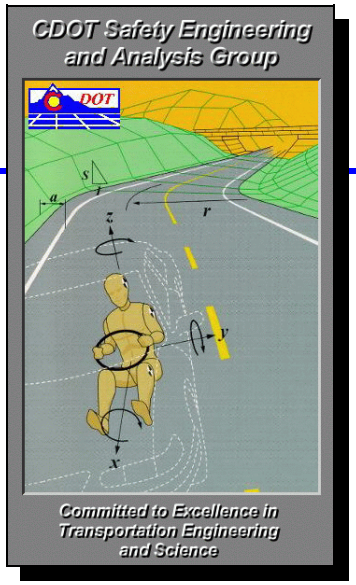
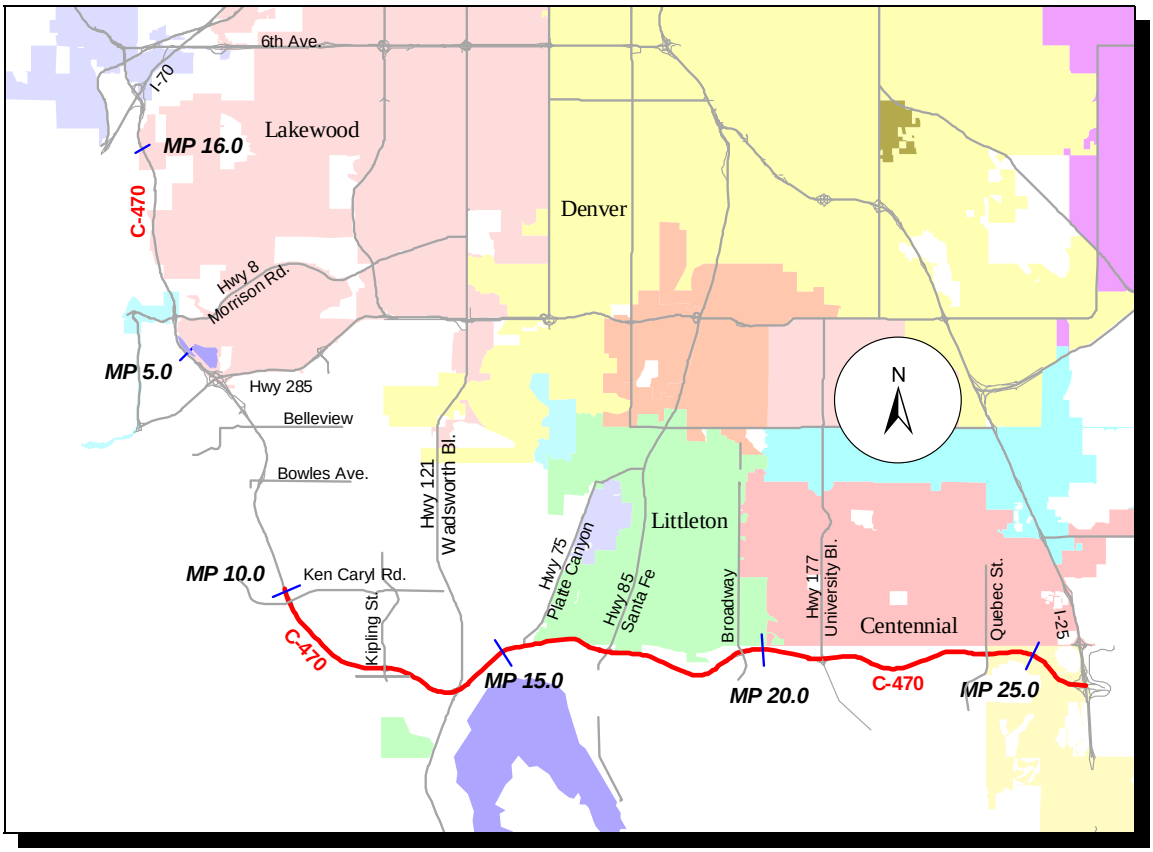
Appendix A
CDOT Draft Traffic Safety Chapter



Draft Traffic Safety Chapter

FOR THE C-470 CORRIDOR
ENVIRONMENTAL ASSESSMENT
Project No. NH 4701-103
Region 6
February 2005



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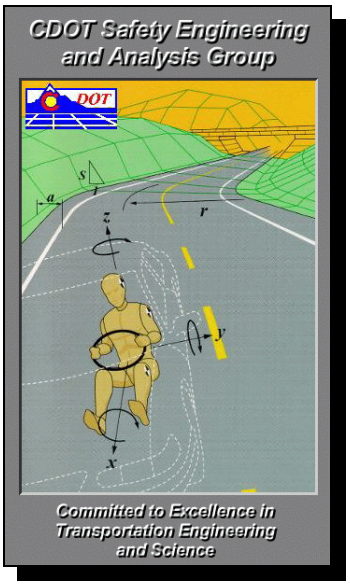

A Statement of Philosophy

The efficient and responsible investment of resources in addressing safety problems is a difficult task. Since crashes occur on all highways in use, it is inappropriate to say of any highway that it is safe. However, it is correct to say that highways can be built to be safer or less safe. Road safety is a matter of degree. When making decisions affecting road safety it is critical to understand that expenditure of limited available funds on improvements in places where it prevents few injuries and saves few lives can mean that injuries will occur and lives will be lost by not spending them in places where more accidents could have been prevented[1]. It is CDOT's objective to maximize accident reduction within the limitations of available budgets by making road safety improvements at locations where it does the most good or prevents the most accidents.

Part I: Evaluation of Existing safety Problems

Introduction

The Transportation Equity Act for the 21st Century (TEA-21) of 1998 requires explicit consideration of safety in the transportation planning process. While this government mandate is well intentioned, little is known about how to accomplish it. The National Environmental Policy Act of 1969 (NEPA)[2] suggests a relevant model from the standpoint of applying principles to practice in the transportation planning process. The adoption of NEPA translated into a well established methodology and institutionalized processes aimed at protecting the environment. In the process of developing Environmental Impact Statements (EIS) or Environmental Assessments (EA) for transportation projects, we construct models of existing and future air quality, delineate wetlands, survey habitats of threatened and endangered species, measure noise levels, test water quality and develop specific mitigation strategies. For each of the transportation alternatives under consideration we describe and mitigate environmental impacts explicitly. We adopted a similar approach for the evaluation of the design alternatives from a safety stand point. In order to meet this requirement we employed a recently developed concept of the Level of Service of Safety[3] (LOSS). The LOSS concept makes it possible to accomplish the following:

- Qualitatively describe the degree of safety or un-safety of a roadway segment.
- Effectively communicate the magnitude of the safety problem to other professionals or elected officials.

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[1] Hauer, E. (1999) *Safety Review of Highway 407: Confronting Two Myths*. TRB

[2] 42 United States Code. Paragraphs 4321-4370c.

[3] Kononov, J. & Allery, B. (2003) *Level of Service of Safety-Conceptual Blueprint and Analytical Framework*. In Transportation Research Record: Journal of The Transportation Research Board, No. 1840, TRB, National Research Council, Washington, D.C., 2003, pp. 57-66

- Bring the perception of roadway safety in line with the reality of safety performance reflecting a specific facility.

- Provide a frame of reference from a safety perspective for planning major corridor improvements.

The study area includes: An eastern portion of State Highway (SH) 470A (C-470) from the Ken Caryl Road interchange at approximately milepost (MP) 10 to the I-25 interchange at milepost 26.21. The scope of this study is as follows:

- Assess the magnitude and nature of the safety problem within the study limits.

- Relate accident causality to roadway geometrics, roadside features, traffic control devices, traffic operations, driver behavior and vehicle type.

- Suggest cost effective counter measures to address identified problems.

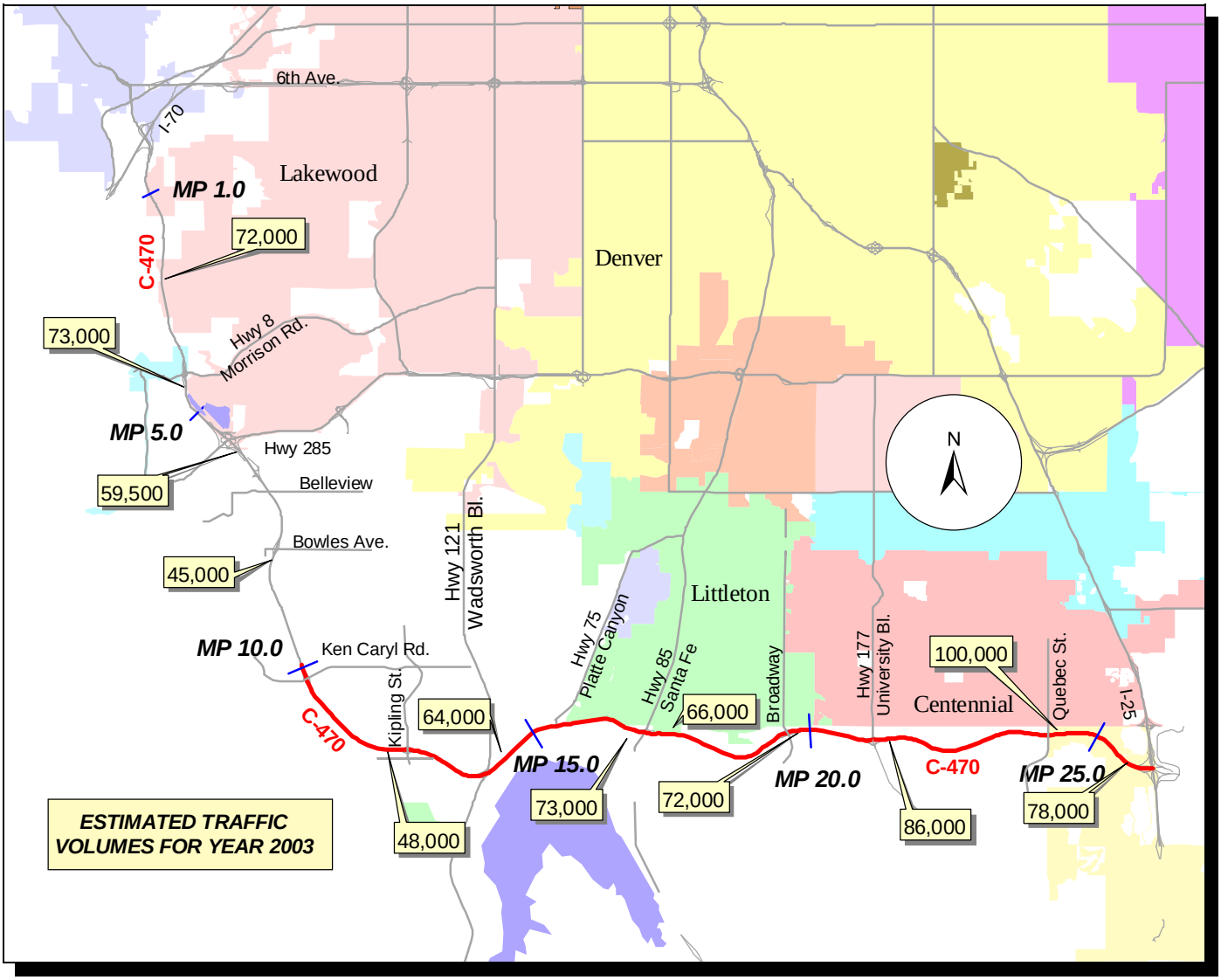
- Provide guidance on how to identify the preferred alternative from a safety standpoint.

The safety chapter of the EA will prepare a framework for the evaluation of alternatives from a safety standpoint.

Site Location and Conditions

This study examines over 16 miles of C-470 from the Ken Caryl Rd. interchange area on the southwest side of the Denver metro region eastward to the end of C-470 at the I-25 interchange. C-470 is classified as a Federal-Aid Primary (FAP), urban expressway in this area. The study corridor traverses a suburban environment in rolling terrain typical of western Denver. The year 2003 average daily traffic estimates for several locations along the overall length of the highway are indicated in Figure 1 below.

Figure 1: C-470 Location Map and Mainline Volume (Estimated 2003 ADT)



The estimated 2003 traffic volume varies by over 40% along the study length with the lowest volume occurring between Bowles Ave. and Kipling St. The highest volume is noted on the east end between Broadway and the I-25 interchange (MP 19-26). Figure 2, below, presents the estimated future ADT for the year 2023 at the same locations as shown above.

Truck traffic makes up an overall average of 6% of the traffic stream. The posted speed limit is 65 mph through the study section.