Choosing the “Right Stuff” for East Road/NM502

Prepared for presentation to the Transportation Board

January 19, 2012 (not presented)

Revised January 21, 2012 for County Council

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Additional information and references available at www.wcmead.org/nm502/

See also “Technical presentation notes for Jan. 19th Transp. Bd. Mtg.”,
Norbert Ensslin, Joel Williams, and William Mead, 1/18/2012

Los Alamos County Street Design Policy

"1.2 A comprehensive approach to street and ROW planning and design provides ***sufficient capacity*** and ***safe and comfortable travel*** for ***expected levels*** *of* ***motorists, bicyclists, pedestrians, transit riders,*** and other evolving modes of transportation…"

Recommendation by Transportation Board and Staff does not satisfy these criteria.

Current traffic conditions indicate marginal capacity for today's NM502 traffic loads

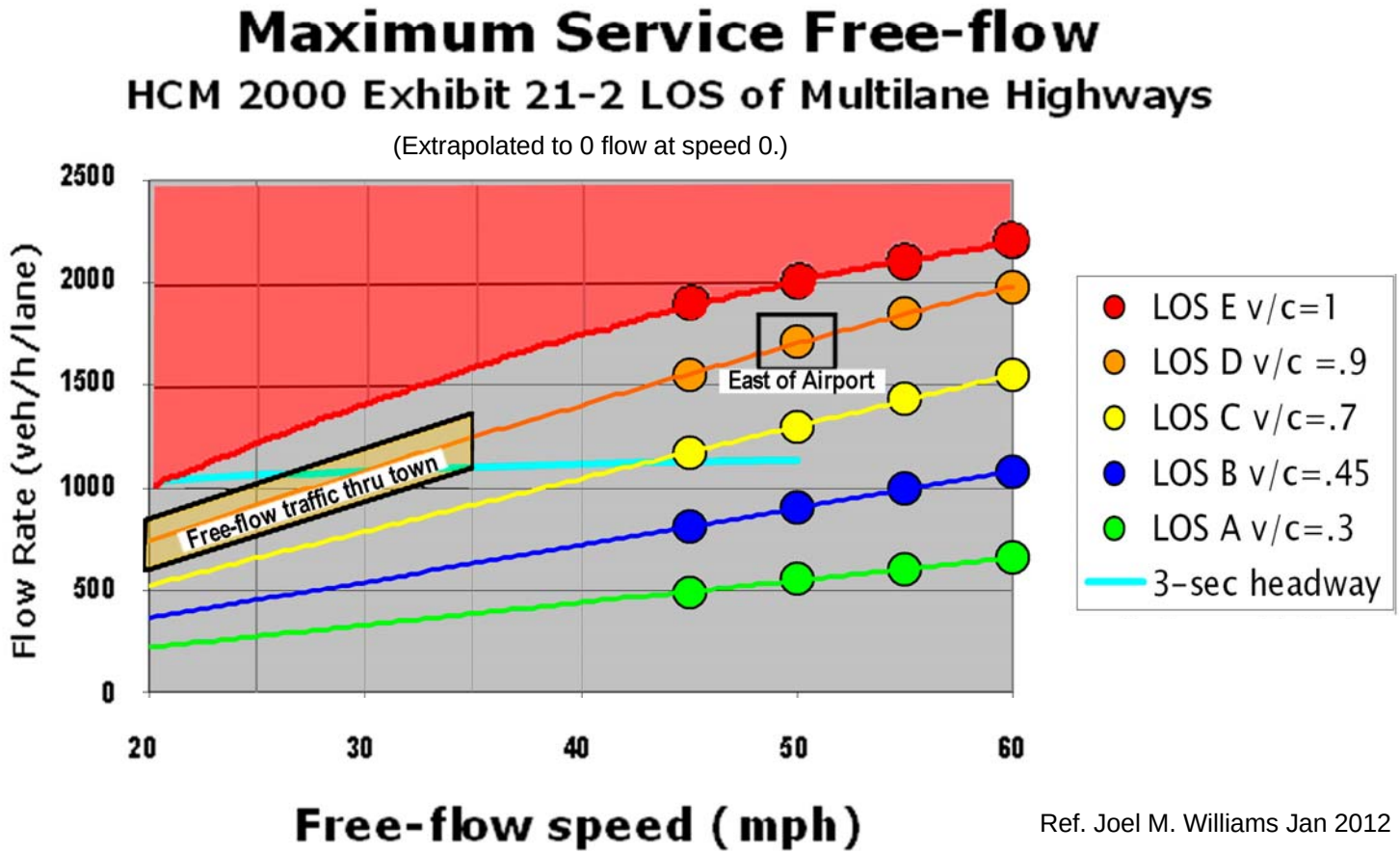
East Rd., May 12, 2011 7:26 AM

- Long "train" forms behind slowest driver (< 35 mph)

- Merging into closely spaced line of traffic at Tewa Loop is difficult
  ("up to ~60 sec delay during AM rush")

- Current traffic volume is near capacity
- No reserve for change, growth, poor driving conditions, emergencies

Level of service decreases as speed decreases or volume/capacity ratio increases



Ref. Joel M. Williams Jan 2012

- Single lane: not free-flow, so service typically poorer than shown

At 35 mph, both engineering (v/c = .8) and safety (3-sec hw) criteria → 1100 veh/hr/lane

The 3-second rule is a widely used safety criterion

Comfortable, safe separation: 3 seconds, *under normal conditions.*

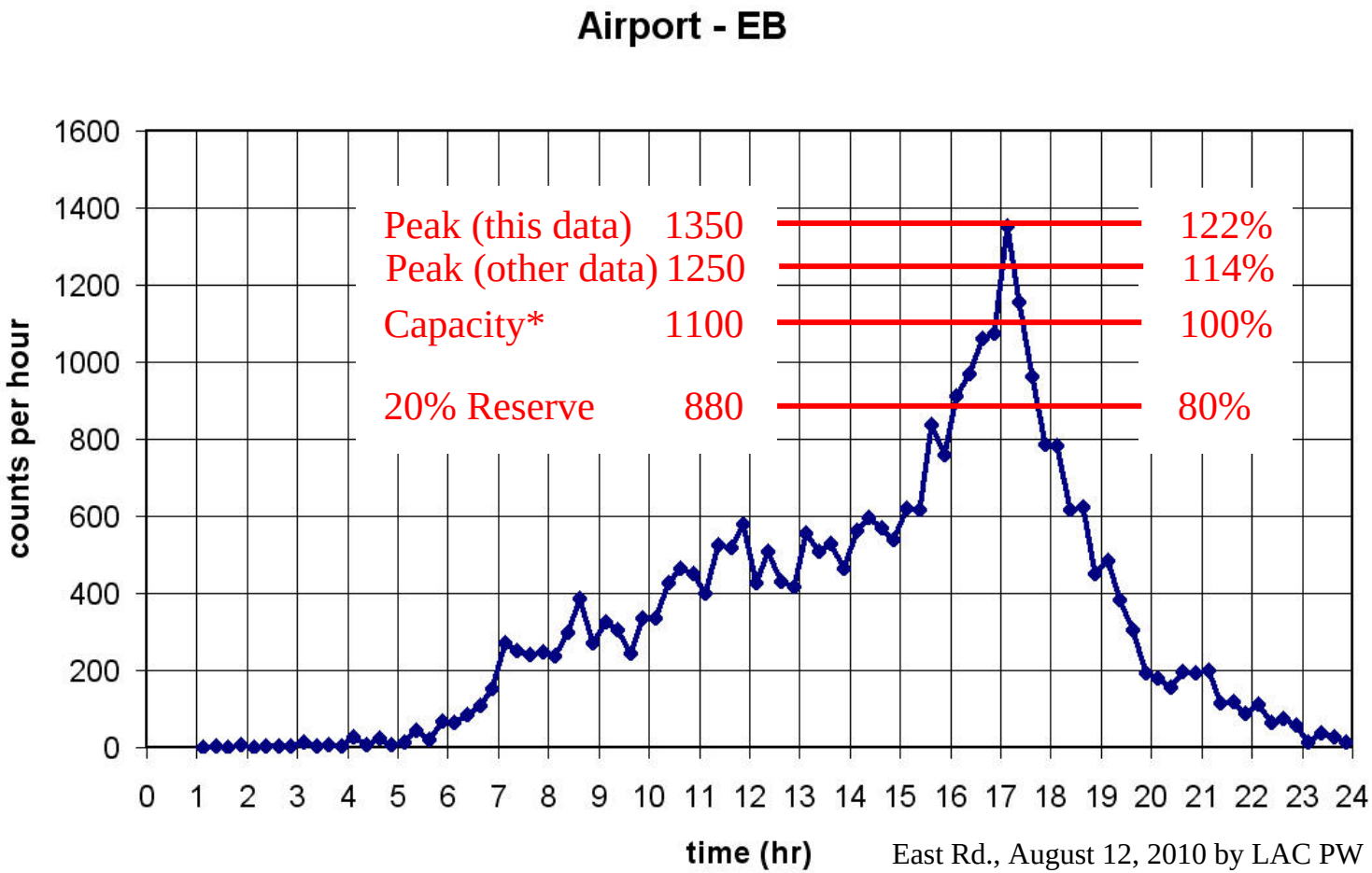
Sampling of references:

National Safety Council (since 1999)	BeaconMutual.com
AAA	Autos.AOL.com
AARP	SmartMotorist.com
Drivers' Manuals: CT, NM, …	DriversEd.com & others
Massachusetts Safe Roads Alliance	SafeNebraska.org

- If Los Alamos County is concerned with safety, an artery should be designed to satisfy the 3-second rule.

3-second rule corresponds with 1100 pc/sec/lane at 35 mph

Current traffic flow peak is “near” single-lane capacity for more than one hour



East Rd., August 12, 2010 by LAC PW

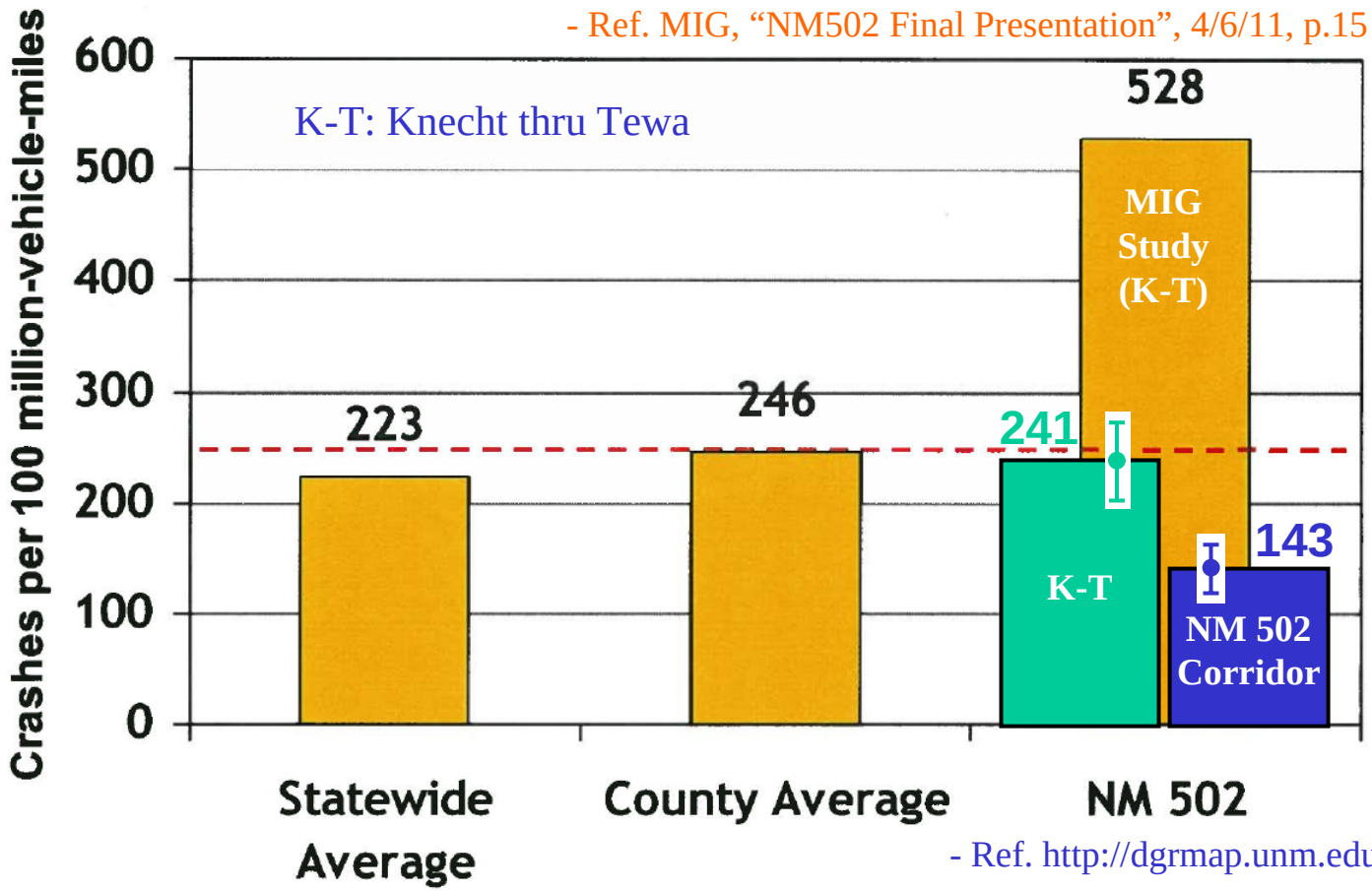
*Both engineering and safety

- Good v/c ~ 0.6, LOC “C” with 4 travel lanes

Safety record of NM502 is good, especially 4-lane section

Accident / Crash Analysis

- Ref. MIG, "NM502 Final Presentation", 4/6/11, p.15



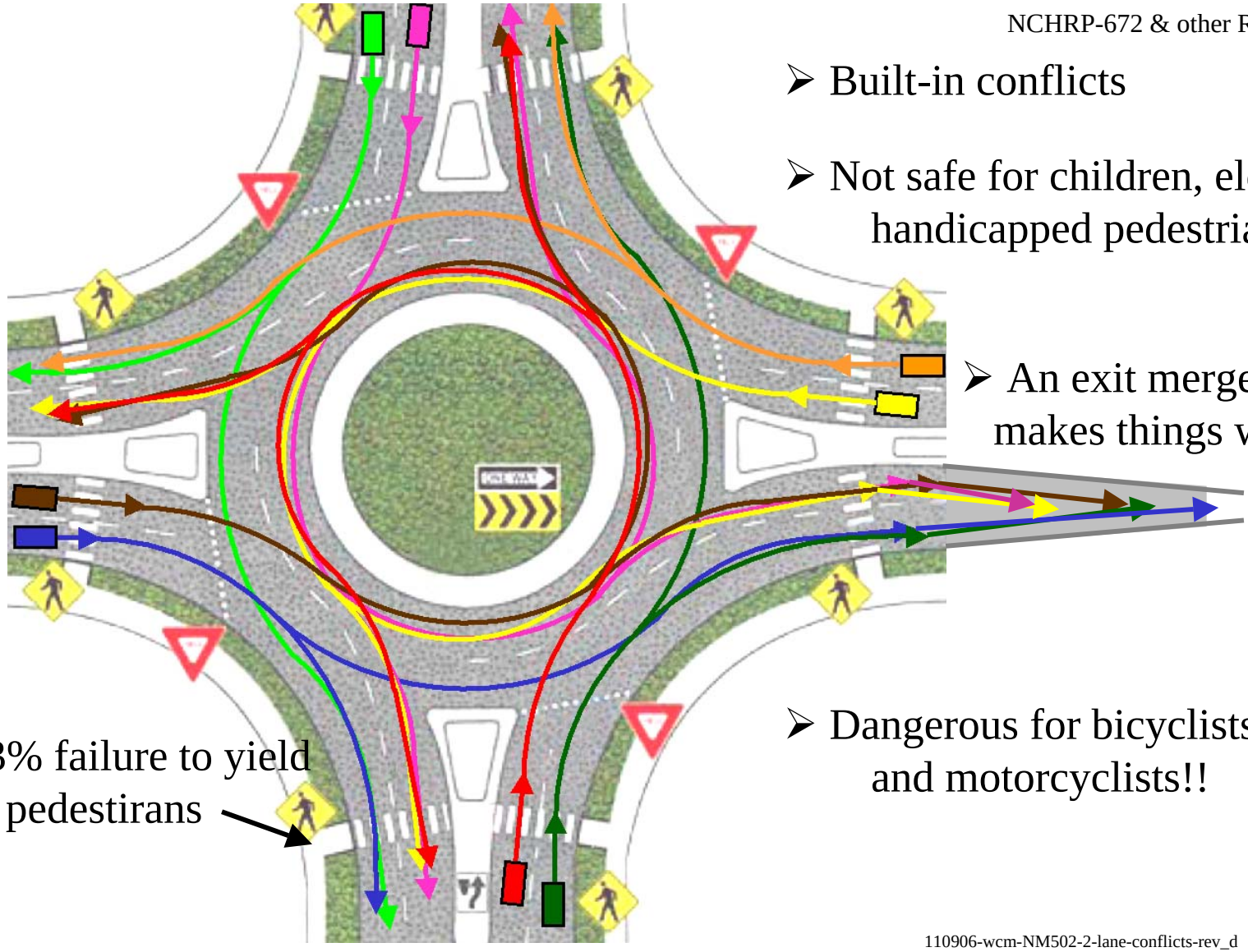
UNM/DGR Data for 2006-2009

- Ref. http://dgrmap.unm.edu

Central at Trinity: 5 accidents, no injuries, 2006-2009

Two lane roundabouts are not safe and comfortable

NCHRP-672 & other Ref's



- Built-in conflicts
- Not safe for children, elderly, handicapped pedestrians
- An exit merge makes things worse
- Dangerous for bicyclists and motorcyclists!!
- 43% failure to yield to pedestirans

Two-lane roundabouts have serious drawbacks

Albany Times Union, Tim Obrien, Albany, NY (AP), June 27, 2011

> "Crashes increased at 15 of the 20 roundabouts built where a previous intersection existed…"

> "Aggressive drivers are speeding through rotaries and failing to yield right of way…"

British study reports higher crash rates in flared roundabouts

Intersection type	Crashes per million trips
Flared roundabouts	7.8
Conventional roundabouts	2.9
Signalized	1.8

Summary

- Two-lane roadway provides insufficient capacity for current traffic loads
  - no reserve for change, growth, poor conditions, emergencies
- Four-lane roadway would provide adequate capacity for now and future
- Two-lane roundabout has serious drawbacks in safety and comfort
  - many conflicts, yields, and merges
  - poor for pedestrians, bicycles, and motorcycles
- Four-lane roadway with signals would provide very good safety and comfort for all users