Modern Roundabouts

An Informational Presentation Prepared For:

Transportation Research Board Roundabout Conference
Vail, CO May 2005

'*Roundabouts and Live-ability*'

3 **Case Studies**

BY : Mark T. Johnson, P.E.
& Bill Hange, P.E. City of Loveland, Traffic Engineer

Presentation Outline

- Transportation Systems And ‘Live-ability
  (Macro to Micro)
  - Transportation Systems are Foundational (macro):
    - Development Patterns & Land Use
    - Effect Scale of and Mass of our Roadways
    - Creates the Fabric that ‘we’ interact with daily

Presentation Outline

- Transportation Systems And ‘Live-ability
  (Macro to Micro)
  - Transportation Systems Must Balance Competing Needs:
    - Capacity (for all modes)
    - Safety (for all modes)
    - Costs (monetary and user costs)
    - ROW Impacts
    - Air Quality
    - Circulation and Business Access Needs
  - We will Look at Projects that Utilized High Capacity Roundabouts to Achieve a Balance

NJ - Rotary

Rt. 206/202 Summerville, NJ

Vail Colorado

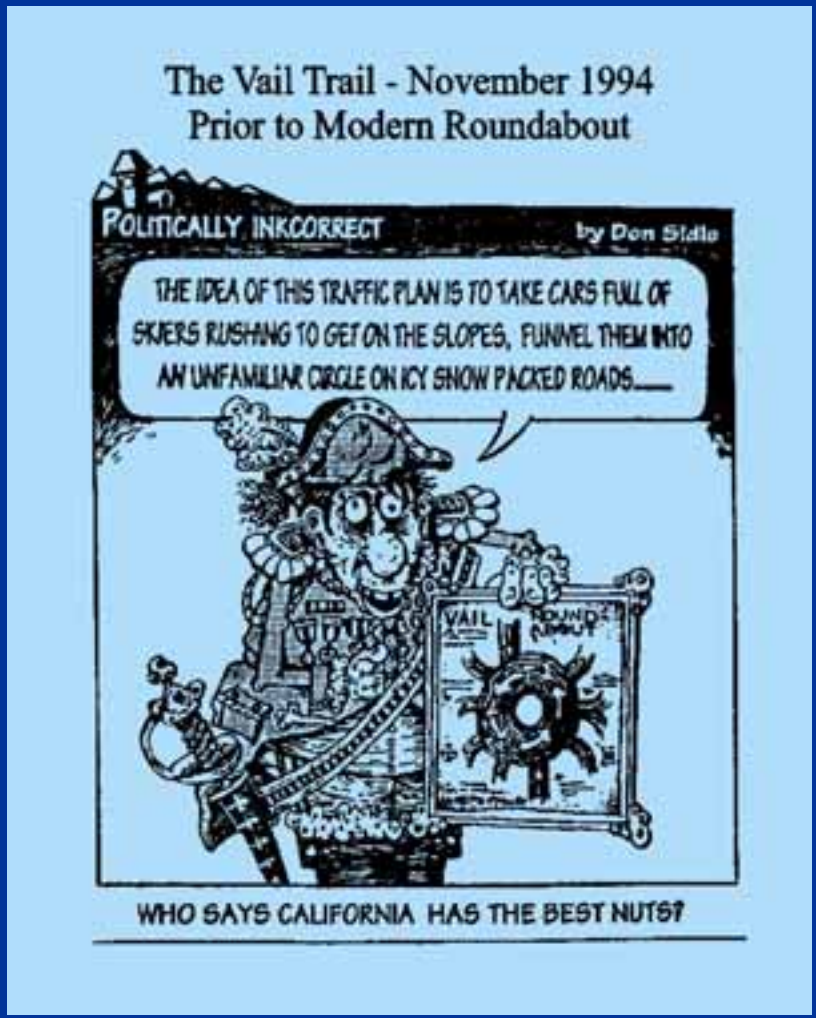
Vail, CO – 1988

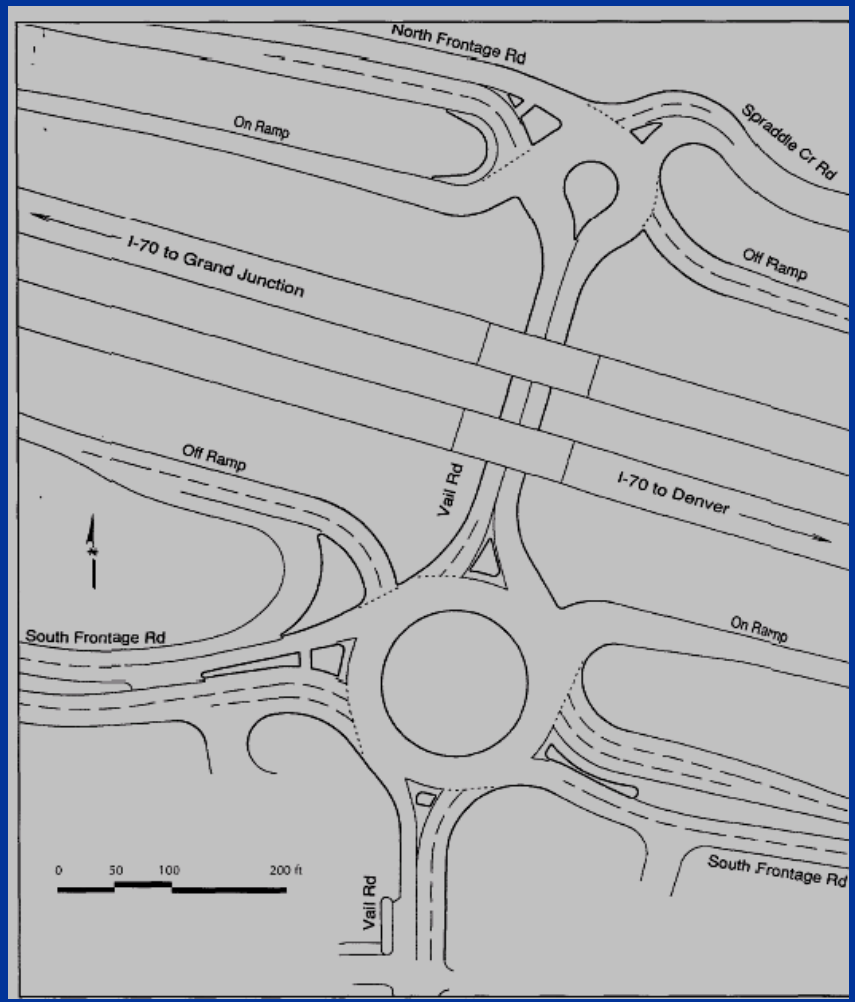
- Congested Interchange
- $15M Conventional Interchange Alternative to achieve Improvement

Video Courtesy of: Ourston Roundabout Engineering

Vail Colorado

Main Vail - Diamond Interchange $2.5M (8,200 vph)





Graphic Courtesy of: Ourston Roundabout Engineering

Community Acceptance

Vail, CO Constructed Oct. 1995

The Vail Trail - January 5, 1996

Editorial

Shocker: Maybe the roundabout isn't so bad after all

We at the Trail have had a lot of fun in the past year taking stabs at Vail's roundabout, projecting all manner of doomsday scenarios for the project...

...Our primary concern was the combination of slick roads, rental cars and an unfamiliar driving concept. However, people seem to have figured out the contraption. What's more, the gridlock appears to be gone.

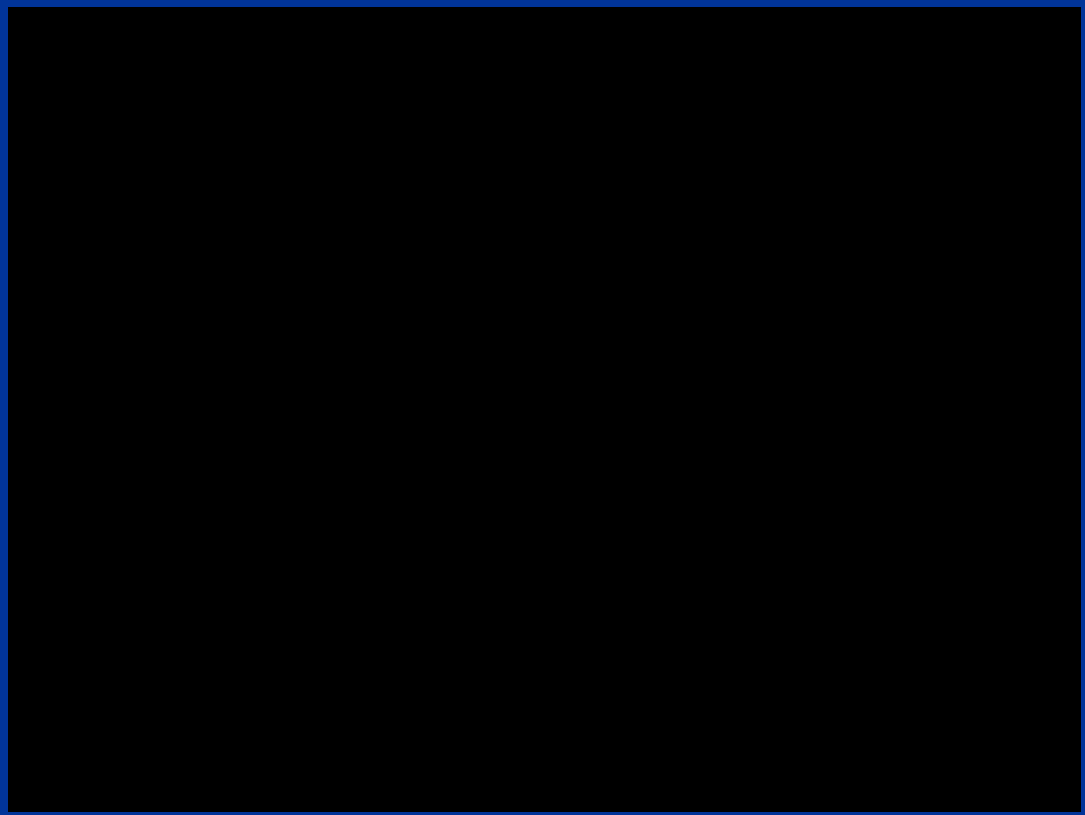
- Voted Best Public Works Project 5 Years Straight

Video Courtesy of: Ourston Roundabout Engineering

Community Acceptance

West Vail Diamond Interchange

Design Capacity: 3,700+3,300 =7,000 vph



Video Courtesy of: Ourston Roundabout Engineering

Urban Multi-Lane Roundabout:

Photo: Lee Rodegerdts

Pedestrians

4,500- 5,000 VPH

Roundabout

Avon, CO

Signal

Loveland, CO

Pedestrians

4,500- 5,000 VPH

Roundabout

Avon, CO

Signal

Loveland, CO

Madison, WI

- *Missing Sidewalk / No Bike Lanes*

Existing Conditions

- *Peak Hour Congestion and Delay*

- *10 crashes per year*
- *Ave 8 serious injuries/yr*

- *1.2 crashes per MEV*

- *~80% Injury Crashes*

Existing Conditions

- *Peak Hour Congestion and Delay*

- *10 crashes per year*
- *Ave 8 serious injuries/yr*

- *1.2 crashes per MEV*

- *~80% Injury Crashes*

Existing Conditions

- *Peak Hour Congestion and Delay*

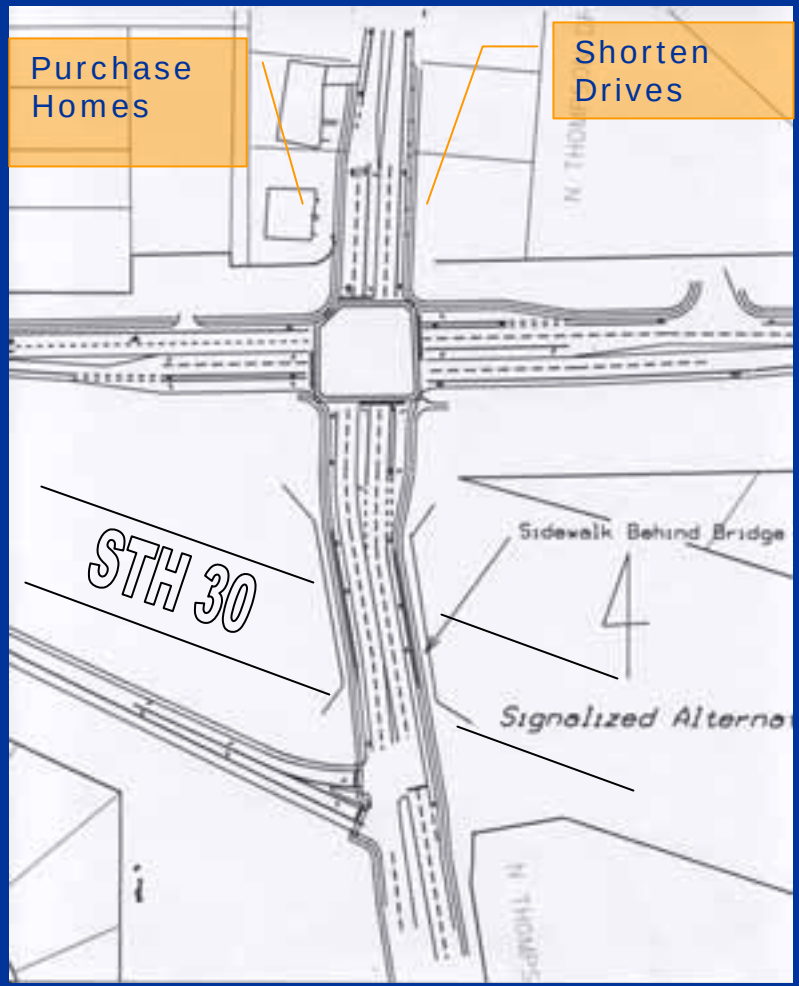
- *10 crashes per year*
- *Ave 8 serious injuries/yr*

- *1.2 crashes per MEV*

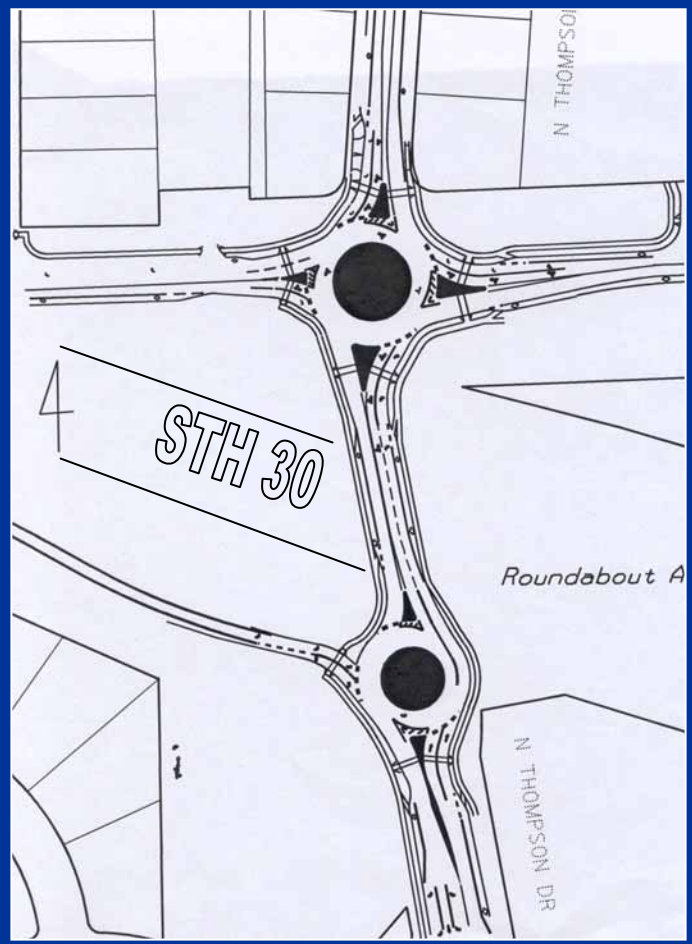
- *~80% Injury Crashes*

STH 30/Thompson Drive - Madison

Signal Alternative



Roundabout



Thompson Drive

Thompson Drive

Thompson Drive

Anchorage AK

Anchorage AK

Diamond Interchange

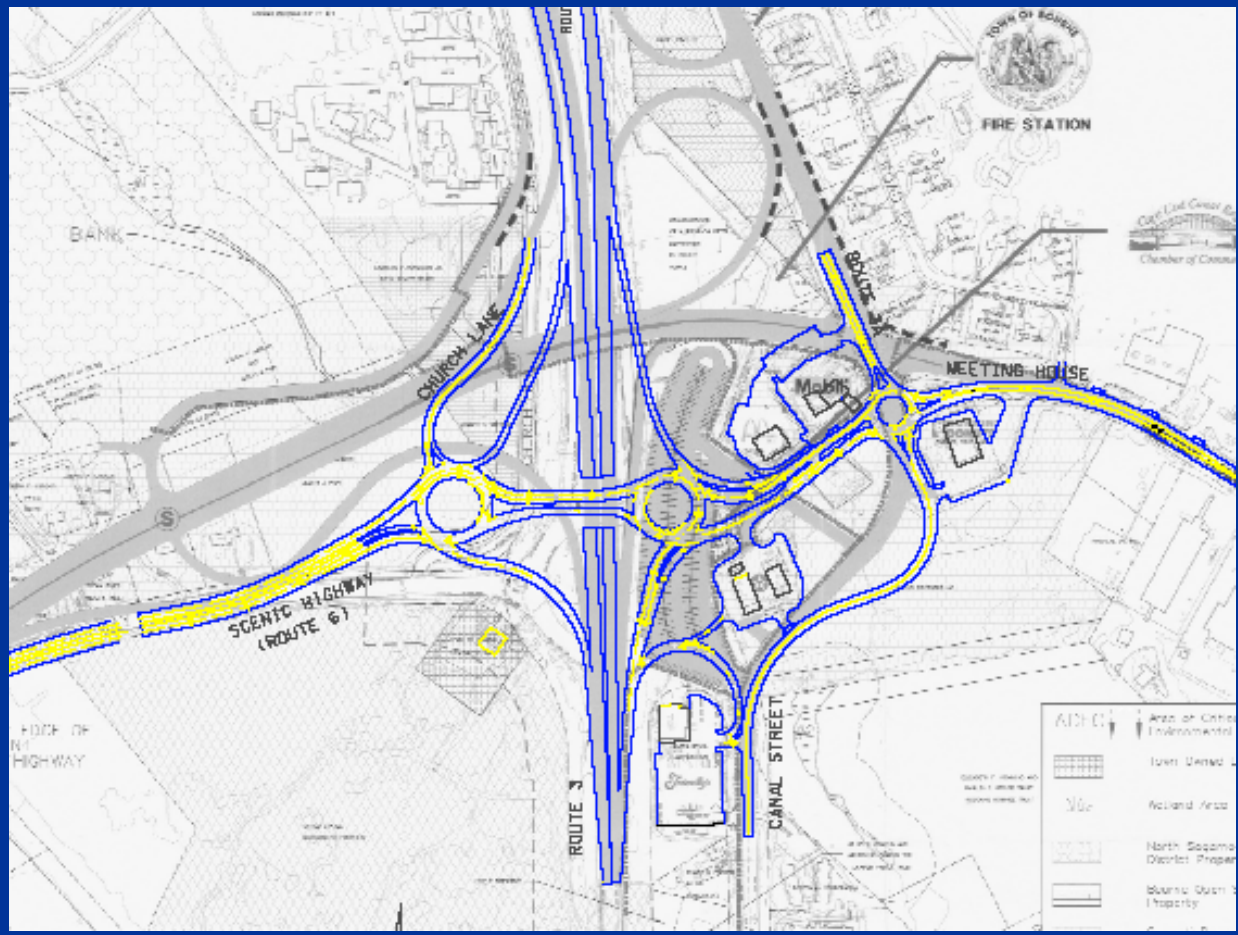
Anchorage AK

Diamond Interchange

CAPE COD, MASS

CAPE COD

CAPE COD


FIRE STATION
BANK
CHURCH LANE
ROUTE 3A
MEETING HOUSE
SCENIC HIGHWAY
(ROUTE 6)
ROUTE 3
CANAL STREET

Mt Horeb WI

Mount Horeb, WI

Mount Horeb, WI

Mount Horeb, Wisconsin

Pedestrian Comparison

Mount Horeb, Wisconsin

Pedestrian Comparison

STH 78/92 Mount Horeb, Wisconsin

2,000 VPH, 2,800 design

Zero Crashes in 10 month

Mount Horeb, Wisconsin

Loveland, CO

City of Loveland

- 63,000 population – high growth ~13,000 since 2000 census
- First Roundabouts 1997

City of Loveland

- Very High Growth
- Major Developments

City of Loveland

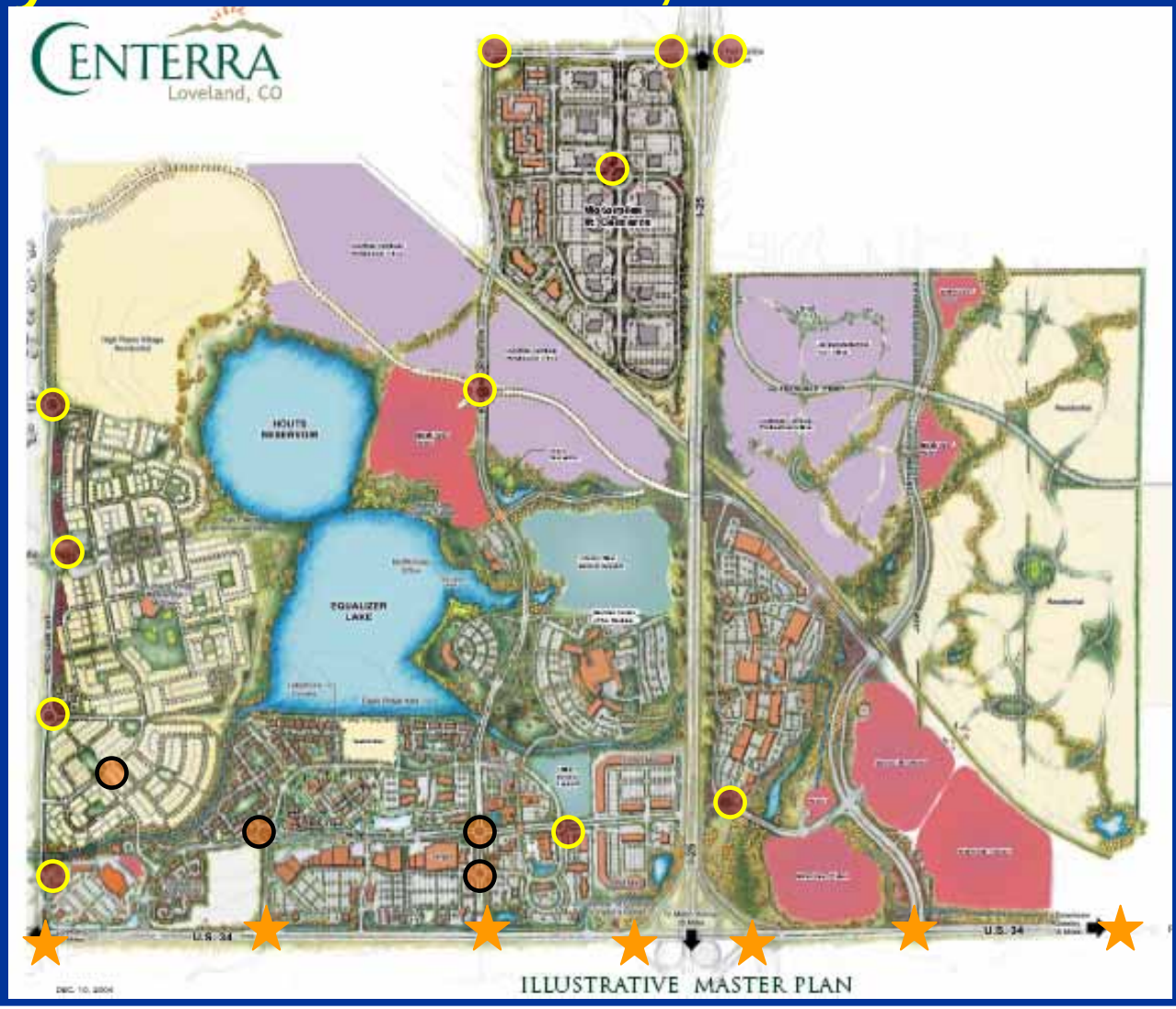
- Very High Growth
- Major Developments

City of Loveland

- Very High Growth
- Major Developments

City of Loveland, CO

- - Constructed
- - Proposed
- ★ -Ex. Signal
- ★ -Future Roundabout?)



City of Loveland, CO

Arterial Intersection Spacing

Loveland, CO 1997

City of Loveland, CO

Business Access

Loveland, CO 2002

~3,000 VPH

City of Loveland, CO

Pedestrians

Loveland, CO 2002

Roundabout

Loveland, CO

Signal

Loveland, CO

City of Loveland

Safety of Roundabout

~ 1/10 the crash rate of
comparable signals in Loveland

City of Loveland

Super Wall Mart

City of Loveland

- 6 high volume modern roundabouts since 1997
- 5 under construction in 2005
- 7 High Capacity Planned
- 26 “Traffic Calming” circles
- 75 signals

End / Summary

- Roundabout Design is Based on:

  - Traffic/Transportation Engineering Science and Principles
    - Roundabouts are Not a Cure All
    - However significant benefits can be achieved for Improved Live-Ability
    - Correct Design Required for Optimal Operations

MTJ ENGINEERING