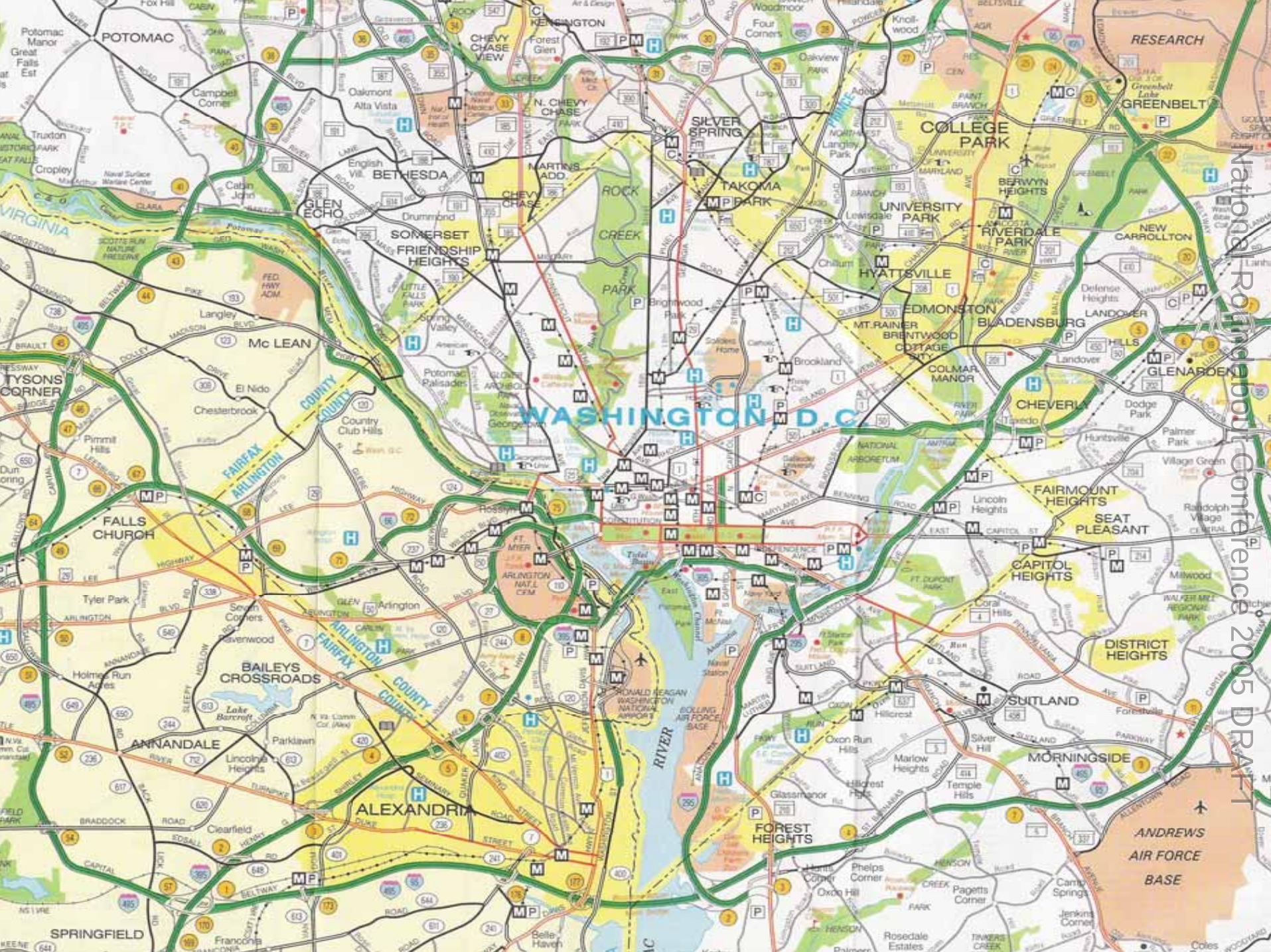
TRB National Roundabout Conference
Vail, Colorado
May, 2005

Tom Hicks, P.E.
Maryland State Highway Administration



Maryland Operating/Planned Roundabouts

- 50 Roundabouts in Operation at State Highway intersections (18 are multi-lane)
- 30 Roundabouts in planning, design or construction
- Close to 50 at local government intersections

Our mentor…

… Ken Todd!

Favorable Geometric Design Elements

- Merging
- Diverging
- Low relative speed
- Reduced conflict points
- Positive guidance

Maryland SHA Goals

- Safety is # 1
- Mobility is close behind
- Both are Key Performance Areas in our SHA Business Plan
- Operational efforts include: CFI, SPUDI, ITS, Traffic Responsive Signal Systems

Traffic Growth in Maryland

- Population 5 million today
- 7 million population by 2030
- VMT 60 % increase by 2030
- Very few additional lane miles
- Car-pools, Transit, Flex-time, Telecommuting will not do the trick
- Traffic Management – e.g., Roundabouts

Maryland SHA's Traffic Control Philosophy

- Adhere to standards and guidelines
- Uniformity and consistency – design and traffic control
- The least control is the best control
- Perception vs. reality
- Malfetti's Graph
- Apply human factors – esp. Positive Guidance
- Henry Barnes

Meanwhile – back to the Ritchie-Marlboro-I 95/495 Story

The Big Ones

- Lisbon – the first
- Leeds – high speed
- Ritchie/Marlboro/Capital Beltway Interchange
- Towson – urban, high traffic, multi-lane, pedestrians, visually impaired, gateway, economic value

MD Roundabouts - High-Speed Rural Environment

The “Lisbon’ Roundabout

MD 94 @ MD 144 – Howard County

ICD = 100’ AM = 630 PM = 696

* Posted speed limit on MD 94 is 45 mph

Public Involvement: Overall Experience

- Typical experience: negative reaction before construction, positive reaction after construction
- Common misconception based on rotaries or neighborhood traffic circles

MD Roundabouts - High-Speed Rural Environment

The “Leeds” or “Lanzi” Roundabout

MD 213 @ Leeds Rd./Elk Mills Rd. – Cecil County

ICD = 110’ AM = 602 PM = 847

* Posted speed limit on MD 213 is 45 mph

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MD Roundabouts - Urban Environment
The “Towson” Roundabout
MD 45 @ MD 146/Joppa Road Baltimore County

BEFORE

AFTER

The “Towson” Roundabout

Inscribed Circle Diameter = 140’ x 260’

Peak Hour Approach Volume : AM = 2,771 PM = 3,952

Date of Completion - October, 1998

Roundabouts vs. Traffic Signals

- Safety
- Congestion
- Air quality/Noise
- Operations
- Geometrics
- Long-term costs

The “Annapolis Gateway” Roundabout

MD 450 @ Taylor Avenue/Spa Road

Anne Arundel County

MD Roundabouts - Suburban Environment "Gateway"

The "Brunswick" Roundabout

MD 17 @ 'B' St./Maryland Ave. – Frederick County

ICD = 150' x 110' AADT = 3,850 DHV= 10% (Approx.)

Roundabout Safety

- Roundabout have a proven safety record for reducing motor vehicle crashes, particularly injury crashes
- Experience is due to basic contributing factors:
  - **Reduced vehicle speeds**
  - **Reduced driver decisions**
  - **Reduced conflict points**
  - **Reduced conflict severity**

Crash Reduction at Roundabouts
(State Maintained)

- 70% reduction in total crashes
- 86% reduction in injury crashes
- 100% reduction in fatal crashes
- B/C $15 per $1 spent through crash reduction

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Mini-Failure – MD 100 @ Snowden River Parkway – Howard County

MD 100 @ Snowden River Pkwy. – Howard County

ICD = 100’ AADT = 14,100 (2020 Projection)

Maryland SHA Roundabout Task Force - 1989

- Planning
- Traffic
- Consultant
- Local Governments

ROUNDABOUT DESIGN GUIDELINES

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

Roundabout Traffic Design

SHA State Highway Administration

Maryland's Roundabouts

Accident Experience and Economic Evaluation

Prepared by:
Traffic Safety Analysis Division
Office of Traffic & Safety

April 5, 2004

Roundabout Conclusions

- Safety and Mobility are realized
- Congestion/Delay is reduced
- Geometric design is of paramount importance
- Long-range cost-savings are significant
- There is strong public acceptance....now
- Roundabouts have a significant role to play in a State DOT operations program
- Every State needs a **Roundabout Champion**

Our Future ……

… the mini!