Pre-TIP Roundabout Planning

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Roundabout Potential

Current Number of Roundabouts*	
Canada	200
United States	2,500
Australia	9,000
United Kingdom	25,000
France	30,000

* Does not include small roundabouts and neighborhood traffic circles in residential areas.

If Built at the Same Rate as in Australia	
Canada	15,000
United States	130,000

Policy Statements

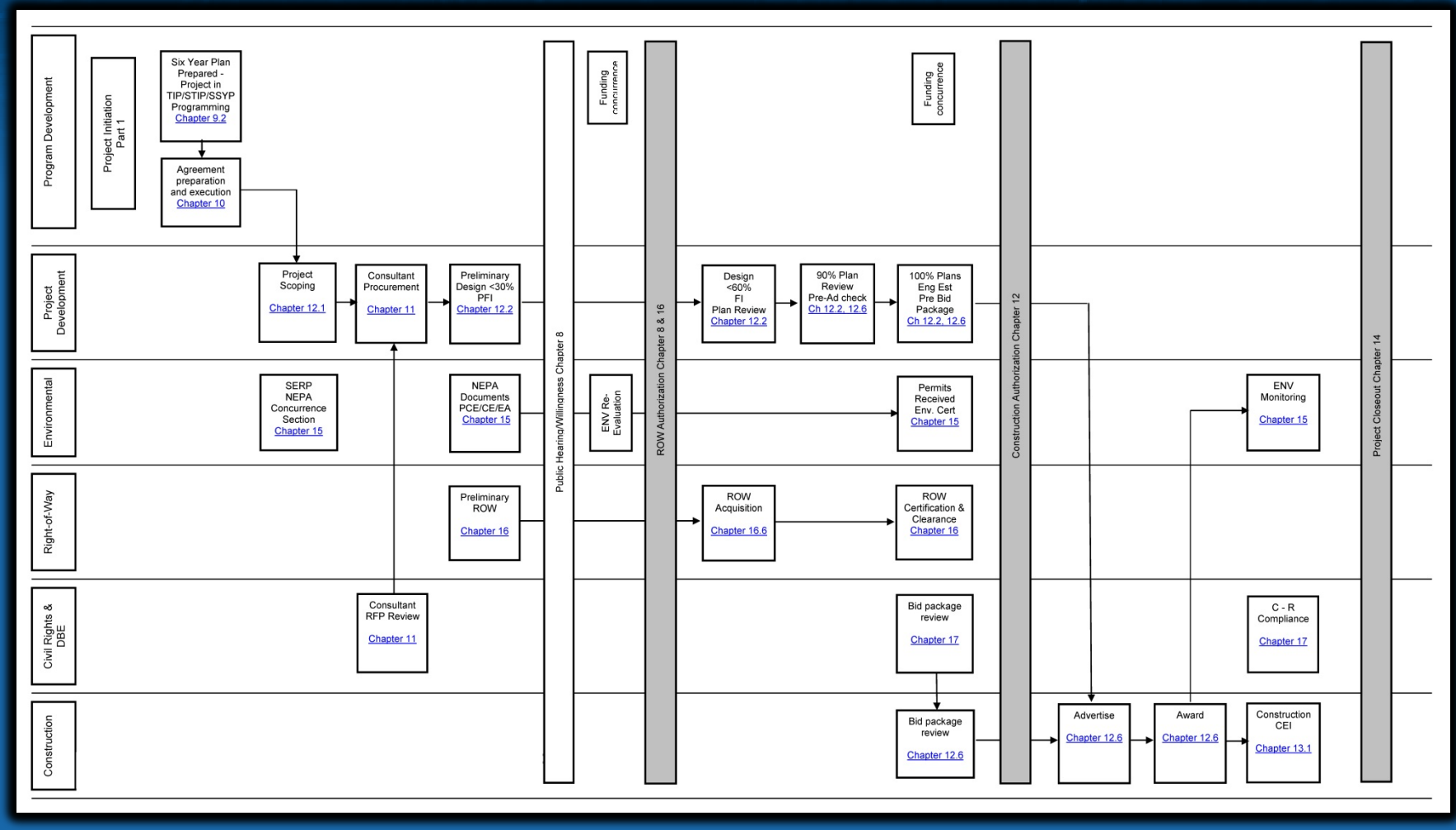
- VDOT

  …it is VDOT policy that Roundabouts be considered when a project includes reconstructing or constructing new intersection(s), signalized or unsignalized. The Engineer shall provide an analysis of each intersection to determine if a roundabout is a feasible alternative based on site constraints, including right of way, environmental factors and other design constraints. The advantages and disadvantages of constructing a roundabout shall be documented for each intersection. When the analysis shows that a roundabout is a feasible alternative, it should be considered the Department's preferred alternative due to the proven substantial safety and operational benefits.

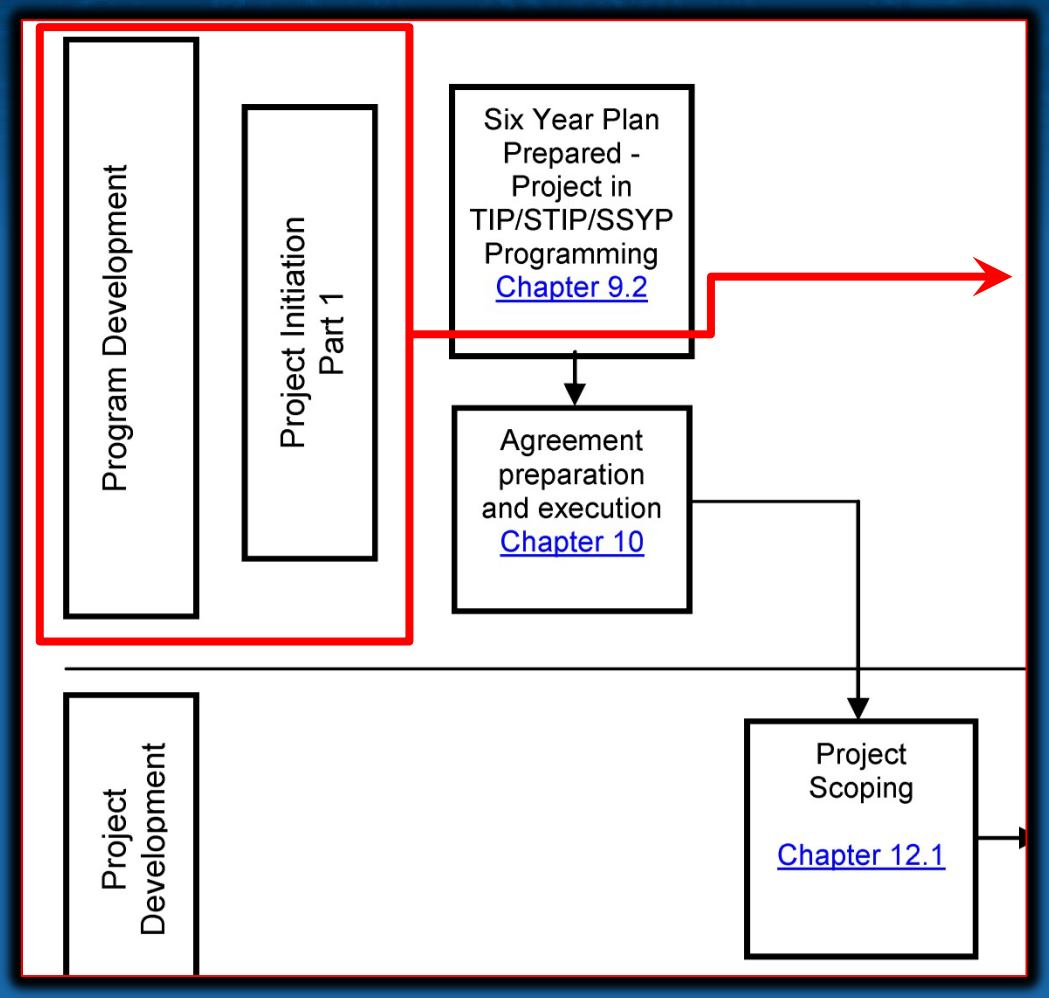
- FHWA

  Roundabouts should be considered as an alternative for intersections on federally funded highway projects that involve new construction or reconstruction. Roundabouts should also be considered when rehabilitating existing intersections that have been identified as needing major safety or operational improvements. Roundabouts have also proven to be effective at freeway interchange ramp terminals and at rural high-speed intersections.

The Project Development Process



The Planning and Design Process

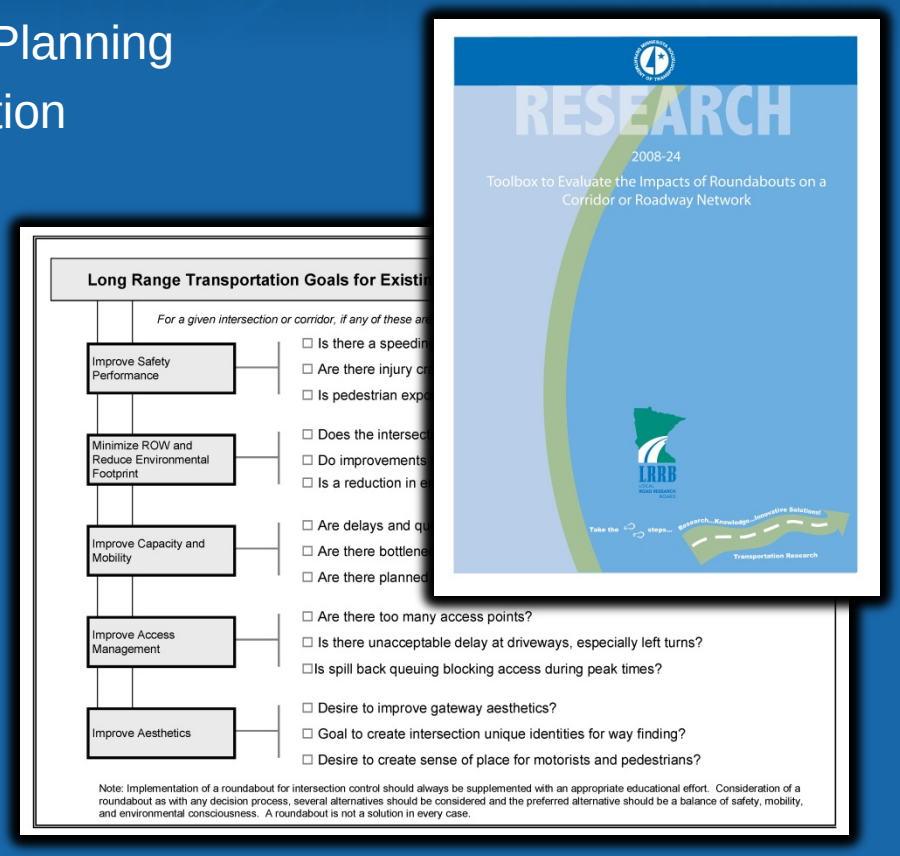


- Goal: Identify potential roundabout locations in Program Development and Project Initiation
- Can be too late by Project Scoping
- Ensure roundabouts are given proper consideration by planning partners, consultants, and stakeholders

Minnesota DOT | Comprehensive Planning

Toolbox to Evaluate the Impacts of Roundabouts on a Corridor or Roadway Network (CTRE, Iowa State University)

- Short section on Comprehensive Planning
  - Require roundabout consideration
  - Preserve ROW
  - Develop CMP's
  - Wide Nodes/Narrow Roads
  - Utilize roundabouts at major intersections
  - Education
  - Strive for consistency across jurisdictions



Early Planning Tools

Intersection-level Screening

- Applicable to one intersection at a time
- Based on NCHRP 672 (FHWA Roundabout Guide) – Chapter 3
  - Planning level volumes
  - Elementary geometric considerations
  - Crash histories
  - User considerations, etc.
- Checklist format
- Numerous example checklists:
  - MassDOT
  - Region of Waterloo
  - Original PennDOT Guide (Pub 414)

Early Planning Tools

Network-level Screening

- Applicable to numerous intersections simultaneously
- Allows for comparison, ranking and prioritization
- Also based on NCHRP 672 (FHWA Roundabout Guide) – Chapter 3
- More time intensive depending on scale of study
- Example studies:
  - Delaware Valley Regional Planning Commission (Philadelphia region)
  - PennDOT Roundabout Pilot Study
  - Ada County, Idaho
  - Iowa Roundabout Corridor Toolbox

DVRPC | Network Screening & Feasibility Studies

Regional Roundabout Analysis – Phases 1 & 2

- Phase 1
  - Examine the applicability of roundabouts (hundreds of sites)
  - Screen 9 counties – identify 3 sites/county
  - Single lane roundabouts only

- Phase 2
  - Narrow 27 sites to 9 (1 per county)
  - Additional data collection

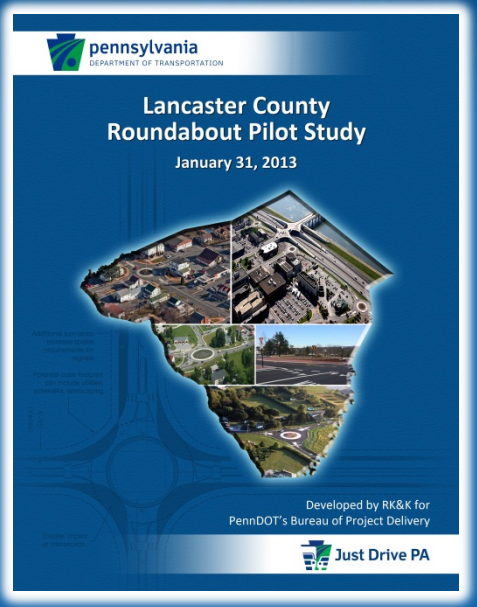
- Goal : Add 1 project per county to the TIP

PennDOT | Countywide Network Screening

Lancaster County Roundabout Pilot Study

- Similar to DVRPC Phase 1 study
  - Screening criteria established by PennDOT
  - Based on NCHRP 672 Chapter 3
  - Limited to single lane roundabouts only

- Goals: Identify 10 intersections and 3 corridors. Improve methodology prior to statewide roll-out. Extend study to corridors & multi-lane roundabouts.

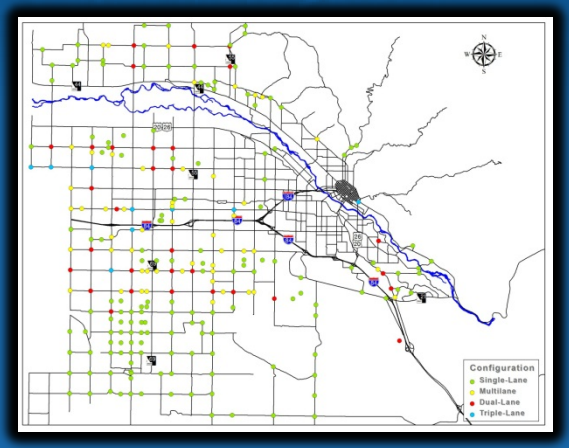


- Outcome: Presented findings to the district, county planning officials & municipalities. Funding of actual projects was left up to the county and the district.

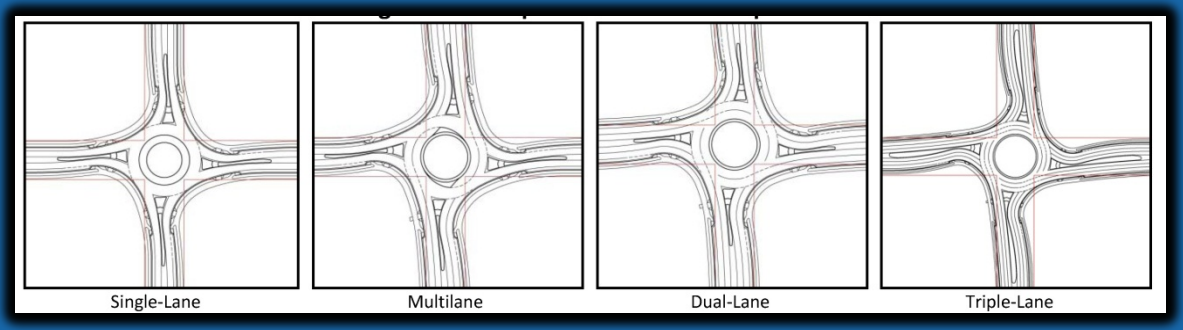
Ada County | Countywide Network Screening

Countywide Roundabout Preservation Plan

- High level survey
  - 785 intersections
  - Traffic volumes
  - Physical constraints
  - Surrounding network
- 1, 2 and 3-lane roundabouts



- Goal: Preserve right of way to ensure roundabouts are not precluded in the future.



Other Considerations

Target High Crash Locations

- May use HSIP funds
  - However, roundabouts are not considered to be systematic solutions
  - FHWA may pay 100% for roundabout projects
  - Challenge: Lower cost solutions may be as effective
  - Challenge: Regression to the mean nature of crashes

- Solve problem locations – build momentum
  - Example: Maryland's roundabout program
  - Example: Lisbon, MD experience

Other Considerations

Target Congested Intersections

- May use CMAQ, bottleneck reduction funds?
  - Opportunity: Adopt wide nodes/narrow roads perspective
  - Example: Rte 9 in Hillsboro, VA
  - Challenge: congested intersections often equal high volumes
  - Example: Washington County, MD corridor study
  - Solution: Stage build-out of large roundabouts
  - Challenge: An elegant solution may not be obvious
  - Solution: Think holistically
  - Example: Gilberts Corner

Other Considerations

Intersections and Corridors as Asset Management

- Develop inventory of potential roundabout sites
  - Encourage developers, counties, municipalities, etc. to use roundabouts for projects not yet on the radar
  - Protect unsignalized corridors & revitalize signalized corridors
  - Utilize life cycle costing to evaluate alternatives (include all costs and benefits)

Economic Development

- Roundabouts can revitalize CBD's and make gateway statements
  - Example: Towson and Annapolis, MD
- Improve access management in commercial districts
  - Example: Golden, CO

Contact Information

Thanks!

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