Introductions

- Larry Murphy, P.E.
  - CDM Deputy Director of Transportation
  - 24 years experience
  - Former ConnDOT Highway Engineer

- Kevin Johnson, P.E.
  - Principal with CDM
  - 15 years experience
  - Senior Transportation Engineer
Objectives

- How to build public support for roundabouts
- Lessons learned during the design phase of a roundabout project
- Lessons learned during the construction and maintenance phase of a roundabout project
Public Support

- Roundabouts are not your father’s intersection design
- Keep the community informed early on in the design process
- Proper notification of key stakeholders (bike groups, wetlands agency)
- Avoid moving forward on a project without public support
Building a project without public support could create bad press and an angry mob.
Public Support (Cont.)

- What a roundabout isn’t!
Public Support (Cont.)

How do you build public support for an unfamiliar intersection improvement?
Public Support (Cont.)

◆ One successful technique is a design charrette!
Charrette

A charrette (pronounced [shuh-ret], often misspelled charette and sometimes called a design charrette) consists of an intense period of design activity.

Wikipedia
History of Charrettes
Paris – 19th Century

Thought to originate from the École des Beaux-Arts in Paris in the 19th Century, the word *charrette* is from the French for "cart" or "chariot".

Student architects still working furiously on the grand illustrations that were their design presentations, literally in the cart ("en charrette"), as they were wheeled through the streets of Paris on their way at the very last minute to turn in their work to their professors.

*Wikipedia*
Public Support (Cont.)
Public Support (Cont.)

Why Have a Charrette?

- Old DOT Design Process
- NIMBYs
- Incorporates Context Sensitive Solutions into the Design
Public Support (Cont.)

- Charrette Example – Rt. 116, Amherst, MA
Public Support (Cont.)

- Break Into Groups
Public Support (Cont.)

- Group Design Concept
Public Support (Cont.)

- Try to Achieve Consensus
Public Support (Cont.)

- Day 2 – Formulized Concept
Public Support (Cont.)

- The end result of the Charrette was a concept supported by the community and DOT.
Public Support (Cont.)

- Successful Design Public Hearing
Public Support (Cont.)

- Although There are No Guarantees

Historically the term *charrette* is also applied to the cart used to carry the condemned to the guillotine!
Lessons Learned in the Design Phase of a Roundabout Project

- You’ve survived the public hearing process, now it’s time to work on the design of a roundabout!
- Objective of this presentation is to offer some key considerations for a roundabout.
- This presentation will not teach you how to design a roundabout.
Design Phase (Cont.)

Key Considerations
- Public support
- Safety
- Feasibility
- Geometry
- Traffic and special events
- Pedestrians and bicycles
- Lighting
- Landscaping
- Traffic calming
Public Support

- Public awareness and communication does not stop when the charrette is completed!
- Maintain contact with key stakeholders
- Remember, the mob is out there!
Design Phase (Cont.)

- Safety
  - In general, roundabouts have been proven to be safer than traffic signal locations.
Design Phase (Cont.)

- Feasibility
  - How much money is a roundabout compared to a traffic signal installation?
Feasibility

Considerations

- Installation – site dependent
- ROW – roundabouts require wider nodes, traffic signal require wider approach lanes
- Operation and Maintenance – Traffic signals cost approximately $15,000/year however; roundabout need lighting and landscaping
Design Phase (Cont.)

- **Geometry**
  - Severe side slopes may prohibit roundabouts
  - Be aware of encroachment into wetlands
  - ROW
  - Significant changes in horizontal or vertical grades will impact the design of roundabout
  - Diameter of a the roundabout may not fit your location. Diameter is determined by the number of lanes, geometry, trucks and traffic demand.
Design Phase (Cont.)

- Geometry Example – Missoula, Montana
Design Phase (Cont.)

- Truck Aprons

Exhibit 6-37. Typical circulatory roadway section.

Exhibit 6-38. Typical section with a truck apron.
Design Phase (Cont.)

◆ Truck Aprons

COBBLESTONE ISLANDS AND TRUCK APRON:

SURFACE:  ENGINEER APPROVED, UNIFORM COBBLESTONES PLACED ON A 2.5" BED OF MORTAR AND JOINTED WITH NON-SHRINK GROUT.
REF. TO CONTRACT SPECIFICATIONS SECTION 02910

BASE:  6" HIGH-EARLY STRENGTH CEMENT CONCRETE BASE W/ 6"X6" W3.5XW3.5 WELDED WIRE MESH (4 GAUGE-6") OVER 6" BANK RUN GRAVEL OR APPROVED EXIST. SUBBASE
REF. TO CONTRACT SPECIFICATIONS SECTION 02910

12.00' TRUCK APRON

18.00' TRAVEL LANE

1.5' COBBLE STRIP

8.5' SHARED PATH

HIGH-EARLY-STRENGTH CEM. CONC. (TYP)

COBBLESTONE STRIP (TYP)

HIGH-EARLY-STRENGTH CEM. CONC. (TYP)

CEM. CONC. CURB (TYP)

CEM. CONC. SIDEWALK (TYP)

FIELDSTONE MASONRY RETAINING WALL (MATCH EXIST. COLLEGE WALL)

BANK RUN GRAVEL 8" MIN (TYP)

FLUSHED CURB (TYP)
Traffic and Special Events

- No your limits for a roundabout!!
  - Roundabouts have a breaking point for circulating and entry volumes
  - Entering volume and distribution (left turners) are key
  - Truck traffic must be known and included in the design
  - Talk to your emergency response officials
  - Be careful of special events
Design Phase (Cont.)

- Special Events – Missoula,
Design Phase (Cont.)

Example – for a Circulatory Flow of 750 veh/hr

FHWA Informational Guide

Traffic simulation
Pedestrian and Bicyclists

- Are roundabouts safe for peds and bikes?
- What design considerations are there?
  - Splitter islands
  - Shared bike/ped path
  - Proper markings and signage
Design Phase (Cont.)

- Pedestrian and Bicyclists
  - Splitter Islands – Yes!
Design Phase (Cont.)

- Pedestrian and Bicyclists
  - Shared bike/ped path
  - Why?
Design Phase (Cont.)

- Pedestrian and bicycle markings and signs
Design Phase (Cont.)

- **Lighting**
  - Proper lighting of a roundabout is a must.
  - Lighting techniques need to be considerate of the location.
  - Lighting analysis is recommended
Design Phase (Cont.)
Design Phase (Cont.)

- Landscaping
  - No fountains, playgrounds, obstructions
Traffic Calming

- Roundabouts are an effective method to slow traffic however, the entering volume needs to slow down BEFORE the roundabout.

- Methods to slow entering vehicles
  - Signing and markings
  - Rumble strips
  - Physical alterations to approach
Design Phase *(Cont.)*

- Traffic Calming Methods
Lessons Learned in the Construction Maintenance Phase of a Roundabout Project

- Once the design documents are complete the project is ready to be constructed.
- This part of the presentation will offer some “lessons learned” on constructing and maintaining a roundabout.
Construction and Maintenance Phase
(Cont.)

- Key Considerations
  - Public Awareness
  - Partnership with contractor
  - Notify utility companies
  - Traffic management
  - Maintenance
Construction and Maintenance Phase (Cont.)

- Public Awareness – Keep the public informed of the construction progress
  - Website updates
  - Monthly or “As-Needed” meetings with the abutters and officials
  - Newspaper notifications
  - Detour plan
  - Door to door visits
Partnership with Contractor

This may be the contractor's first roundabout

Detailed plans and specifications are a must

The more information the better.
Construction and Maintenance Phase

(Cont.)

- Notify utility companies
  - Roundabouts impact a wide area and will probably involve the relocation of above and below ground utilities.
Traffic Management

Propose a traffic management plan that allows the contractor to work quickly with limited impacts to abutters.
Construction and Maintenance Phase (Cont.)

- Roundabout Maintenance
  - prune and weed the islands and circle (build civic pride)
  - Consider a water tap in the center island for watering plants and flowers
  - Northern states – snow removal
  - Inspect truck apron
Closing

- Generate public support throughout the life of the project
- Use common sense when proposing a roundabout. There are several design considerations that must be reviewed.
- Constructing a roundabout requires detailed plans and a partnership with the contractor.
Reference Material

- FHWA – “Roundabouts: An Informational Guide”
Questions?