"*One State DOT's Perspective*"

Roundabout Intersections

California Department of Transportation (Caltrans) – Webinar

Brian Walsh, P.E.

Washington State Department of Transportation

November 9, 2011

A “North American” Perspective

A “European” Perspective

Photo: Matthew Enders

Is this the future or what we are proposing….?

Roundabout Guidance/Chronological Timeline (WSDOT)

- **1995 – First roundabount proposal (Port Orchard) on state highway, initial guidance was Maryland Roundabout Guide**
- **1996 – Austroads Part 6 is obtained**
- **1997 – First roundabouts opened (State and City projects)**
- **1998 – Filmed state highway roundabout to understand Opertions (Port Orchard)**
- **1999 – Decision was made that WSDOT needed to provide Design Guidance**
- **2000 – Design Manual Chapter produced/ 1st Statewide Conference**
  - – First multi-lane roundabout is designed/delayed for next season
- **2001 – 2004 Held one day workshops through LTAP Center (20 total)**
- **2005 – Choosing Intersection Control Chapter Discussion**
- **2005 – 2008 Roundabouts continue to be controversial – Trucks, Capacity Issues. 5 of 6 WSDOT Regions had constructed a roundabout**
- **2008 - Roundabouts continue to be proposed and designed, Truck Listening Session**
- **2009 - Number of roundabouts built and operating passes 120, Choosing Intersection Control Policy to be implemented**
- **2011 – Number of roundabouts built passes 215. Agency as a whole has accepted roundabouts however reservations remain**

Planning Effort/Initiative Results in Progress

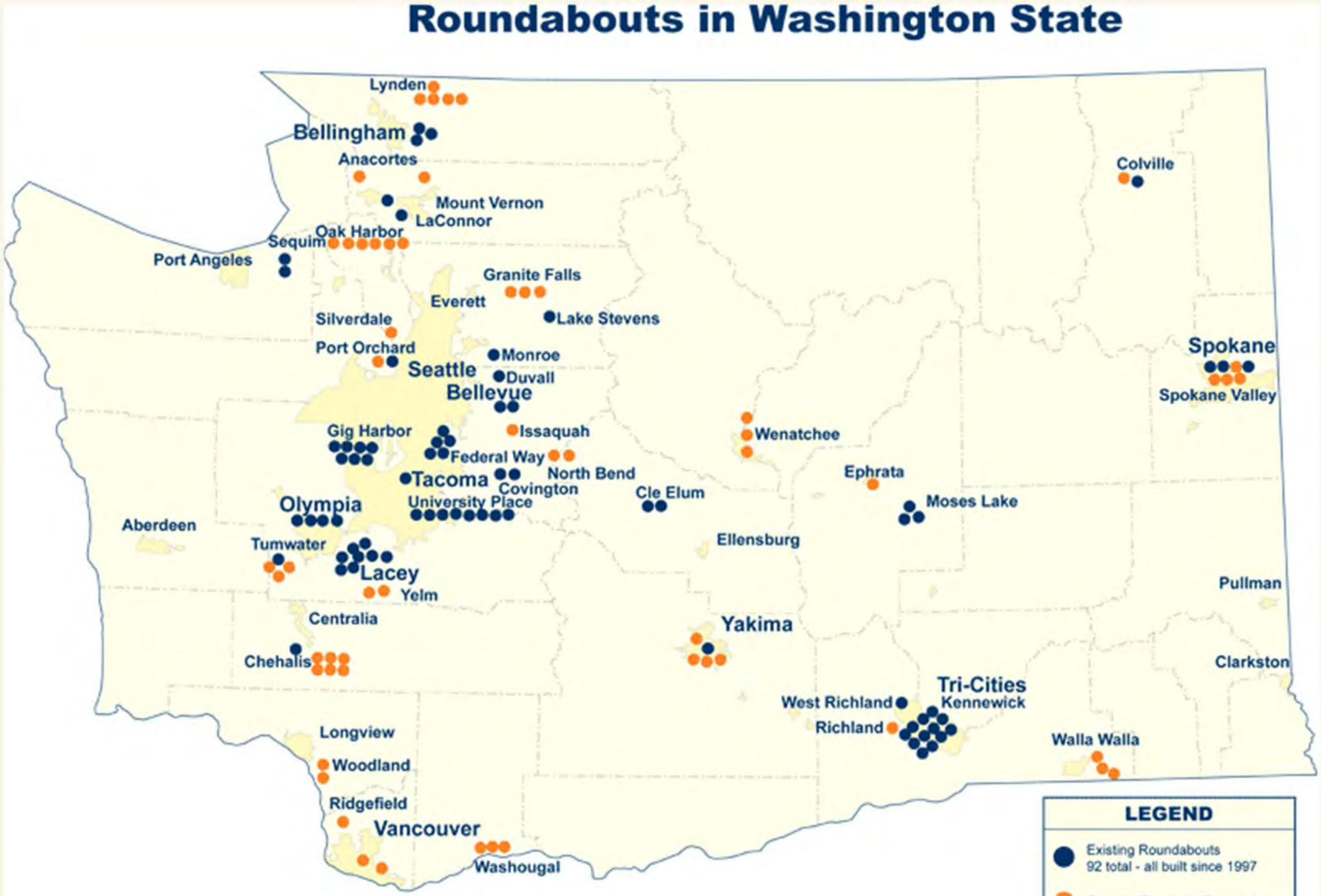
2008 Stats

- **120 Roundabouts Total**
- **22 on state highways**
- **46 separate jurisdictions**

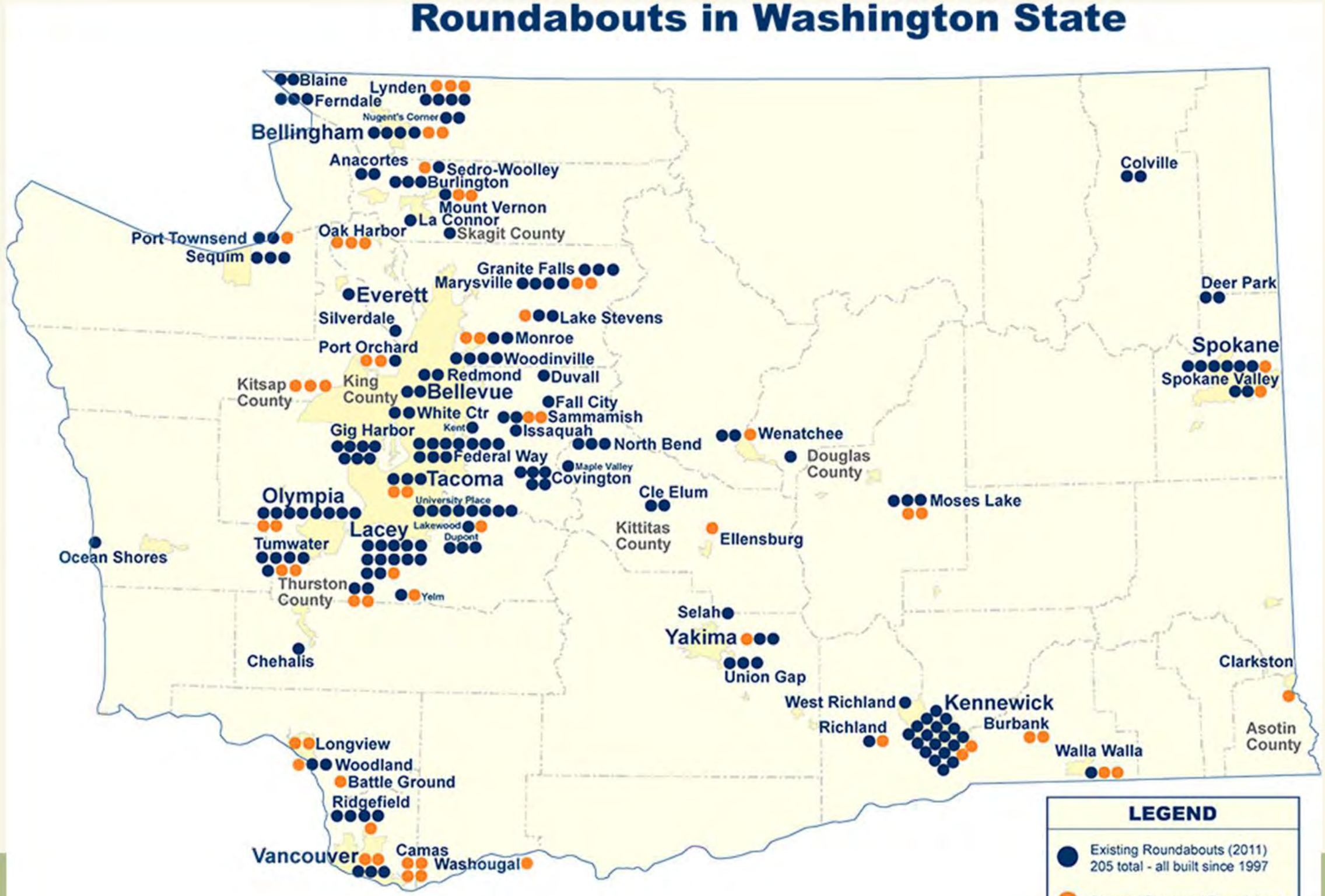
2011 Stats

- **218 Roundabouts Total**
- **57 on state highways**
- **Over 70 jurisdictions**

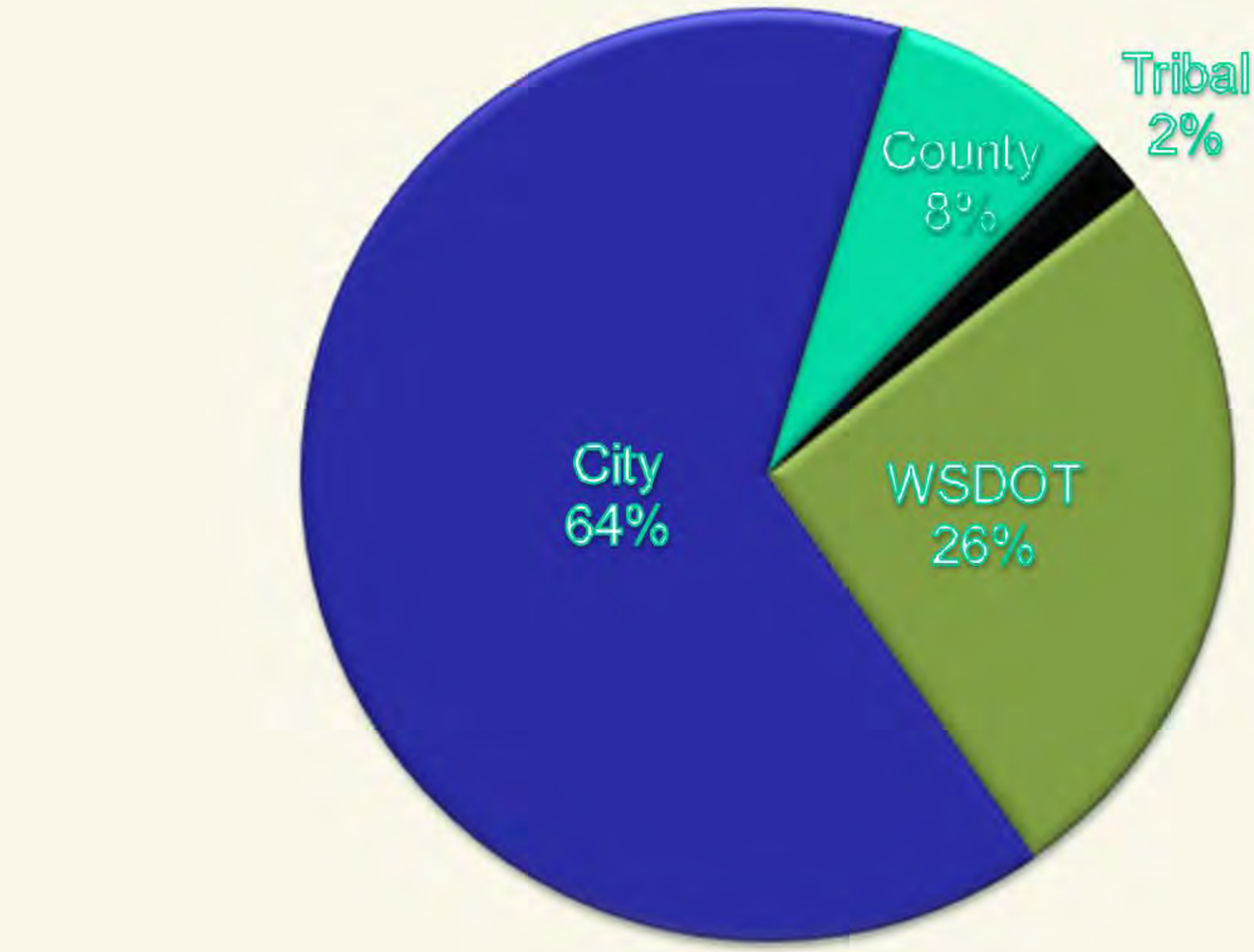
A 2008 look at the map



A 2011 Look at the map



Distribution of Roundabouts by Jurisdictional Type in Washington State



ROUNDABOUT DESIGN GUIDELINES

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

ROUNDABOUTS:
AN INFORMATIONAL GUIDE

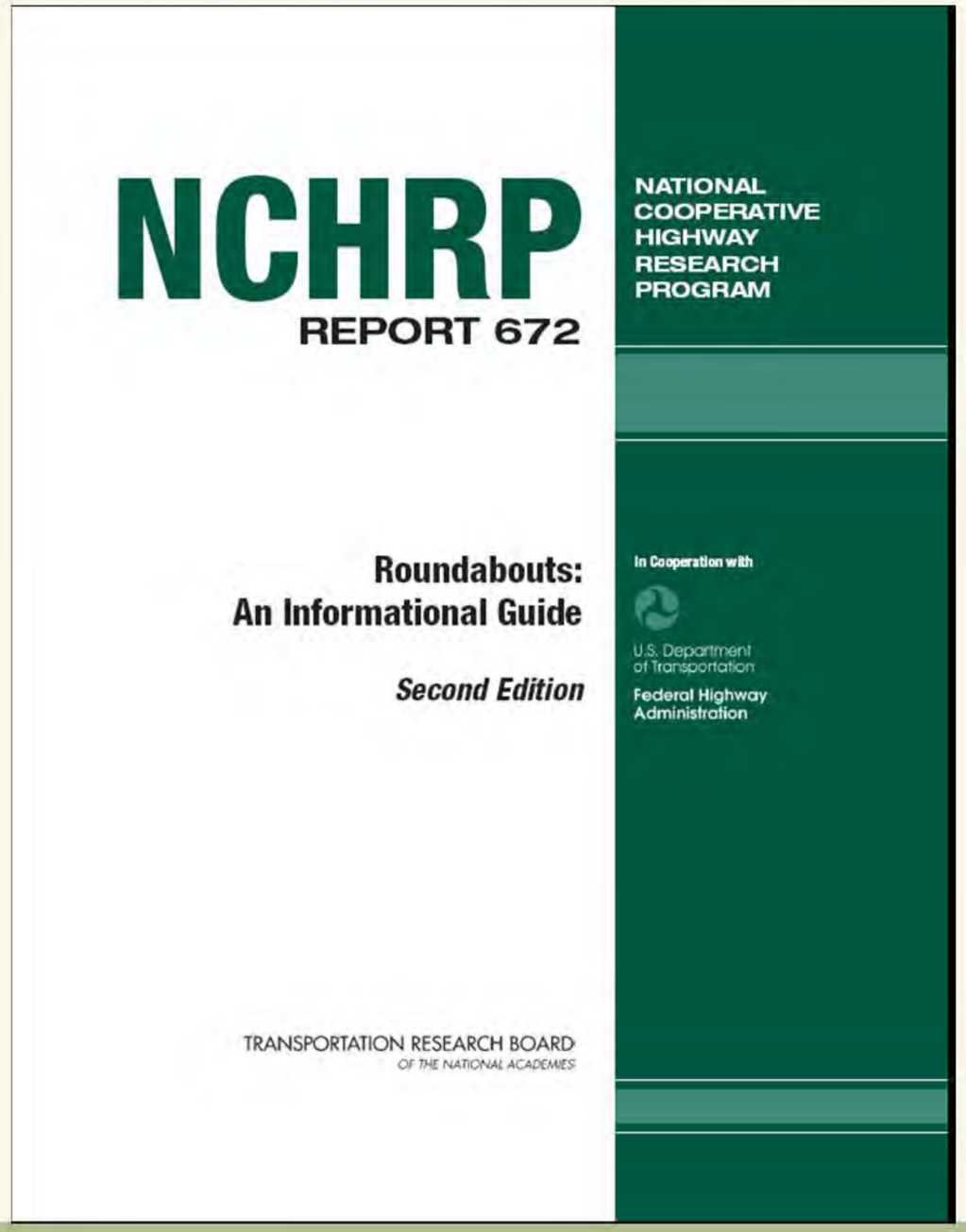
U.S. Department of Transportation
Federal Highway Administration
Publication No.
FHWA-RD-00-067

1st Federal Highway Administration Guide

released in 2000

This is considered newest FHWA Roundabout Guide

- **Associated with NCHRP Project 3-65A**



Is this the future or what we are proposing….?

Public Outreach to promote/justify projects

Arcata, CA (US 101)

Photo - Google

To Cannon Rd
5
LEGOLAND

Monroe, WA Story (built 2001)
State Route 522 – Tester Road
Photo: Kurt Stiles, WSDOT

Gig Harbor (Built in 2001 and 2002)
State Route 16 Interchange – Burnham Drive

SR 206 (Mount Spokane Highway) and Bruce Road

Roundabout Examples – What can you learn from their design/operation

However not without its challenges during the 15 minute Peak Hour

State Capitol
Information Center
City
Center
Employee
Parking
03.07.2005 13:42

NORTH
WEST LAKE SAMM PKWY
SCHOOL
EAST
SCHOOL
SPEED LIMIT
20
ONE WAY
STOP
HERE ON
RED
1 CAR PER GREEN
ISSAQUAH
AHEAD

Rectangular Rapid Flashing Beacon

VISSIM Modeling can be very helpful however caution in interpretation

Conceptual Drawing on an aerial photograph

McDonald's
Coca-Cola

Design Visualization

Public Perception Poll

Retting, Luttrell, and Russell
November 2001

Public Opinion	Before Construction	After Construction
Strongly opposed	**41**%	**15**%
Opposed	**14**%	**13**%
Favoring	**31**%	**63**%

"Public Opinion and Traffic Flow Impacts of Newly Installed Modern Roundabouts in the United States"

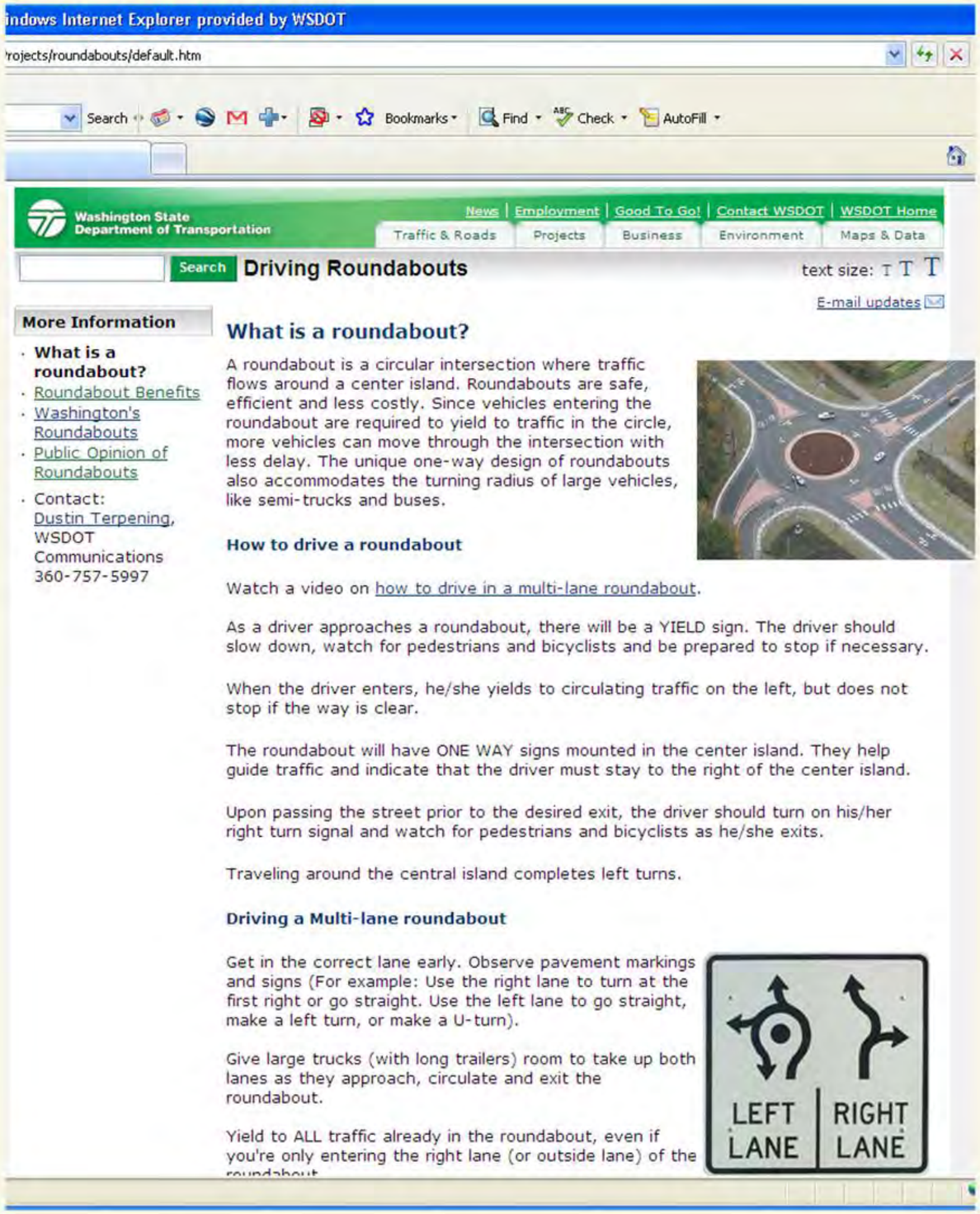
Further study substantiated the findings of earlier IIHS Report

In 2006, Retting et al. followed the same procedure to examine public opinion of a roundabout at the intersection of Route 29 and Route 40 in Greenwich, NY [*9*]. The analysis revealed that after construction, the proportion of drivers favoring the roundabout increased from 37 percent to 53 percent. Drivers opposed to construction of the roundabout provided multiple reasons, the most common being that the roundabout was confusing or unsafe. Similar results were obtained from analyses conducted in Nashua, NH and Bellingham, WA produced comparable trends as the proportion of drivers opposed to the roundabout declined from 53 percent to 38 percent. Although public opinion became more positive after construction, the change was modest at the site in Bellingham compared with other study sites. One reason could be that the prior form of traffic control was 4-way stop, which provides a high level of safety and simplicity for drivers.

Retting et al. [*10*] also conducted long-term follow-up surveys of public opinion and attitudes toward roundabouts in six communities one to five years after the roundabouts were constructed. For all six communities combined, the proportion of drivers in favor of the roundabouts increased from 34 percent before construction to 57 percent soon after roundabouts were built and to 69 percent after roundabouts were in place for 1 year or more. Opinion data were also

Development of a Web Site

- **Website was a joint effort from the Traffic Office and the Communications Office in 2005**
- **Invaluable to WSDOT and local agencies when assisting individuals during the public input process for a roundabout project**



Important to put Social Media to good use

SR 539 Ten Mile roundabout on Flickr - Photo Sharing! - Windows Internet Explorer provided by WSDOT

http://www.flickr.com/photos/wsdot/3698228016/

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SR 539 Ten Mile roundabout

ALL SIZES

Looking north along SR 539 at the completed Ten Mile Road roundabout, which opened May 16. Photo courtesy of Lyle Jansma.

Would you like to comment?

Sign up for a free account, or sign in (if you're already a member).

Uploaded on July 7, 2009 by WSDOT

WSDOT's photostream

11,059 uploads

browse

This photo also belongs to:

SR 539/Ten Mile Road roundabout (Set)

33 items

browse

Part of: SR 539 (Guide Meridian)

1 person calls this photo a favorite

Tags

- SR 539
- Guide Meridian
- roundabout

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WSDOTBLOG

Washington State Department of Transportation

This Blog | Linked From Here

The WSDOT Blog: Carefully moving 61 tons of bridge in Union Gap
Jun 18, 2010
This year, construction crews will build two of the three **roundabouts** and build the new eastbound I-82 bridge. Next summer, construction crews will finish the third **roundabout**, the westbound I-82 bridge, pave the Yakima Greenway parking ...
http://wsdotblog.blogspot.com/

The WSDOT Blog: New simulations showcase proposed Alaskan
Aug 10, 2009
Here's a tip: use **roundabouts** in place of some of them. They are proven WAY more effective at moving traffic. And according to video, there is ample meridian space to allow for them. Pedestrians can cross at intersections having ...
http://wsdotblog.blogspot.com/

Busy times in the transportation world...
Apr 08, 2010
And for those of you who love **roundabouts**, there are three of them being built on this project. Work continues on I-405 between NE 8th Street and SR 520 in Bellevue. Work on I-5 in Blaine will close D Street/Peace Portal Drive for 50 ...
http://wsdotblog.blogspot.com/

1

Missouri DOT worker riding across country to raise money for a workzone safety memorial

Tuesday, June 22, 2010

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- U.S. DOT - Fast Lane
- WSDOT GMAP

Flickr - Photo of the Week

Aerial view of new SR 532 bridge

YouTube - wsdot's Channel#p/u/14/II225jNzCH4 - Windows Internet Explorer provided by WSDOT

http://www.youtube.com/user/wsdot#p/u/14/II225jNzCH4

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US 12 - Mossyrock Conceptual Roundabout Option

Like

From: wsdot | February 01, 2010 | 979 views

A visualization of how traffic might flow if WSDOT constructed a roundabout at the intersection of US 12 and SR 122 in Mossyrock.

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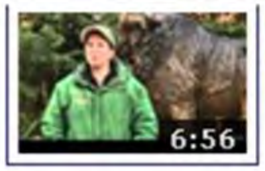

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US 12 - Mossyrock Conceptual
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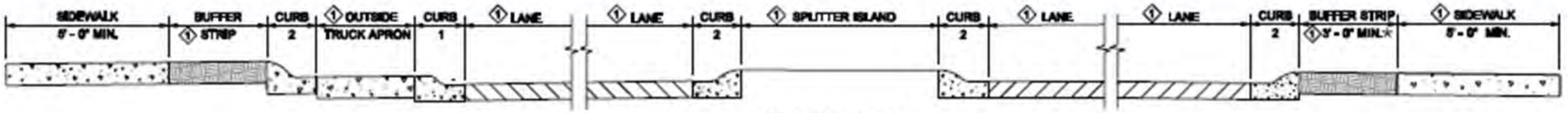
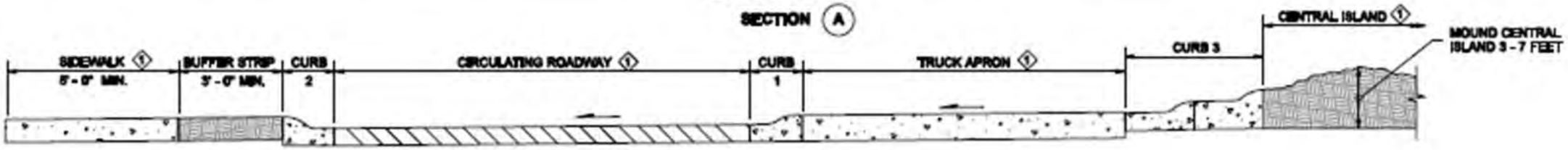
Match Your Speed to Conditions
455 views - 6 months ago

WSDOT specific Roundabout Curb Detail



CURB PLACEMENT
SECTION (A)



CURB PLACEMENT
SECTION (B)

(THIS ROUNDABOUT CONFIGURATION WILL VARY DEPENDING ON CONTRACT PLANS)

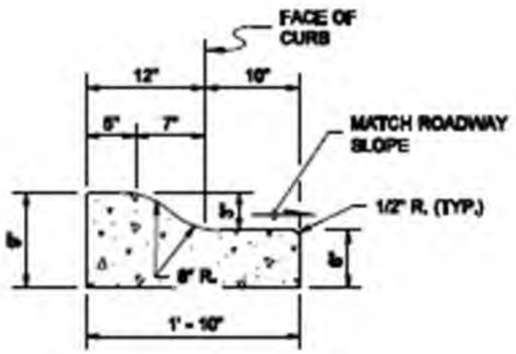
NOTES

1. See Standard Plan F-30.10 for Curb Expansion and Contraction Joint spacing.
2. Island nose shall be painted with yellow reflectorized paint striping and painting will be subsidiary.

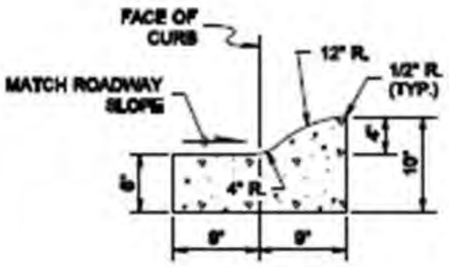
LEGEND

◇ WIDTH VARIES ~ SEE CONTRACT PLANS

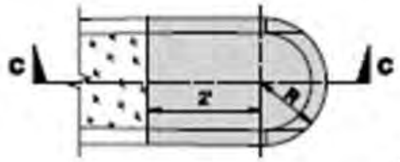
★ 6' - 0" MIN. SIDEWALK WITHOUT BUFFER STRIP

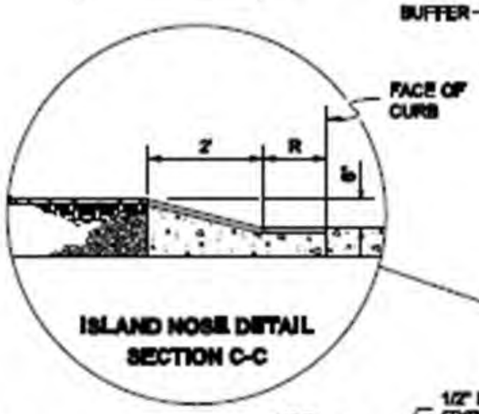


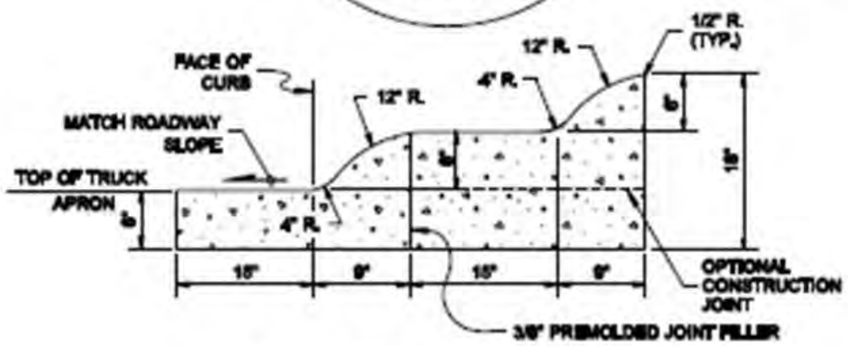
CURB 1 ~ ROUNDABOUT TRUCK APRON



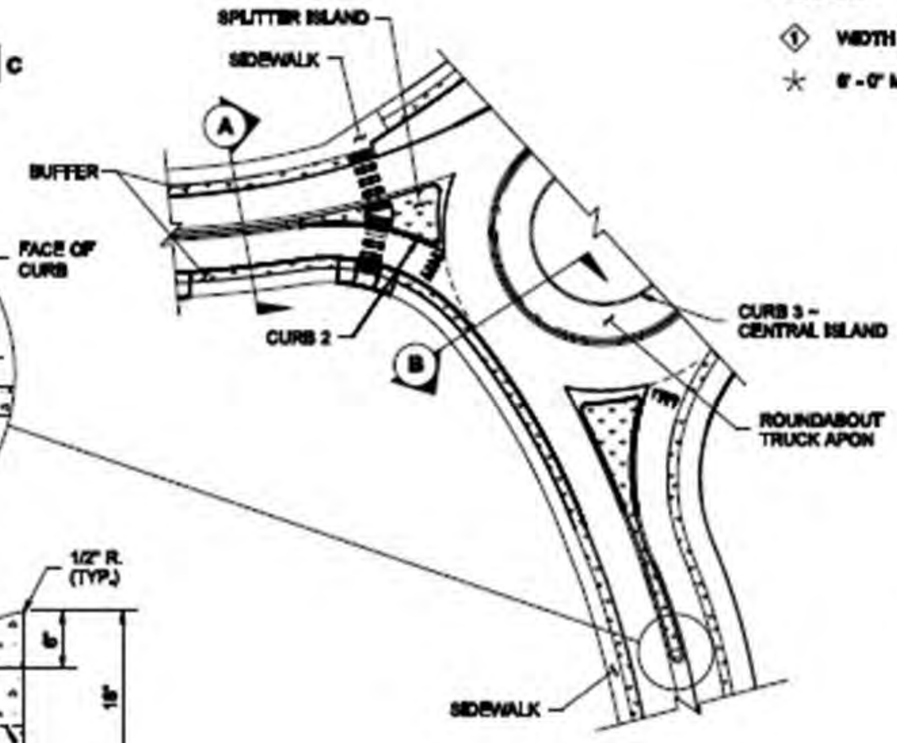
CURB 2 ~ OUTSIDE OR RIGHT SIDE CURB & SPLITTER ISLAND CURB







CURB 3 ~ CENTRAL ISLAND CURB



PARTIAL PLAN

PRELIMINARY

ROUNDABOUT CEMENT CONCRETE CURBS

STANDARD PLAN F-10.18-00

SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

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STATE DESIGN ENGINEER DATE

Washington State Department of Transportation

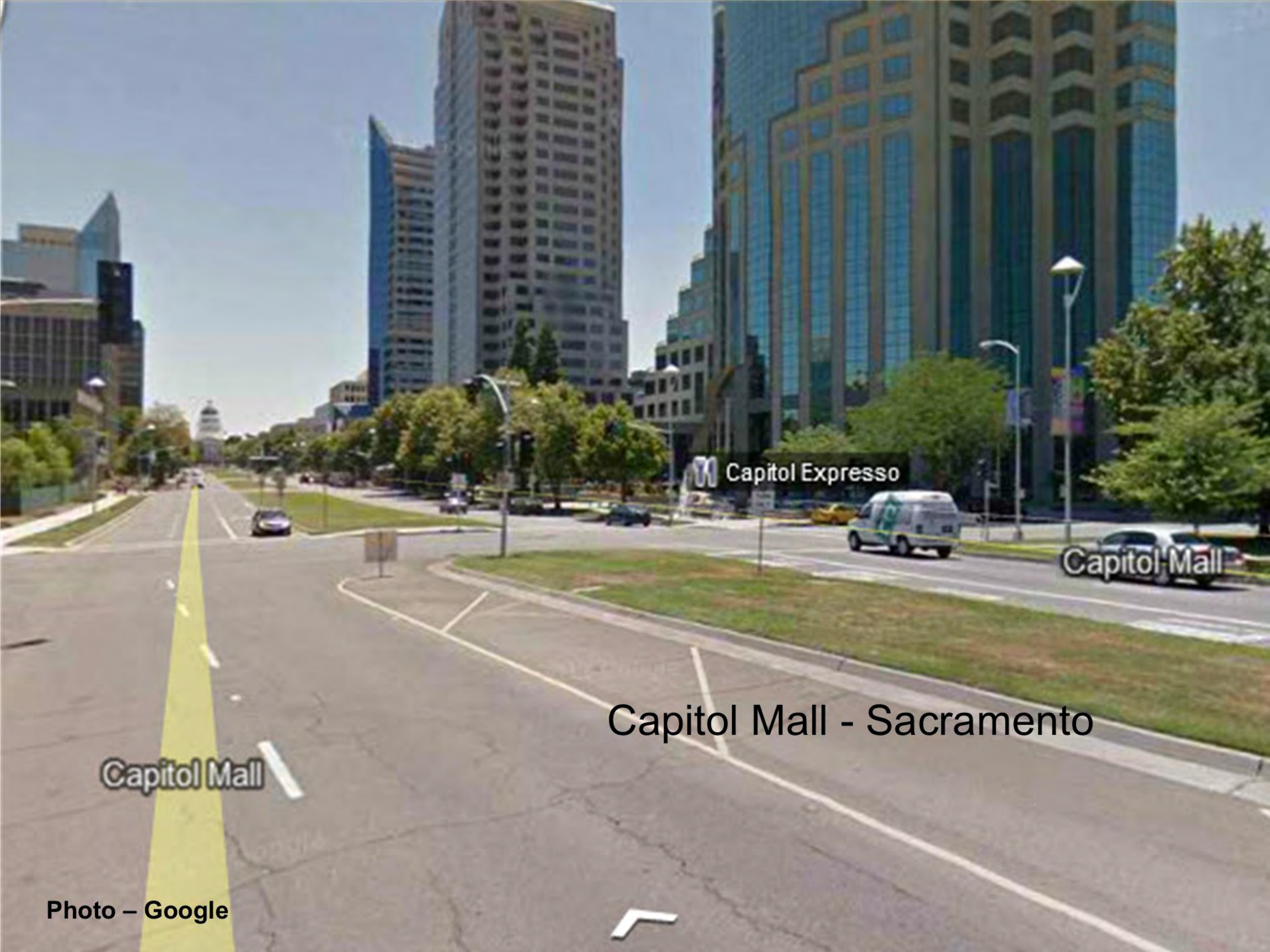
Truck Operations

scade St Roundabout Top Site
May 2011 16:44:31 Pacific Daylight Time

scade St Roundabout Top Site
May 2011 16:44:37 Pacific Daylight Time

Roundabout Coordination Group

GRANDVIEW
SPEED LIMIT 25
12/13/200



Capitol Mall - Sacramento

Photo – Google

SR 160 Offramp at Exposition Blvd

Photo – Google Maps

Questions or Comments?

Photo – Dan Dovey