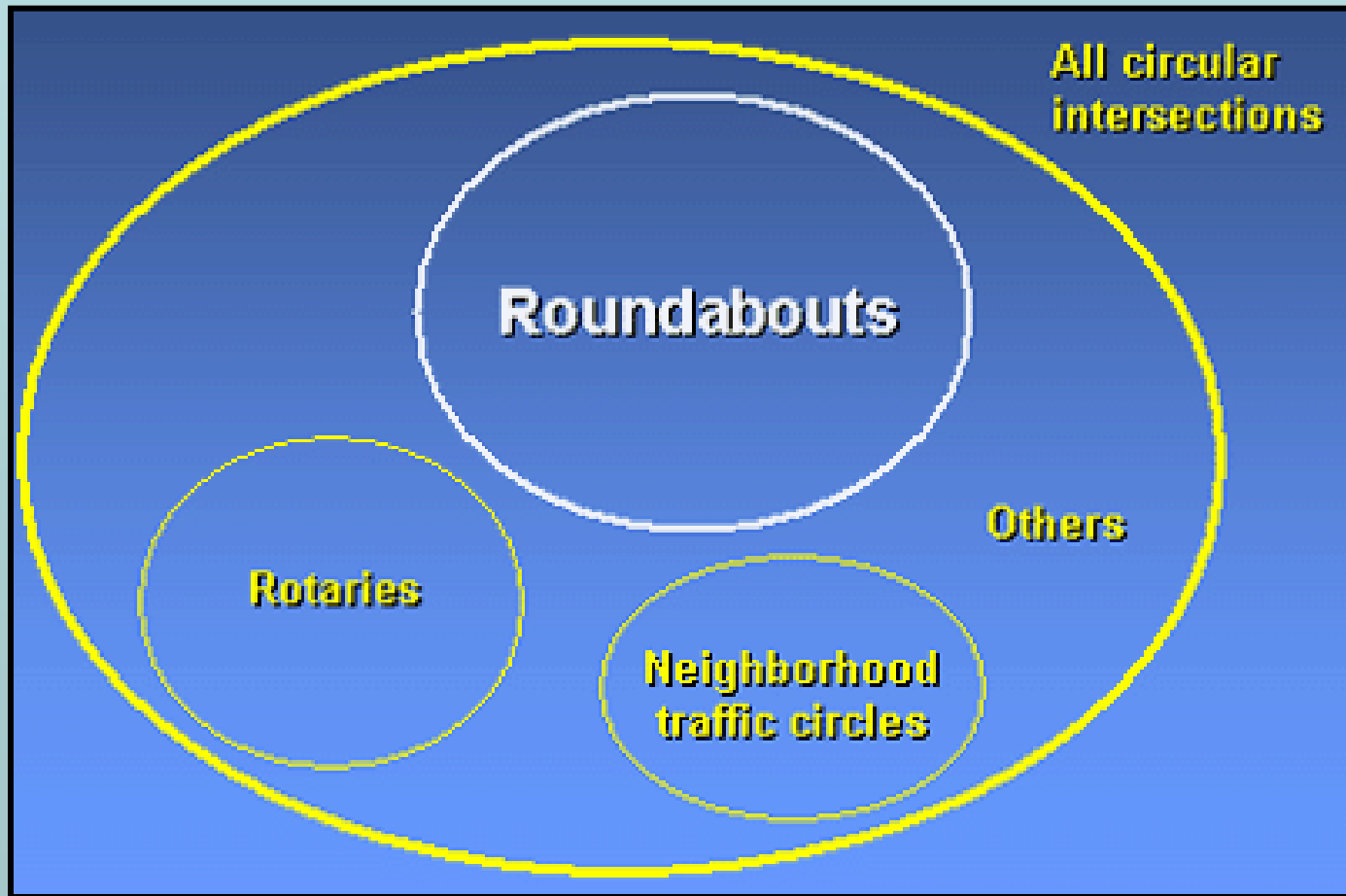


ROUNDAABOUTS



What Is A Roundabout?

- A specific type of traffic circle
- Not all traffic circles are roundabouts



Defining Elements

- Yield controlled at **entry**
- Priority to circulating vehicles
- Traffic rotates counterclockwise
- Low speeds
- Parking
- Pedestrian access



Yield Controlled at Entry

Roundabouts



Other Traffic Circles



Priority to Circulating Vehicles

Roundabouts



Other Traffic Circles



Traffic Rotates Counterclockwise

Roundabouts



Other Traffic Circles



Low Speeds



Parking

Roundabouts



Other Traffic Circles



Pedestrian Access

Roundabouts

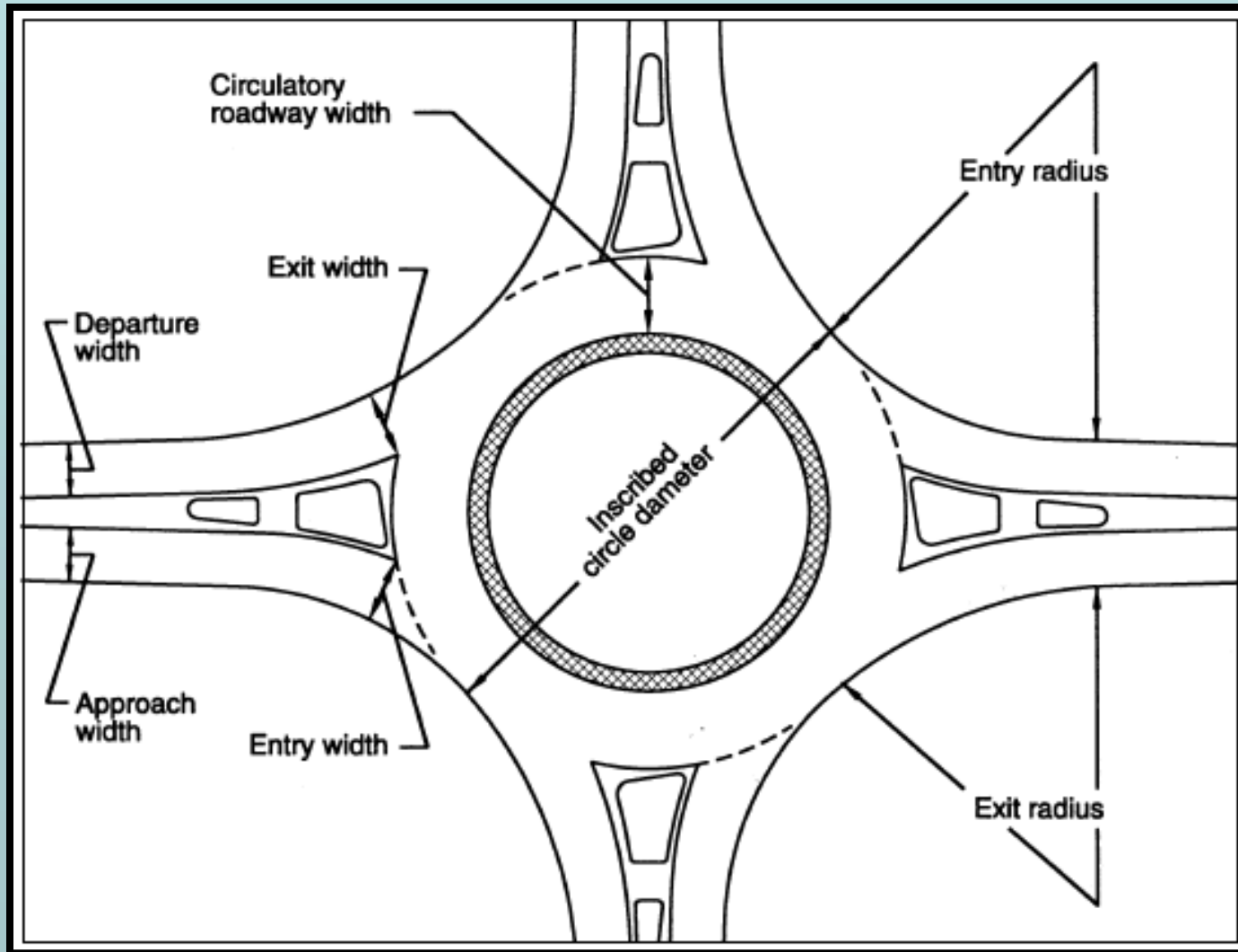


Other Traffic Circles



Key Roundabout Features

- Inscribed circle diameter
- Central island
- Splitter island



Pros and Cons

- **Pros**
 - Reduces delay
 - Shorter queues
 - Improves safety
 - Aesthetics
- **Cons**
 - Space requirements
 - Driver unfamiliarity
 - Grade requirements
 - Pedestrians

Planning

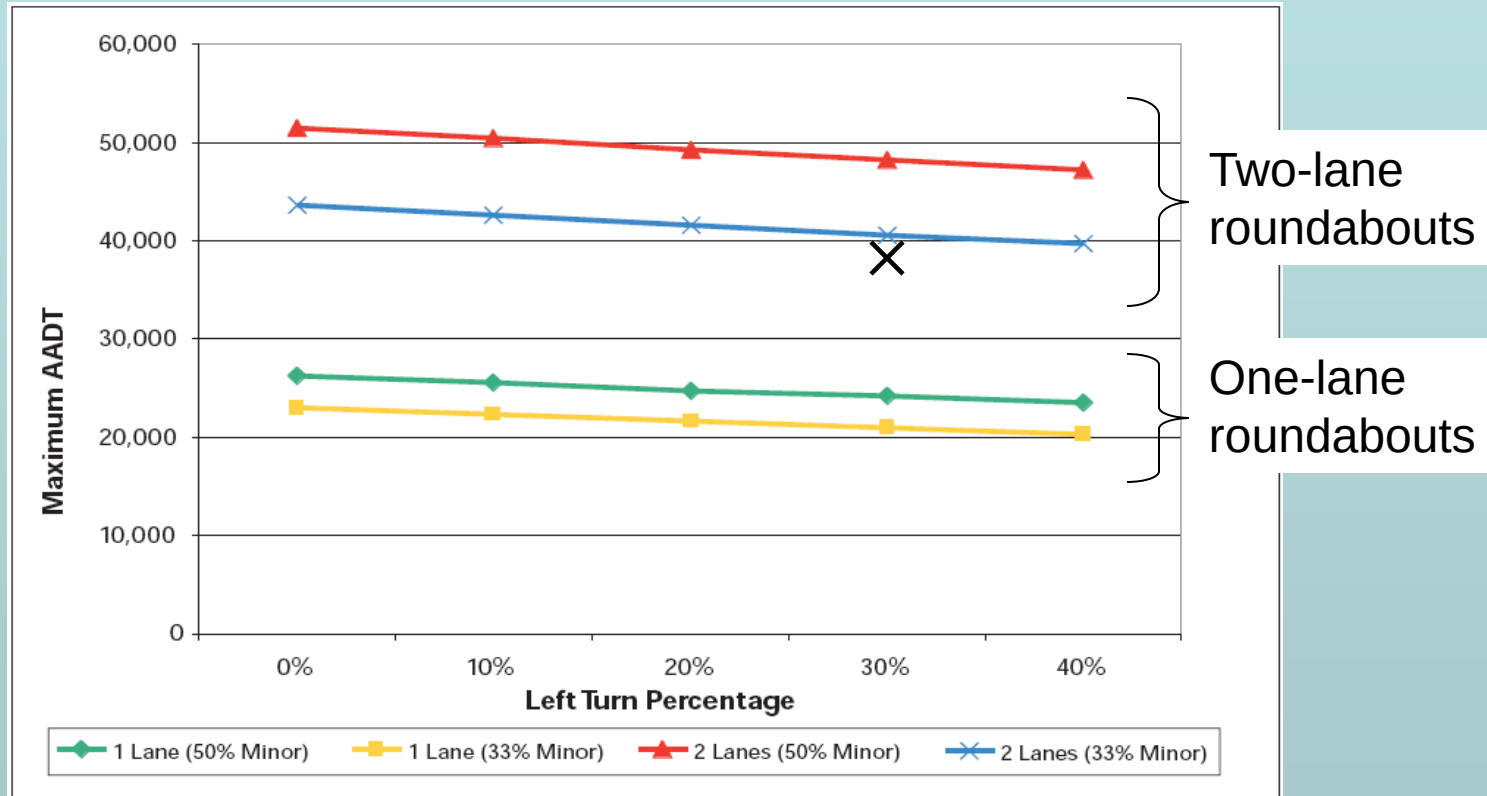
- Consider the context (context sensitive design)
- Determine design year traffic volumes
- Determine roundabout category
- Estimate space requirements
- Determine space feasibility
- Perform operational analysis

Context Sensitive Design

- Regional policy constraints
 - Safety
 - Aesthetics
 - Pedestrians and other users
 - Land Use Type
- Site constraints
 - Roadway speeds
 - Right-of-way

Design Year Traffic and Roundabout Category

Exhibit 3-1 From the FHWA Roundabouts: An Informational Guide)



- Design AADT = 38,000
- % Minor street volume = 50%
- Left Turn % = 30%
- ➔ Use 2 lane roundabout

Space Requirements

Exhibit 6-19 (FHWA Roundabouts: An Informational Guide)

Site Category	Typical Design Vehicle	Inscribed Circle Diameter Range*
Mini-Roundabout	Single-Unit Truck	13–25m (45–80 ft)
Urban Compact	Single-Unit Truck/Bus	25–30m (80–100 ft)
Urban Single Lane	WB-15 (WB-50)	30–40m (100–130 ft)
Urban Double Lane	WB-15 (WB-50)	45–55m (150–180 ft)
Rural Single Lane	WB-20 (WB-67)	35–40m (115–130 ft)
Rural Double Lane	WB-20 (WB-67)	55–60m (180–200 ft)

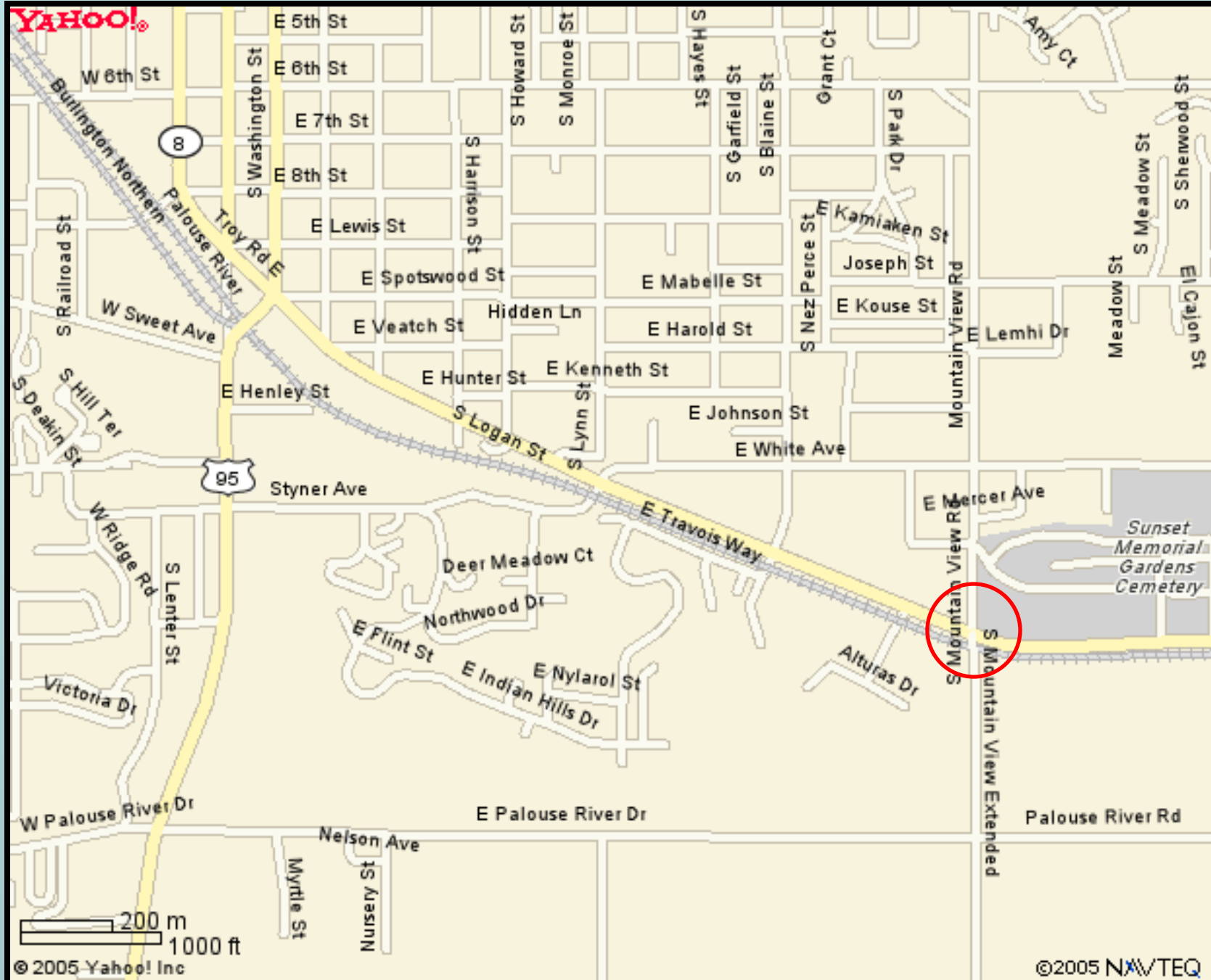
* Assumes 90-degree angles between entries and no more than four legs.

WB-15 (WB-50) = General Semi / Tractor Trailer

Example: State Hwy 8 and Mt View Rd

- Objective

With the available information and the general design parameters discussed in class, determine whether or not a roundabout is a feasible alternative for this intersection.



State Hwy 8 and Mountain View Rd

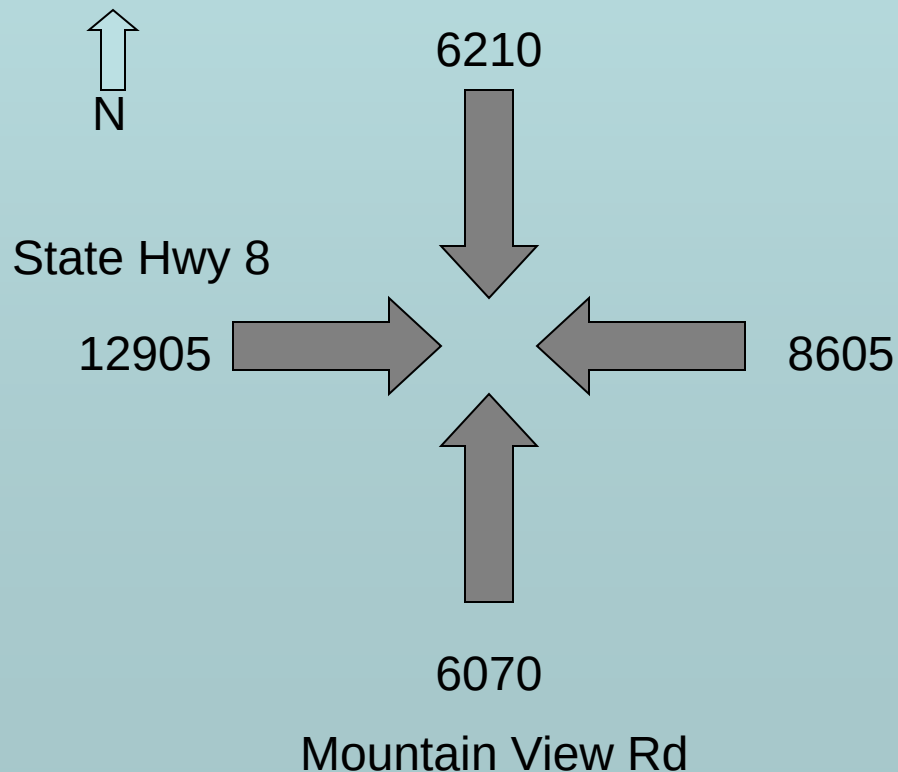


Consider the Context

- Entrance to Moscow and potential developments to the south
- Encourages speed reduction
- Very few pedestrians
- Urban setting
- Major through street with truck traffic

Predict Design Year Volumes

2025 Design AADT Entering Volumes



- **Total AADT for intersection**

$$12905 + 6210 + 8605 + 6070 = 33790$$

- **Percent minor street volume**

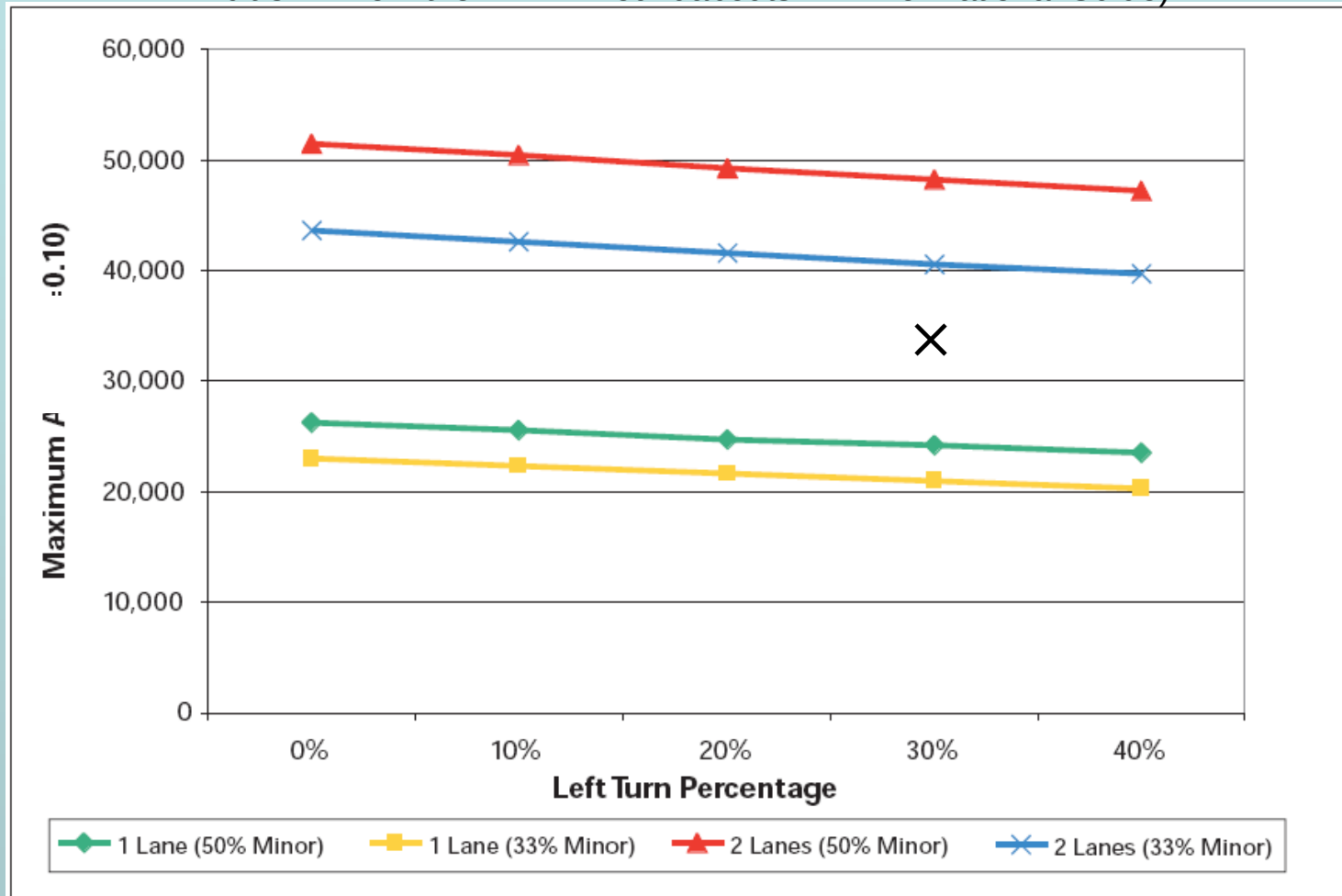
$$100 * (6210 + 6070) / 33790 = 36\%$$

- **Left-turn Percentage**

Assume 30%

Determine Category

Exhibit 3-1 From the FHWA Roundabouts: An Informational Guide)



• Design AADT = 33,790

• % Minor street vol = 36%

• Left Turn % = 30%

➔ Use 2 lane roundabout

Determine Size of Roundabout

Exhibit 6-19 (FHWA Roundabouts: An Informational Guide)

Site Category	Typical Design Vehicle	Inscribed Circle Diameter Range*
Mini-Roundabout	Single-Unit Truck	13–25m (45–80 ft)
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Rural Double Lane	WB-20 (WB-67)	55–60m (180–200 ft)

* Assumes 90-degree angles between entries and no more than four legs.

- Urban Area
 - Truck Traffic (WB-15)
 - Double lane
- ➔ Use an Inscribed Circle Diameter 150 ft – 180 ft

State Hwy 8 and Mountain View Rd



Perimeter Drive and Sixth Street



Sixth and Line Street

