A Tale of Two Roundabouts
Closely Spaced
Different Diameters

Rich Deal, PE, TE, PTOE
City of Monterey, CA
SR 1 SB Off Ramp
Hwy 68
Roundabout

SR 1 SB On Ramp
17 Mile Drive
Tear Drop
Existing Intersection - Signalized

- Multiple Agencies
- Steep Terrain
- Limited R/W
- Hospital Access
- Monterey Pines
- Coastal Zone

Pebble Beach
Main Entrance Gate
17 Mile Drive

Hwy 1 SB
Exit Ramp

Split Phase Signal
Offset Ramps

Narrow 2-Lane
Bridge

Hwy 1 SB
On Ramp
Congestion!
Signalized Intersection Alternative

Holman Highway 68 / Highway 1 Roundabout Project
PM Peak Hour Level of Service

Delay (sec)                          95% Q (veh)

SLRAB PM 2LRAB PM Signal PM

Opening Year 10 Year 15 Year 20 Year

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Holman Highway 68 / Highway1 Roundabout Project
Roundabout Geometry - Safety

1. Westbound - Merge
   - Downstream of Intersection

2. Southbound Exit – Lane Choice
   - Way-Finding Issues

3. Entry Angles - Visibility
   - View Angles

4. Eastbound Exit - Merge to Narrow Bridge
   - Merge Distance
   - Semi Truck Turns
Design Challenges
Original Concept Design

1 Westbound Merge

- Merging Thru Down-Stream Intersection
- Undefined Intersection
- Vehicular and Bicyclists Safety Concerns

Longer Merge Distance

Large RT Radius = Higher Speed, reduced ped safety
1 Merge Distance Improvement

- Defined Intersection Movements
- Simplified Driver Turning Decisions
- Safer

Tighter Radius = Slower Speed
125’ Merge Distance Req’d

Bike/Ped Crossing

Improved Bike Lane Delineation
Design Challenges
Original Concept Design

Southbound Way-Finding
- Compressed Decision Making Distance
- Lane Choice Complexity, signing issues
- Unnecessary dual RT lane
Design Optimization

Lane Choice Simplification

2. Intuitive Decision Making
2. Directional Priority Given to On-Ramp
2. Positive RT Turn to Pebble Beach
2. Ramp Speed
Positive Right Turn into Pebble Beach
Existing Hwy 1 SB On Ramp
45 mph
Tear Drop
20 mph
Entry-Exit Angle Design Issues

- Poor View Angle to Left
- Priority Confusion Leads to Merge Behavior
- Entry-Circulating Crashes
Entry-Exit Angle Design Improvement

- Improved View Angles (12 deg.)
- Sends Correct Priority Message
- Entering Yield to Circulating Traffic
Design Optimization - Challenges
Original Concept Design

Eastbound Merge to 1-Lane Bridge Issues

- Very Short Merge Distance
- Lane Utilization

Truck/Freight Concerns?
Design Optimization

4 30' Longer Exit Merge Distance (30mph)

Effective Lane Utilization = Full Capacity
Merge Distance Example

130'

Holman Highway 68 / Highway1 Roundabout Project
Merge Distance Example
Merge Distance Example (Video)
Trucks and Buses
Funding Partners

- Pebble Beach Company
- Transportation Agency for Monterey County
- Monterey Regional Air District
- City of Monterey
- City of Pacific Grove
- County of Monterey

$10,720,000 Total Project
NO STATE OR FEDERAL DOLLARS
Public – Private Funding
Decorative Retaining Walls
Construction Scheduling

Special Events

- Concours d’Elegance: 8/10-16
- First Tee Open: 9/22-27
- AT&T National Pro-Am: 2/8 - 14
- Food and Wine: 3/31 to 4/3
- Feast of the Lanterns: 7/23-27
- The Little Car Show: 8/13
- Auto Rally and Auctions: 8/15
- Triathlon at PG: 9/12-14
- Lighthouse 5k and Kids 3k: 11/15
- Big Sur Half Marathon: 11/16
- 58th Annual Good Old Days: 4/11-12
- Double Road Race: 5/10
Remove Ramp
Friday
Pave Ramp Saturday
Run Sunday Morning
Environmentally Superior
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Holman Highway 68 / Highway1 Roundabout Project
Simulation – 2035 with Roundabout
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Flat Entry Angle
Design Optimization – View Angles

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Friday
Pave Ramp Saturday
Run Sunday Morning
Environmentally Superior
Questions?
Smaller Project Footprint
Pedestrians and Bikes

LEGEND

- PEDESTRIAN/BICYCLE FACILITIES OUTLINE
- PEDESTRIAN/BICYCLE PATH
- BICYCLE LANE
- BICYCLE/PEDESTRIAN RAMP
- CROSSWALK
- PROPOSED IMPROVEMENTS

Holman Highway 68 / Highway 1 Roundabout Project
Guide Signing
Guide Signing
Guide Signing
Questions
How-To-Navigate

Pebble Beach to CHOMP/PG:
https://www.youtube.com/watch?v=01emwcPsUYq

Highway 1 South to CHOMP/PG:
https://www.youtube.com/watch?v=e3mAeuxqB5q

Highway 1 South to Pebble Beach:
https://www.youtube.com/watch?v=APXfmOvsHDA