

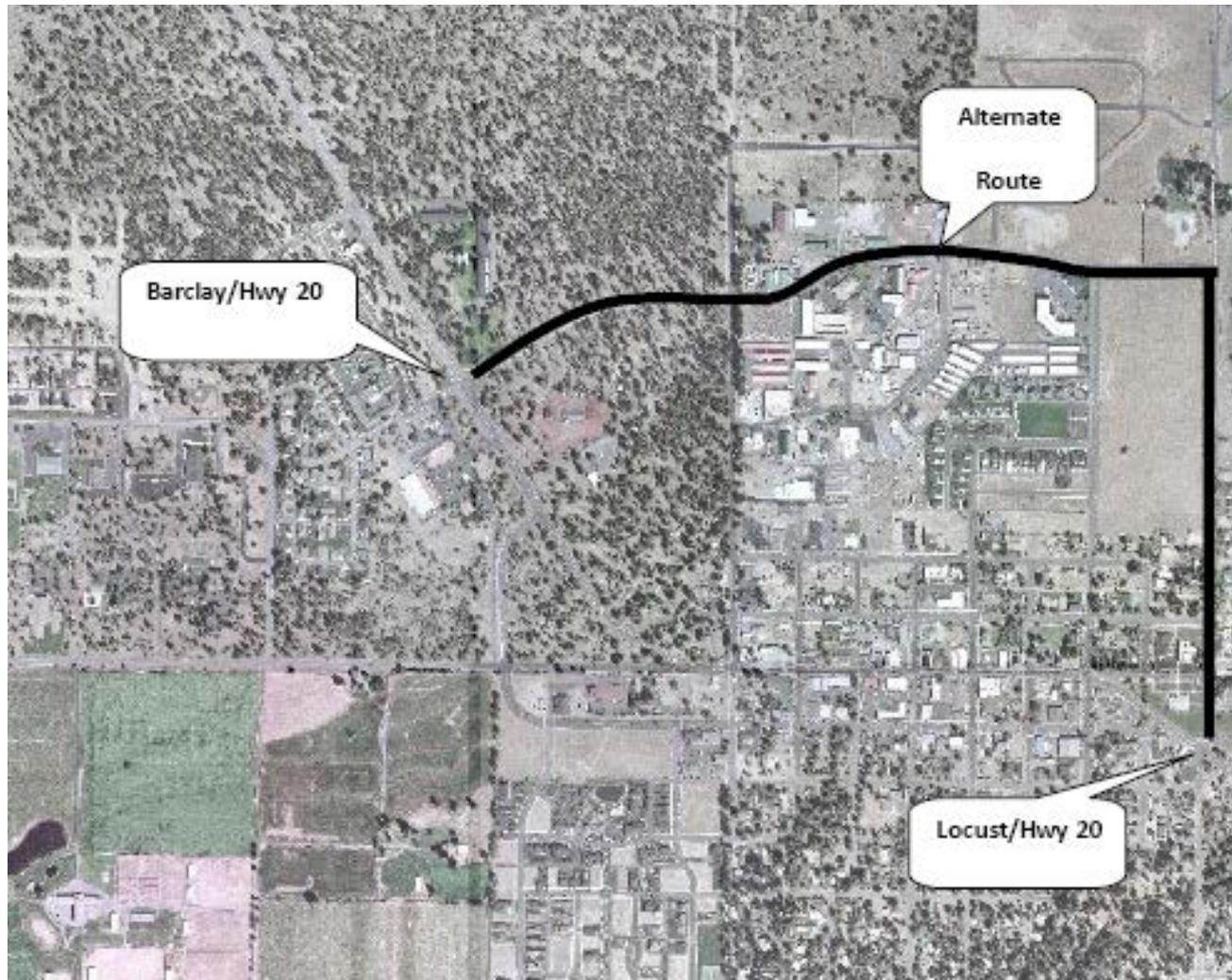
US 20/Barclay Intersection Improvement



2013 Transportation Engineering Conference

September 24, 2013

System Context



Intersection Context



Timeline

- 2008 – Memo from STE requiring consideration of roundabouts
- 2010 – Signal identified in Sisters TSP for US 20/Barclay Drive. Option to study the feasibility of a roundabout.
- 2011
 - Presentation to MCTAC on roundabouts.
 - City of Sisters begins a roundabout feasibility study.
 - Legislation proposed prohibiting roundabouts on freight routes on the State highway system.
 - As a substitute measure, ODOT Director Garrett calls for a moratorium until the issue of roundabouts on the state system can be studied.
 - Sisters community survey/workshop indicates over 95% of respondents support roundabouts.
 - ODOT agrees to allow the Sisters to proceed with the US 20/Barclay evaluation as a City-supported, pilot project.

Timeline

- 2012
 - City ‘summits’ with ODOT and OTA regarding US 20/Barclay roundabout concerns relative to the Cascade Avenue project.
 - Agreement is reached to de-couple the US 20/ Barclay improvement from the Cascade Avenue project.
 - ODOT moves US 20/Barclay into project development stage.

- November 2012
 - STE issues directive allowing consideration of roundabouts.
Requires:
 - Design to not impede freight, including evaluation of O-D vehicles
 - Coordination with freight industry on design issues
 - Documented agreement prior to construction
 - Updates to manuals/guidelines

Freight Accommodation vs. Design



Initial Design Vehicle Assessment

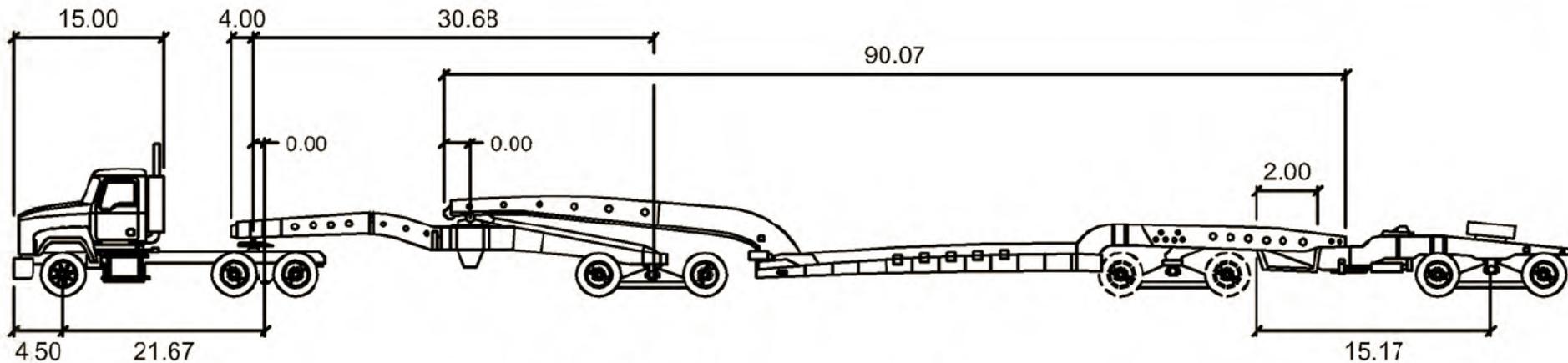
- **Alternate Route Movements**
 - Palm Harbor modular home transport
- **All other movements**
 - WB-67
- **Over-dimension Considerations**



Accommodation Vehicle

- **The accommodation vehicle was based on previous loads that had used the route.**
 - The 154' booster is a common over length trailer
 - 20' wide loads had used the route. The accommodation load is 22' wide about 10% wider than anything in recent memory.
- **Also looked at how the Palm Harbor 'B' would be accommodated because that size of load would be more common and more likely to make the “left turn.”**

Over-dimension Design Vehicle



Boost_Config_154

feet

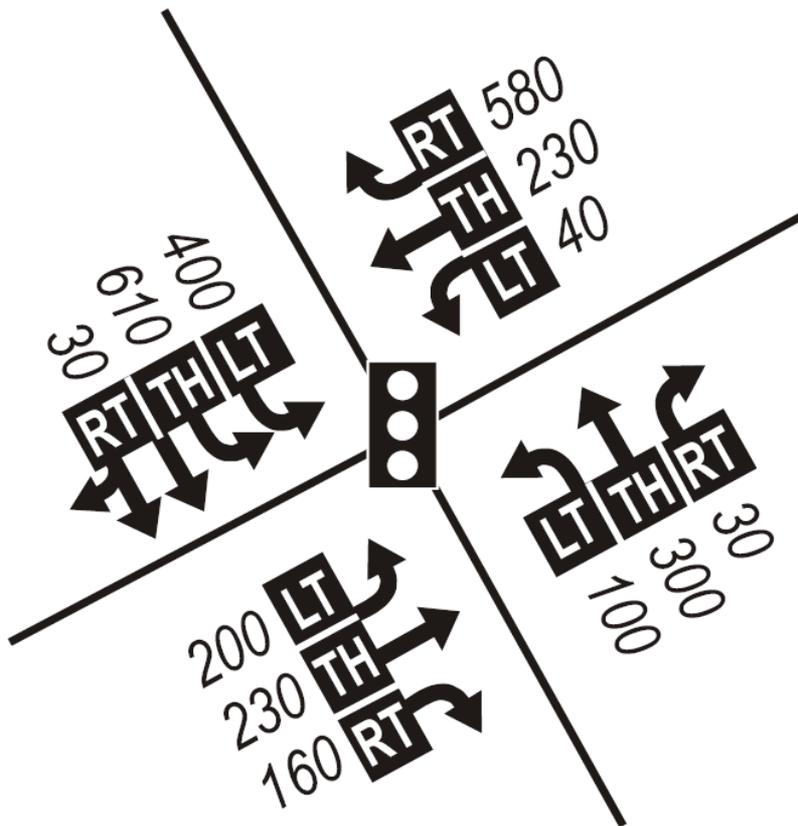
Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 4.00	Steering Angle	: 40.0
Tractor Track	: 8.67	Articulating Angle	: 70.0
Trailer Track	: 8.67		

Alternatives Considered

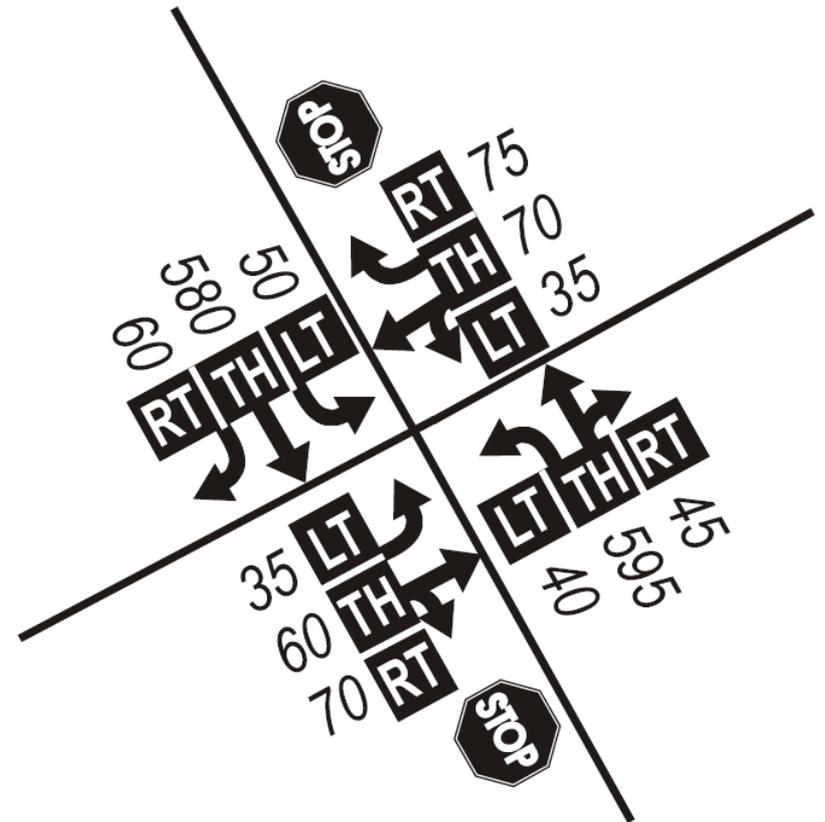
- **Interim Roundabout Alternative**
- **Long-term Roundabout Alternative**
- **Signal Alternative**

2010 TSP Design Volumes (30th Highest Hour)

2030 Forecast Volumes



2006 Volumes



Long-term Roundabout Alternative



2036 V/C Ratios

NB = 0.63

SB = 0.81

EB = 0.90

WB = 0.89

Interim Roundabout Alternative



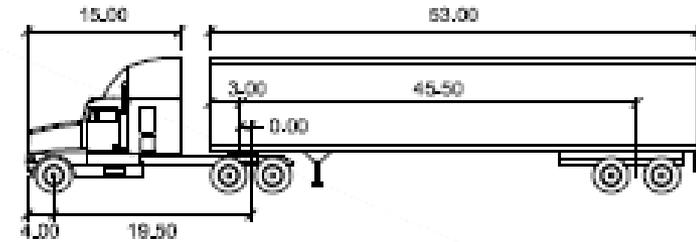
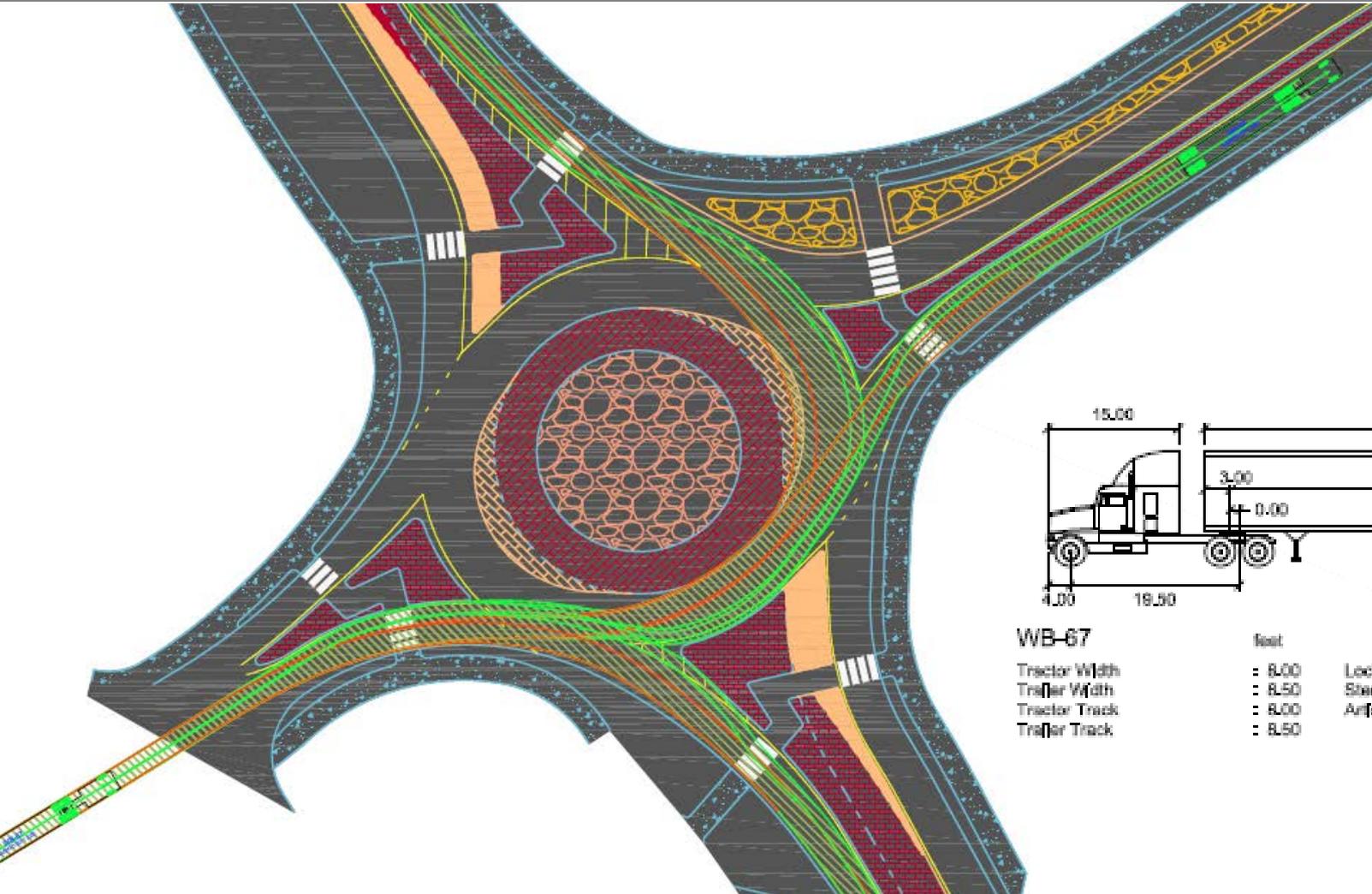
Accommodates
growth through
2026

Signal Alternative



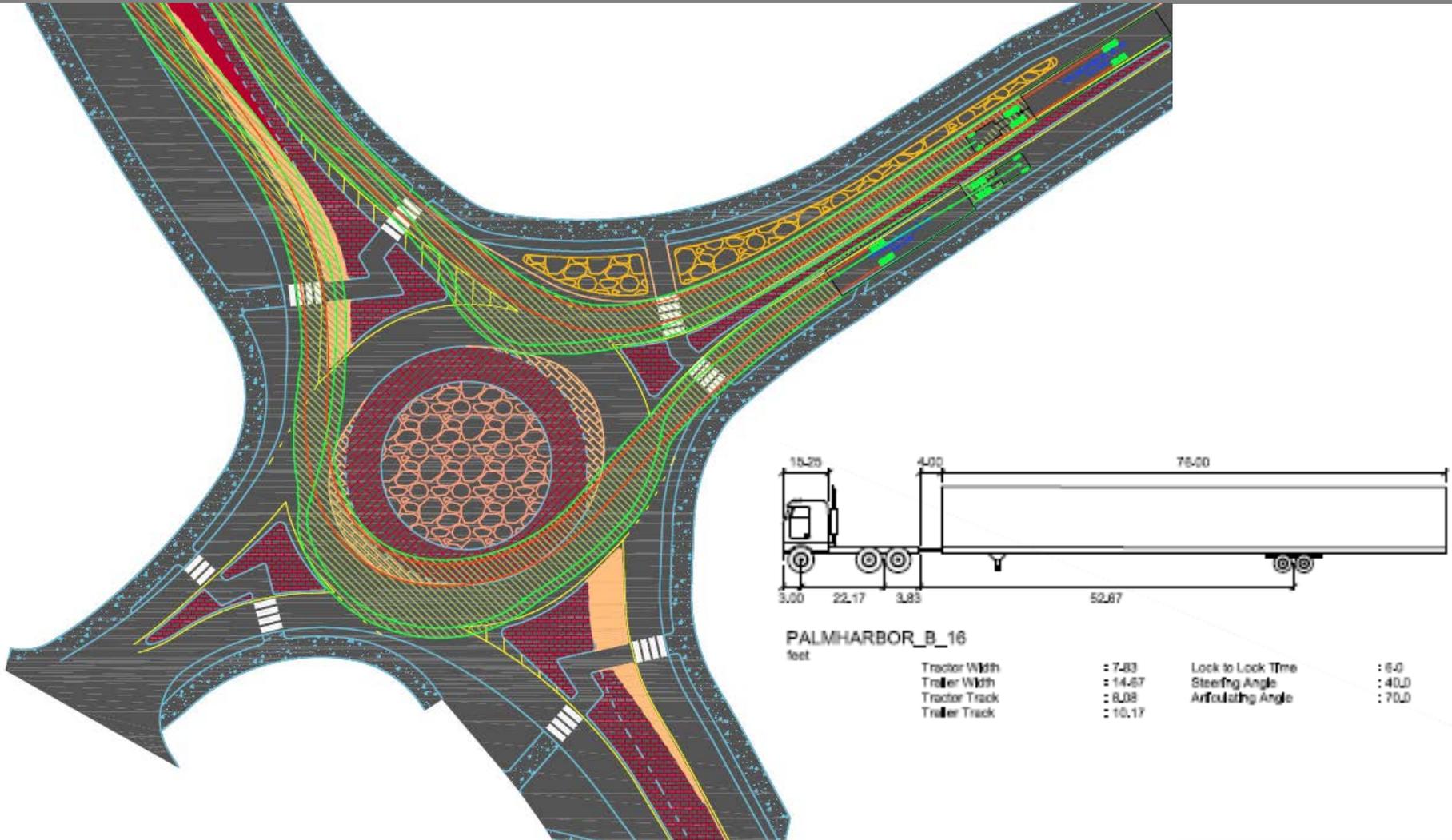
2036 V/C Ratio
= 0.76

WB-67

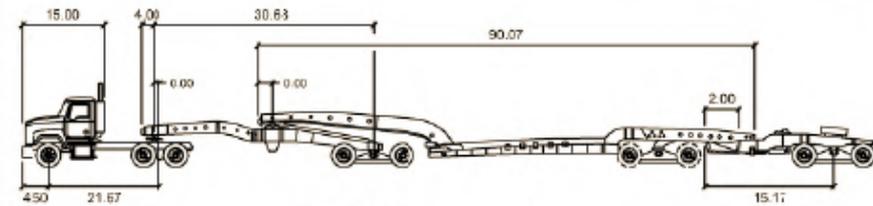
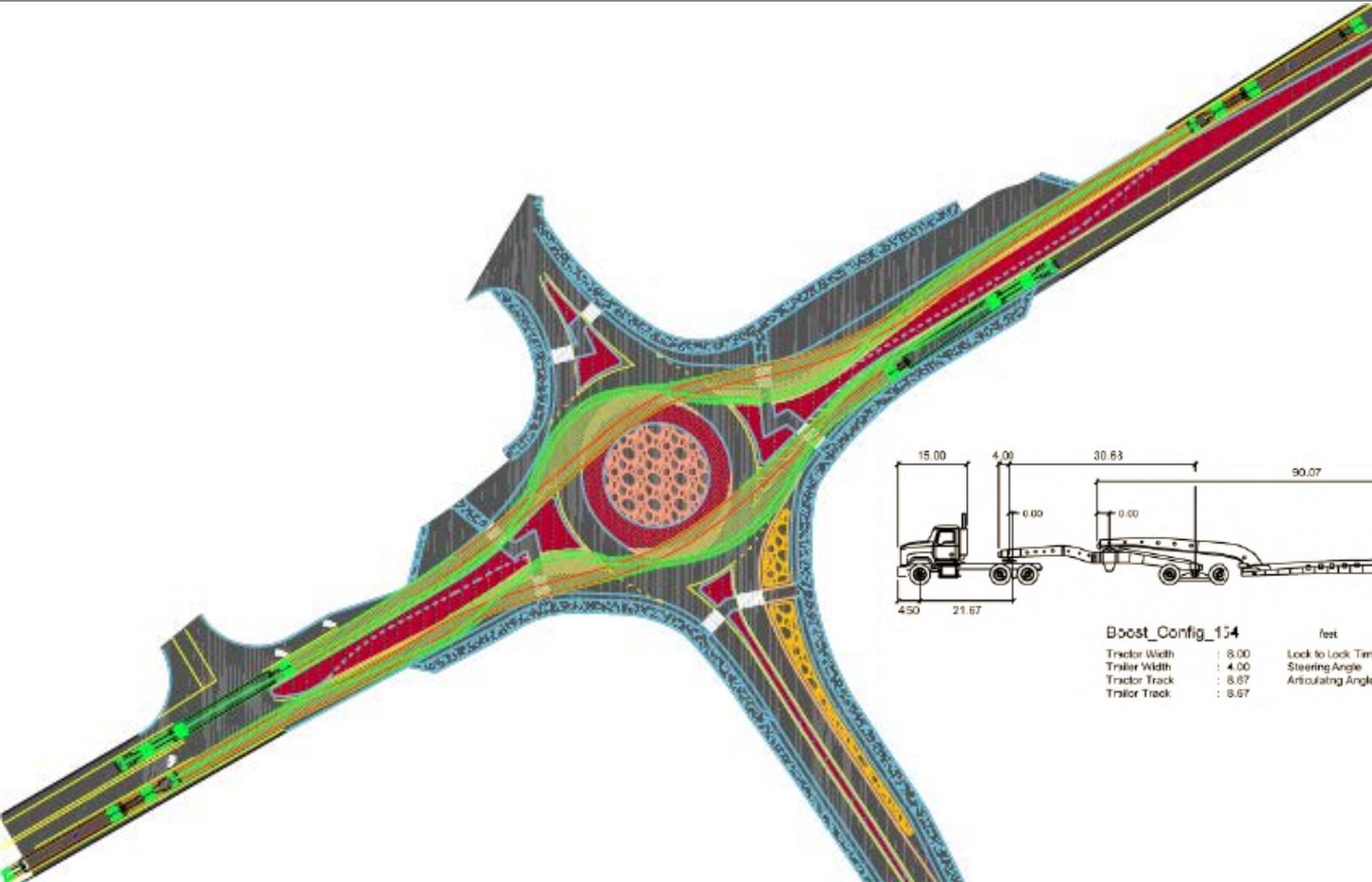


WB-67		feet			
Tractor Width	:	8.00	Lock to Lock Time	:	8.0
Trailer Width	:	8.50	Steering Angle	:	28.4
Tractor Track	:	8.00	Articulating Angle	:	75.0
Trailer Track	:	8.50			

Modular Home Transport



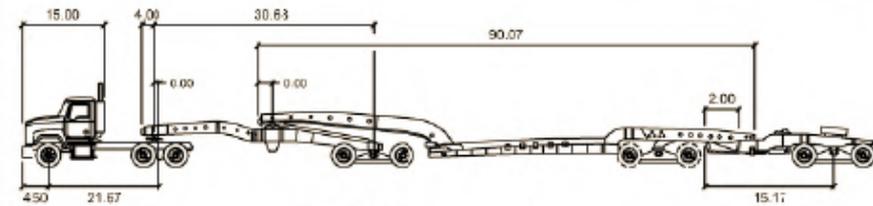
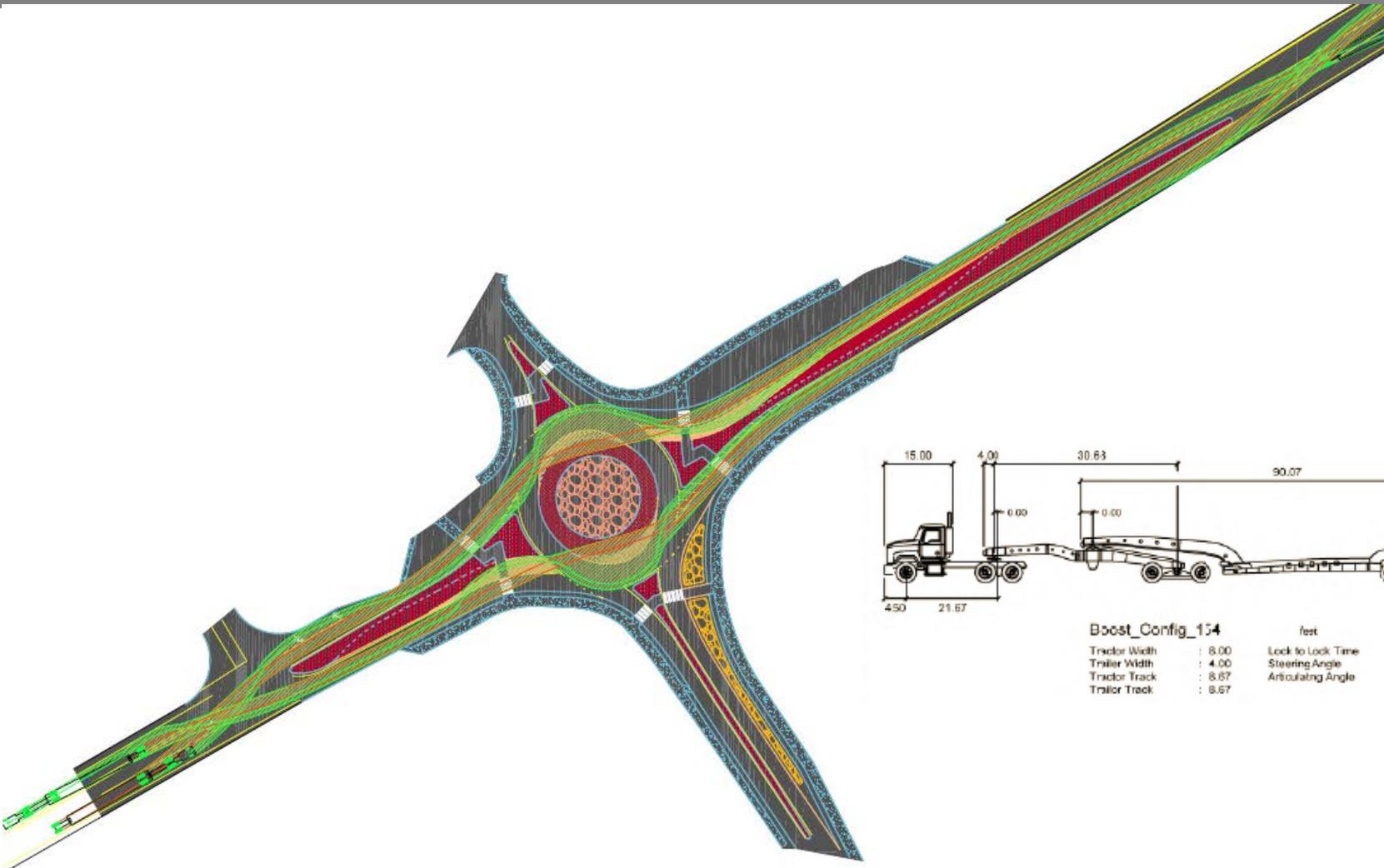
Booster (154')



Boost_Config_154

		feet	
Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 4.00	Steering Angle	: 40.0
Tractor Track	: 8.67	Articulating Angle	: 70.0
Trailer Track	: 8.67		

Booster (154') – Reverse Flow



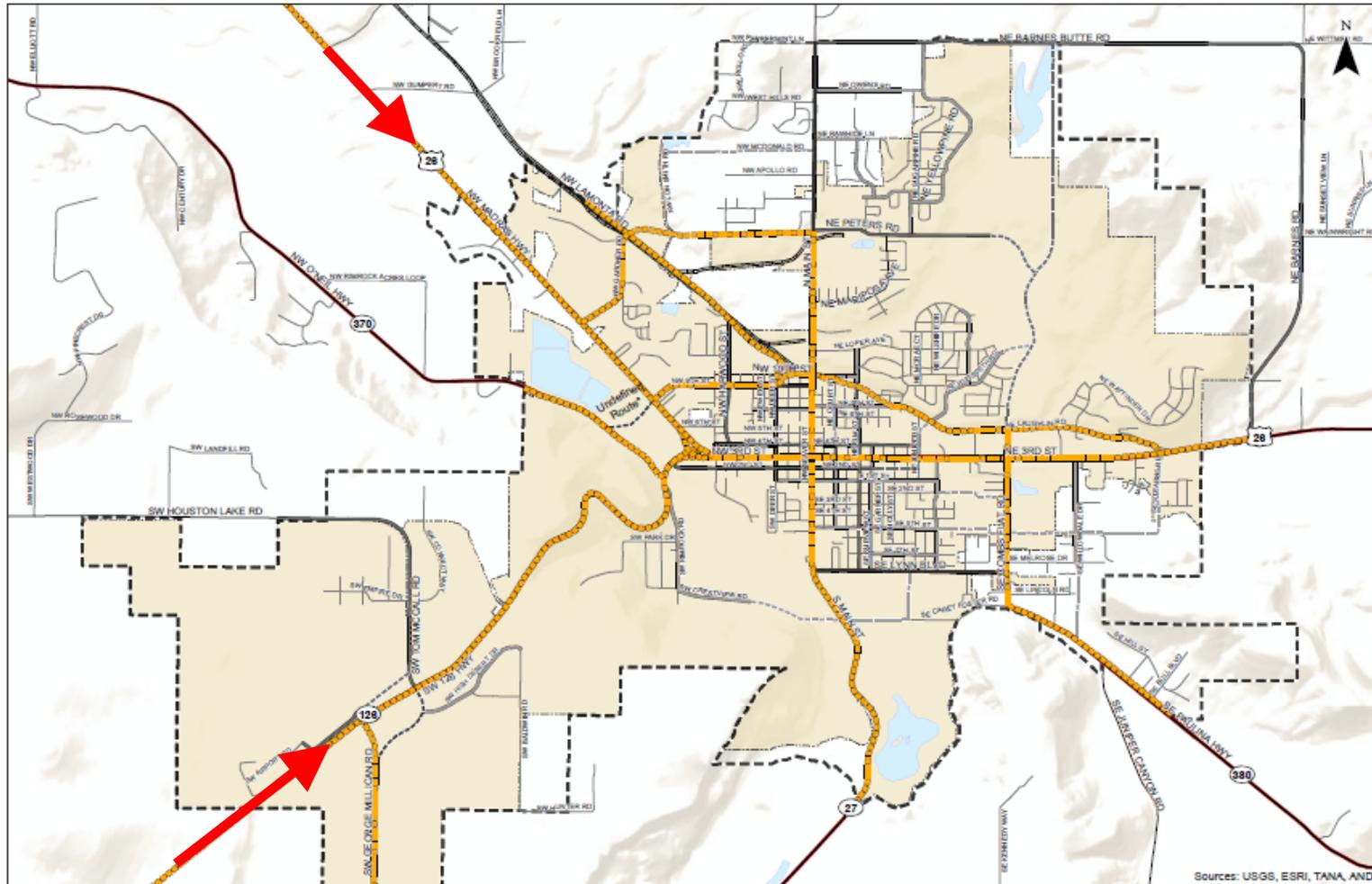
Boost_Config_154

		feet	
Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 4.00	Steering Angle	: 40.0
Tractor Track	: 8.67	Articulating Angle	: 70.0
Trailer Track	: 8.67		

What's Next

- **Develop detailed design using research from pooled fund study**
 - Evaluate slope and height of truck aprons
 - Review off-tracking for sign and luminaire placement.
- **OR 126 at Tom McCall Road in Prineville**

Design Context - Over Dimensional Loads



Design Context – Is this urban or rural?



Design Concept



Accommodation Vehicle

- **Between 2007 and 2012 there were between 180 and 330 over dimensional loads that used OR 126 to access Millican Road**
- **The widest load was 22'.**
- **The longest load was 267'.**