Innovative Intersections
Place Making Ways to Drive Slower, but Travel Faster!

Mike Brown, PE, AICP
Principal, Metro Analytics
mbrown@metroanalytics.com
3% Strategy

Accommodate 33% of Future Development on 3% of the Available Land

- 10-15% less VMT
- $8.8 Billion saved!
• TOD reduces VMT!
• But it also increases localized activity.
The Complete Street Conundrum…

Road diet? How?

Engineers under public pressure

Sustainable planning community
What if the same cars could drive slower, but travel faster, using fewer lanes?
Innovative, Alternative Intersections

Moving Traffic *and* Making Places

Drive slower, *but travel faster* through Complete Street Places!
traditional signals have four phases
innovative intersections have fewer phases...

leaving more time to move!
more green time

4 phase signal cycle times

- 24% of time for lefts
- 10% of time for through
- 6% of time for through

60% of time for through

75% - 80% of traffic gets only about 60% of time

innovative 2 phase signal cycle times

- 6% of time for lefts & through
- 4% of time for lefts & through
- 90% of time for lefts & through

100% of traffic gets 90% of time – no waiting for left turns
lane capacity comparison

30-60% Higher!
The Key to Win-Win
CFI – Continuous Flow Intersection

Great Place-Maker?

NO WAY !!!!
Quadrant Intersections

QuadrantIntersections.org

win-win-win for traffic, transit, & land use
Quadrant: “Three Rights is a Left”
Thru-Turns
Aesthetically appealing, people & transit friendly, high capacity

ThruTurnIntersections.org
**UTA’s 5600 West BRT**

### Intersection Operations

<table>
<thead>
<tr>
<th>Scenario</th>
<th>PM Delay (sec) / LOS</th>
<th>% Traffic Served</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010 Existing</td>
<td>65 / E</td>
<td>100%</td>
</tr>
<tr>
<td>2030 No Build</td>
<td>357 / F</td>
<td>59%</td>
</tr>
<tr>
<td>2030 Two Leg MUT</td>
<td>74 / E</td>
<td>98%</td>
</tr>
<tr>
<td>2030 Four Leg MUT</td>
<td>47 / D</td>
<td>99%</td>
</tr>
</tbody>
</table>
Thru-Turn Systems

- Supports TOD
- Less Delay
- More frontage with high-volume visibility

Current Design: 2 minutes
Target: 2030, 26 seconds

Town Center Intersections: Hot New Design for Transit Oriented Mixed Use Centers

Completed Town Center Intersection: Elfin Forest Hwy & San Elijo Rd., San Marcos, CA

Designed by Calthorpe Associates

TownCenterIntersections.org
They’re HOT!

But not new...

Just newly rediscovered...
16th Street Shuttle: 50,000 riders/day!

Town Center “Triplet” makes 16th Street possible.
Denver 16th Street Mall, Streetscape
Stapleton, CO!
Palm Springs Town Center!
Excellent example of high volumes of traffic mixing well with a great pedestrian environment.
Congestion is coming to Downtown Las Vegas... 😨

They can have less congestion, and an even better place! 😊
TCI’s, Kennecott West Bench
Boise’s High-Volume, Innovative Intersections Study
town center
concept
3900 South
Sponsored Sites

- AlternativeIntersections.org
- TownCenterIntersections.org
- QuadrantIntersections.org
- ThruTurnIntersections.org
- Roundabouts.org
Sponsored Sites

- ContinuousFlowIntersections.org
- DivergingDiamond.org
- LightRailSystems.org
- PlanningForBikes.org
- CrazyPlaces.org
Alternative Intersections - Drive Slower, Travel Faster!

Have you ever been stuck blocks away from a busy intersection, then inched forward watching the light ahead turn green and red several times before you even reach the front of the line?
Coolest, Craziest Places on Earth!

Ship among skyscrapers?

Notorious “Spaghetti Bowls”

Gun Lake?

“The Magic Roundabout”

CrazyPlaces.org
different is good!

Today's problems cannot be solved by the same level of thinking that created them
-- Albert Einstein
Extra Slides
innovative intersections
a tool for avoiding Big Digs!
Which is Faster?

A: The Hare?
* Race at 45 mph...
* Darn! Red. Wait 2 minutes...
* Hurray, Green! 😊
* Darn, nobody’s moving 😞
* Darn... red again, and I didn’t get through! 😞

B: The Tortoise!
* Smooth and steady at 25 mph...
* Darn, Red. Wait 1 minute...
* Hurray, Green! 😊
* Hurray, I got through! 😊
UTA’s 5600 West BRT

4100 South & 5600 West

innovative OPPORTUNITIES

- Standard Capacity Improvements
- Median U-Turn (2 Leg on 5600 W Corridor)
- Median U-Turn (2 Leg on 4100 S Corridor)
- Median U-Turn Intersection (4 Leg)
- Quadrant Intersection (SW/NE Corners)
- Jug Handles (4 Corners)
Midvale, UT

- Transit Oriented Design Opportunity
- Poor Traffic Flow – too much for State Street to do
Midvale, UT

- Flows much better
- Frees space for quality streetscape
- New frontage to encourage TOD redevelopment
Everywhere, USA

- Your freeway already has 14 lanes
- 30-year forecasts say demand will increase 50%.
• What do engineers think they need to do?
  ▪ Mega-billion “Big Digs”
What does sustainability suggest we should do?

- Congestion Pricing
- Better Flowing Arterials
- Transit / TOD
- Telecommuting
Thought Experiment – Why do short trippers take the freeway?

So what IS the problem?

What do engineers THINK is the problem?
Blue path rebuilt as Livable Corridor with Innovative Intersections
Great Buildings on Main!

5-lanes existing... nothing but traffic! 😞

3-lane couplets... room for BRT & Complete Streets! 😊

Logan, Utah (How it could be...)